האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Racah Institute of Physics

Self Evaluation Report for year 2006

Written by

Prof. Jay Fineberg- Head of the Racah Institute

and

Prof. Bill Glaberson- Chairman of the Physics Studies

February 2007

Table of Contents

1. The Racah Institute - introduction and background

The Racah Institute of Physics (RI) was the first Physics department established in Israel and most of the leaders in Physics in Israel are its graduates. Physics, as a discipline in Israel, was established in a 1931 meeting of the board of governors of the Hebrew University in Zurich. At the time, it was decided that a "course of general physics will be given as a secondary subject towards an academic title". The Racah Institute of Physics is named in memory of Prof. Giulio Racah. Racah, who has been called the "Father of Theoretical Physics in Israel", was a pioneer on the use of symmetries in quantum physics and atomic spectroscopy. Joining experimental physicists Samuel Sambursky, Ernst Alexander, and Gunter Wolfson, Racah was recruited by the Hebrew University to establish the first chair of theoretical physics in the country. His recruitment culminated a five year search in which physicists of the caliber of Eugene Wigner and Felix Bloch were considered. Racah, who passed away in 1965, was the recipient of numerous honors and the fruits of his research are still relevant today. Since its establishment, the Institute has seen its role as a dual one, to strive for excellence in basic research and to provide both undergraduate and graduate level education at the highest level possible. The "hands-on" education necessary to produce top M. Sc. and Ph. D. graduates can only be produced by a research university with a high-level research program. This education is no less important than the research itself.

Leadership of the Institute

The Racah Institute is directed by the head of the Insitute. The Institute leadership is shared by the chairman of the department, an additional faculty member who is responsible for the Physics studies Both the head and chairman are professors in the Institute and are elected by the Institute's faculty for 3 year terms. The functions of the chairman of the department are: responsibility for the course curricula, placement of the teaching staff in the courses, approval of all examinations and grades, and on-going contact with both undergraduate and graduate students. The head of the Institute is responsible for the research side of the Institute. He/she is responsible for the Institute's academic development, recruiting, and infrastructure. He/she is also responsible for all administrative functions and the Institute's non-academic staff. The head of the institute is advised by both the chairman of the department as well as a steering committee, composed of senior representatives of each of the major research groups. Major changes in policy and/or the studies curriculum are discussed and ratified by votes taken at faculty meetings, which generally take place twice a year.

Recruiting Procedures

New recruits are selected according to both their individual excellence in research together with their fields of expertise. Initially, an evaluation committee, consisting of representatives from every research discipline within the Institute, must rank each potential candidate according to his/her overall achievements. This initial ranking is independent of the specific needs of the Institute according the the candidates' overall excellence. Once this ranking is performed, the Head of the Institute, in consultation with the Institute's steering committee, decides which of the highest ranked candidates to attempt to recruit. This decision reflects both the level of the candidates as well as the Institute's needs and directions of development. These candidates are then presented to the Faculty of Science committees for further evaluation.

It is our Institute's policy to maintain excellence in a broad range of different sub-fields in Physics. Although any of our faculty has the expertise to teach basic courses, this guarantees that we will have the ability to provide high-level courses in a broad range of subfields. In this sense, our research policy is directly reflected in our teaching staff. To facilitate their teaching, new faculty are offered short courses in teaching techniques and the department nominates a "mentor" – a successful and experienced colleague who is asked to monitor and guide the newer recruit in teaching. New faculty are hired for a trial period of four to six years. In addition to the quality of

their research, their performance as teachers is one of the criteria used to determine their acceptance as tenured members of the University staff. The level of a faculty member's teaching also affects promotions. It is not rare that promotions are held up or even not awarded if the faculty member in question has a poor teaching record.

2 Research Activity in the Racah Institute

Overview of Research

In the Racah Insititute most of the junior researchers are graduate students (over 100 in number) with relatively few post-doctoral researchers (more on this later). The Institute strives to present a balanced research program, in which a broad spectrum of research directions is represented.

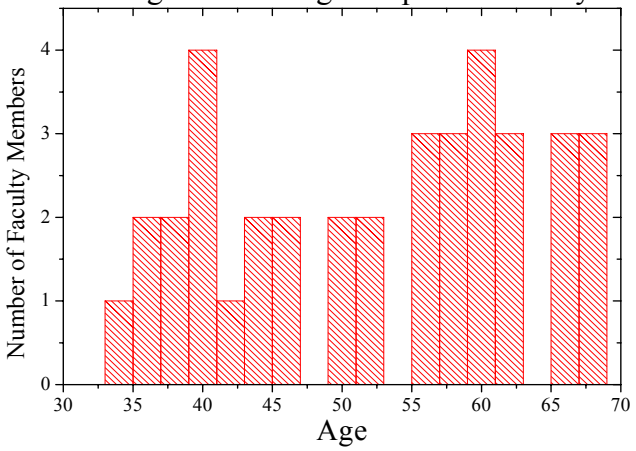
Historically, the Institute was a leader in nuclear physics over the 1960's and 1970's and in condensed matter and statistical physics from the late 1970's and throughout the 1980's. With some notable exceptions, the level of the research activity in the RI declined from the mid-1980's until the mid to late 1990's. A major reason for this was due to demographics, as detailed below. Over the last decade, the RI has been in a gradual rebuilding process. Significant progress has been achieved. The research program within the Institute is currently at a high level, which is expected to further improve as the rebuilding further progresses.

The structure of this section is as follows. We will start with general information about the department. This includes a brief historical survey of the recruitment history of the Racah Institute over the last few decades, analyzing the current research program in this context. We will then proceed with a brief critical analysis of each of the current research groups within the institute.

Demographics

By October of 2007, the Racah Institute will be (with two new recruits joining us) composed of 37 faculty members. This number is one or two less than the target number of faculty members for Physics, as set by the university. A histogram of the age distribution of the faculty members is presented in Fig. 2.1. As is evident in the figure, the age distribution of the department is skewed toward the early and late 60's with significant gaps from the mid 40's until the mid 50's. There are two apparent reasons for this. There was a significant downsizing of the department that occurred during the 1980's. During this time the size of the department was pared from over 50 members to its present size. In addition, during the mid-1970's a number of relatively senior people joined the Institute, both from the Soviet Union and Europe in the 1970's and early 1980's and, over the mid to late 1980's, from other institutions within Israel. This, coupled with the downsizing that was initiated in the 1980's, caused relatively few young faculty to be hired over this period. Thus, there is a relative gap in faculty aged 45-55, with a small window at age 50 which reflects a single year (1992) in which 4 young faculty were recruited.

Figure2.1. Histogram of the ages of present faculty members.



The gap in the faculty aged 45-55 is even more pronounced when only experimentalists are considered (Fig. 2.2). This gap has two reasons: between 1980-1992 only a single young experimentalist (who did not receive tenure) was hired. During this period, four senior experimentalists (still currently on the faculty) were hired, thereby only joining the RI at ages ranging from 41-50. After hiring 2 young experimentalists in 1992, *no* additional experimentalists were recruited from 1993-2003. It is only in recent years that the Institute has acted to rectify this gap by actively recruiting experimental physicists. We have successfully hired 6 young experimentalists over the past 4 years (including two new experimental recruits to join us in October of 2007). This action, however, has been made extremely difficult by recent financial constraints imposed upon the University, as the initial cost of setting up a new experimental group is typically between $600,000 – $1,000,000.

Figure 2.2. Histogram of the ages of Experimentalists within the Racah Institute

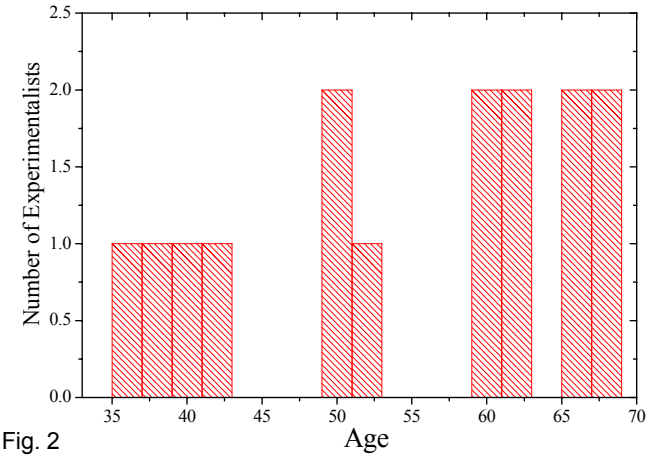


Fig. 2

The correlation between the faculty ages and the relative decline in the institute's research activity during the mid 1980's to mid 1990's is evident. It is the intention of the RI not to repeat this error and endeavor to achieve a relatively flat age distribution. This will ensure both a healthy age gradient within the institute as well as a healthy "pool" of people from which to utilize the faculty for leadership and administrative tasks. To accomplish this, we will need to consistently recruit 1-2 new faculty members per year, with a significant percentage of these experimental physicists.

The Jerusalem Effect: Over the years the Racah Institute has had not only to compete with the other Physics departments in the country, but also with what we euphemistically call the "Jerusalem effect". The geo-political and demographic situation within Jerusalem is, for many potential faculty candidates and top students, a non-trivial obstacle to overcome. This effect is at times a deciding factor in the competition for the top young faculty recruits in the country, in attracting top post-doctoral candidates, and in our efforts to retain the best students for graduate school.

Current Research

The research activity of the Institute can roughly be classified into the following research groups: Astrophysics and Cosmology, Condensed Matter Physics, Cross-Disciplinary and Nonlinear Physics, General Physics, and Nuclear and High Energy Physics. A detailed description of each of these groups will follow. In this description we will attempt to provide as objective an account of our research program as possible. To this end, we provide (in each group) a table with the following data for each faculty member: Age, number of years in the RI, number of students, current level of funding, number of publications in the last 5 years, total number of publications, total number of "high-end" publications, total number of publications with at least 10 citations.

The last two categories were gleaned from the ISI Web of Knowledge. For each sub-group, the "high-end" publications were determined (via their Impact Factor) by the journals with the highest impact factors in each of the specific fields. These journals, together with their impact factors, are

listed in Table 1. For reference, we also provide the total number of publications in each journal published by members of the Racah Institute over the last five years.

Table 1: Leading journals in each subfield together with the total number of publications by the RI over the last 5 years.

Journal	Impact Factor	Field	Number of RI publications 2001-2006
Physical Review Letters	7.2	Multidisciplinary	72
Nature	32	Multidisciplinary	13
Science	31	Multidisciplinary	4
Physics Reports	14.7	Multidisciplinary	1
Reviews of Modern Physics	33	Multidisciplinary	1
Applied Physics Letters	4.3	Applied Physics	16
Physical Review A	2.9	Atomic Physics	44
Physical Review B	3.1	Condensed Matter	86
Physical Review C	3.1	Nuclear Physics	23
Physical Review D	5.2	High Energy	29
Physical Review E	2.3	Nonlinear and Math. Physics	48
Physics Letters B	4.9	Nuclear and High Energy Physics	10
Nuclear Physics B	5.8	High Energy	10
Nuclear Physics A	2.1	Nuclear Physics	24
JHEP	6.5	High Energy	34
J. of Cosmology and Astro-particle Physics	7.9	Astrophysics	5
Astrophysical Journal	6.2	Astrophysics	84
Astronomical Journal	5.8	Astrophysics	5
Monthly Notices of the Royal Astron. Soc.	5.2	Astrophysics	48

Detailed descriptions of the research groups within the Racah Institute

Astrophysics and Cosmology

Faculty Member	Invited talks (years)	Papers With > 10 Citations	"High-end" Papers	Total Papers	Papers 2001-6	Students	Grants 2005 (K$)	Years at RI	Age
Jacob Bekenstein	11 (4)	53	71	82	18	1	21	16	60
Avishai Dekel	25 (5)	82	94	101	26	3	110	20	56
Tsvi Piran	6 (1)	112	105	203	42	6	124	25	58
Nir Shaviv	11 (3)	18	25	37	13	4	66	5	35
Re'em Sari	**New recruit**								36

The astrophysics and cosmology group was spearheaded in the mid and late 1970's by Prof. Jacob Shaham. This is a relatively small group which, historically, has consisted of 4 to 5 members. This group is highly successful. Jacob Bekenstein was awarded the Israel Prize for his work on gravitational theory and black holes. He continues to be active with 18 papers over the last 5 years. Avishai Dekel and Tsvi Piran have been highly successful in studies of cosmology (Dekel) and high-energy astrophysics (Piran). Both have large and active groups with excellent publication

records. The group is the most highly cited group in Israel, with one of the highest citation/paper ratios in the world. Nir Shaviv, who received tenure this year, is a relatively new member of this group. Nir has done significant work in stellar astrophysics, galaxy formation and structure and high energy astrophysics. Using both geophysical evidence and models of galaxy dynamics, Nir has also convincingly linked global warming with the flux of cosmic rays. A new member of this group, to arrive in 2007, is Re'em Sari. Re'em is presently an associate professor at CalTech. He is the winner of last year's Helen Warner medal for the best young astrophysicist in the US, and has made significant impact in the study of both gamma ray bursts and extra-terrestrial planets. He currently has over 80 published papers, 60 of which have been cited more than 10 times.

Condensed Matter Physics

Faculty Member	Invited talks (years)	Papers With > 10 Citations	"High-end" papers	Total Papers	Papers 2001-6	Students	Grants 2005 (K$)	Years at RI	Age
Hard Condensed Matter									
Oded Agam	8 (5)	16	24	40	12	3	140	9	44
Zvi Ovadyahu	2 (1)	41	39	80	12	1	60	20	61
Avi Schiller	9 (5)	14	26	36	11	3	25	7	44
Eldad Bettelheim	**New recruit**								33
Nano Physics									
Isaac Balberg	9 (5)	62	58	230	31	4	97	34	67
Oded Millo	28 (5)	28	33	74	37	5	212.5	12	52
Ronen Rapaport	**New Recruit**								38
Nadav Katz	**New Recruit**								31
High Temperature Superconductivity									
Israel Felner	10 (5)	143	82	351	76	2	220	32	66
Dror Orgad	5 (5)	6	12	17	8	3	55	5	41
Applied Physics									
Dan Davidov	8 (1)	107	82	279	32	10	290	33	67
Amir Sa'ar	10 (5)	18	20	65	19	13	242	11	51

Historically, the condensed matter group has been one of the backbones of the Institute, with its roots in the traditions of Shlomo Alexander, William Lowe and Avraham Many. Condensed matter research in the RI includes both theoretical and experimental groups which can be loosely divided into subgroups of hard condensed matter, nanophysics, high TC, and applied physics, although there is considerable overlap between these different subgroups.

The experimental research spans topics such as quantum transport in disordered systems, the properties of semiconductors and superconductors, and the fabrication and measurements of electronic systems in the nanometer regime. Basic research in this group includes research in semiconductors and composites (Balberg), highly cited work in properties of nano-crystals (Millo), nano-devices (Millo, Sa'ar), transport and aging properties of disordered mesoscopic systems (Ovadyahu), and studies of the properties of new superconducting materials with STM/AFM (Millo), and their magnetic and transport properties (Felner). Applied research includes evanescent waves and their use for microscopic imaging and photonic crystals (Davidov), and development and properties of quantum semiconductor structures (Sa'ar).

All of the experimental groups are extremely productive with numerous highly cited papers in the leading journals in their respective fields (see table). The high degree of funding (~$130,000 per researcher on average per year) obtained by these groups is also indicative of their success. Of the six experimentalists in this group, three of them (Balberg, Davidov, Felner) are within 3 years of retirement, one (Ovadyahu) is approaching 60, with Millo and Sa'ar, who is a recent addition to the RI, in their early 50's. Although the productivity of the older researchers is still impressively high,

a high priority of the RI is to recruit young experimentalists in this important area. To this end, we have successfully recruited two new experimental researchers in the general area of solid-state physics. These researchers, Nadav Katz and Ronen Rapaport, will be joining Institute in October 2007. Dr. Katz will be setting up a group investigating quantum coherence effects in arrays of coupled Josephson junctions. By creating qbit arrays, Nadav's long-time goals are with an eye towards quantum computation. Dr. Rapaport's group will have two separate research directions; the creation and study of Bose Einstein condensates composed of optically excited excitons on silicon, and the incorporation of structures composed of optically active quantum dots in polymeric materials to create waveguides that could serve as future optical amplifiers on silicon chips. Ronen was recruited from Bell Laboratories, where he is an independent staff member. His laboratory is a leader in both of these directions.

Much of the theoretical study is focused on consequences of interactions and disorder in low dimensional systems. Examples include the quantum Hall effect (Orgad), high temperature superconductivity (Orgad), the Kondo effect in quantum dots (Schiller), the effects of noise and weak localization in disordered systems (Agam) and the nonlinear evolution of low dimensional systems (Agam). The condensed matter theory group is relatively young (between 40-43), very active, and highly interactive. The group was formed approximately 5 years ago and has gelled into a lively, active and cohesive group with a solid publication record. The condensed matter theory group will be strengthened by the addition of a new recruit, Eldad Bettelheim, in October of 2007. Eldad's research interests lie in mathematical physics, as applied to a variety of condensed matter problems.

Cross-disciplinary and Nonlinear Physics

Faculty Member	Invited talks (years)	Papers With > 10 Citations	"High-end" papers	Total Papers	Papers 2001-6	Students	Grants 2005 (K$)	Years at RI	Age
Nonlinear Physics									
Jay Fineberg	25 (5)	32	42	61	19	4	65	15	51
Lazar Friedland	2 (1)	40	42	110	21	3	55	25	59
Omri Gat	5 (3)	7	17	23	12	2	NA	2	40
Baruch Meerson	15 (3)	21	43	85	34	2	54	16	56
Eran Sharon	11 (3)	9	14	20	13	5	362	4	42
Multidisciplinary Physics									
Nathalie Balaban	3 (2)	9	7	16	10	4	252	4	41
Ady Vaknin	2 (1)	7	8	16	5	NA	NA	0	38
Ofer Biham	12 (5)	33	53	76	28	4	37	13	47
Sorin Solomon	22 (5)	46	18	96	24	5	70	18	57
Neural Dynamics									
Haim Sompolinsky	18 (5)	76	74	112	24	10	117	21	58
Ultra-high intensity lasers and Quantum Optics									
Arie Zigler	6 (3)	46	46	143	40	8	330	15	60
Hagai Eisenberg	3 (2)	16	17	23	17	4	117 (2006)	1	37

Nonlinear Physics

The nonlinear group is an active, productive, and cohesive group with a healthy mix of ages. The group produces high quality work, which is reflected in their funding and publishing records, with numerous and highly cited publications in the leading journals in both physics and general science.

The nonlinear physics group consists of 3 theoretical groups (Friedland , Gat, Meerson) together with 2 experimental ones (Fineberg, Sharon). The members of the group investigate fundamental nonlinear phenomena in a variety of physical systems whose common denominator is that they are all nonlinear systems that are driven far from equilibrium.

The established theoretical groups of Lazar Friedland and Baruch Meerson, historically, have their roots in plasma physics. In recent years, however, both groups have focused their research on fundamental nonlinear interactions. These include nonlinear hydrodynamics and nonlinear wave interactions as well as "hydrodynamic" descriptions of discrete granular systems (Meerson) and auto-resonant interactions (Friedland , Meerson) of nonlinear systems, fundamental interactions in nonlinear systems ranging from Rhydberg atoms to planetary systems. Omri Gat is a promising young theorist who was recruited last year. He works on a variety of nonlinear phenomena which include nonlinear hydrodynamic phenomena, semi-classical descriptions of quantum mechanics and the statistical physics of mode-locking lasers.

The experimental groups of Jay Fineberg and Eran Sharon study fundamental phenomena in a variety of different driven nonlinear systems. These include crack propagation (Fineberg, Sharon), friction (Fineberg), nonlinear wave interactions (Fineberg), buckling and wrinkling instabilities of thin sheets (Sharon), disorder and turbulence (Fineberg, Sharon). Both of these groups are strongly interdisciplinary, with the work by Fineberg's established group significantly impacting a number of different scientific fields. The Sharon group, established in 2003, is following in this direction, producing work which could impact fields ranging from plant biology to geophysics.

Multidisciplinary Physics

This group consists of two theoretical groups headed by Ofer Biham and Sorin Solomon. Ofer Biham is a computational physicist who studies quantum computation, reaction networks in interstellar space and, recently, work on genetic networks in collaboration with the Balaban group in biophysics. Sorin Solomon studies a range of interdisciplinary problems which include complexity Econo-Physics, Socio-Physics, and Psycho-Physics. Both groups are highly productive whose work is frequently cited.

The experimental groups of Nathalie Balaban and newly recruited Ady Vaknin represent a new direction in the RI, that of biophysics. This new research direction is one that we intend to further develop in the coming years. Nathalie, who joined the Institute in 2003, has established an active group, developing soft lithography and micro-fluidic tools for controlled experiments and mathematical modeling of biological variability in the dynamics of bacterial populations. We expect to recruit another experimental biophysicist within the next 3-5 years.

Neural Dynamics

Haim Sompolinsky, together with Hanoch Gutfreund (emeritus) and Danny Amit (emeritus), spearheaded the study of neural networks and dynamics at the Hebrew University. This extremely productive research direction has since branched into the very successful interdisciplinary ICNC (International Center for Computational Neuroscience) group within the university. Sompolinsky's large research group continues to study neural dynamics, learning, and informational coding in the brain. The group is highly productive and widely cited, consistently publishing a wide range of studies in the leading journals in the field.

Ultra-high intensity lasers and Quantum Optics

Arie Zigler's established group and Hagai Eisenberg's new group are both state-of-the-art experimental laser laboratories. The Zigler group utilizes high-power fast lasers to study the interaction of Terra Watt intensities with matter. Some of the projects under study are optical guiding of ultrahigh laser intensities through the atmosphere, electron acceleration by intense laser fields, and the interaction of ultra-high intensity lasers with matter. This research is highly productive, as evidenced by both its numerous papers and citations together with its consistently

high level of funding. Hagai Eisenberg is a new arrival who is in the process of setting up a laboratory to study quantum optics. This is the first experimental group in this direction in Israel. Hagai is pursuing a new research direction that he initiated in his post-doctoral work: utilization of quantum entanglement to study coherent phenomena such as quantum teleportation, quantum encryption and quantum lithography.

Nuclear and High Energy Physics

Faculty Member	Invited talks (years)	Papers With > 10 Citations	"High-end" papers	Total Papers	Papers 2001-6	Students	Grants 2005 (K$)	Years at RI	Age
Nuclear Physics									
Eliahu Friedman	3 (1)	56	58	147	23	1	13	41	69
Avraham Gal	13 (5)	69	72	183	27	0	13	38	67
Ami Leviatan	11 (5)	28	29	72	14	0	31	15	52
Michael Paul	6 (5)	56	54	153	21	2	106	26	62
High Energy Physics									
Shmuel Elitzur	0 (5)	32	35	48	5	2	58	28	63
Amit Giveon	9 (5)	44	48	75	17	3	43	15	47
Barak Kol	4 (2)	18	25	32	16	4	33	5	39
Eliezer Rabinovici	18 (5)	60	90	116	14	4	66	30	61

The nuclear physics group, until the early 1980's was, perhaps, the dominant group in the RI. Developed by Solly Cohen and Shimon Ofer, the experimental nuclear physics was the largest in Israel. In the mid 1970's the nuclear physics group branched out to high energy physics, and both groups have continued to develop.

Currently, the two theorists (Gal, Leviatan) in the group work on (Gal) exotic atomic and nuclear states, in-medium hadronic interactions, and (Leviatan) algebraic modeling of nuclei, hadrons, and molecules using symmetry principles. The group's experimental work on (Friedman) intermediate energy nuclear physics, (Paul) accelerator mass spectrometry applied to many fields of science, and (Paul) radioactive ion beam development and reactions. Although nuclear physics has somewhat declined in the last decade, the level of work in our group has not. Together with their large total number of papers, in the past 5 years all of the members of this group have produced an impressive quantity of well-cited publications in the leading journals in the field.

Four theorists, Shmuel Elitzur, Amit Giveon, Barak Kol, and Eliezer Rabinovici compose the RI's high energy group. This is an active and cohesive group with numerous students and postdocs, whose work is consistently at the highest level. The group works on field theories of strings and branes (Elitzur, Giveon, Kol, Rabinovici) as well as cosmological applications (Giveon, Kol). The group is highly productive with numerous and well-cited publications. It is well-funded and has recently initiated, together with the astrophysics and cosmology group, a new "Einstein" research center within the Hebrew University. The age distribution of the members of the group is a healthy one, with the latest recruit (Kol) receiving tenure this year.

General Physics

Faculty Member	Invited talks (years)	Papers With > 10 Citations	"High-end" Papers	Total Papers	Papers 2001-6	Students	Grants 2005 (K$)	Years at RI	Age
Bill Glaberson	0 (5)	19	25	59	1	1	12	19	63
Victor Mandelzweig	3 (5)	39	39	>73	22	0	20	26	68

The general physics group consists of an experimentalist, Bill Glaberson, and theorist, Victor Mandelzweig. Bill Glaberson studies the Kosterlitz-Thouless transition in superfluid helium. Victor Mandelzweig's interests lie in few body physics and quasilinearisation methods.

Research Summary

Summary and a look to the future

The preparation of this report has helped us to seriously evaluate the questions of where we are and, more importantly, where are we going. On the positive side, the Institute is highly productive, producing numerous highly cited papers in the leading international journals (see Table 1 for a detailed tabulation). We have numerous excellent people in our department, who produce work of the highest level. Our funding situation is also quite good. Nearly all of our researchers have more than a single competitive grant – with our yearly grant total in excess of $2.5M.

There remain, however, a number of important issues that must be improved. Some of these are the result of mistakes (in recruiting priorities etc) that have been made in the past. This report has helped to both illuminate some of these as well as to elucidate the processes by which they came about. This understanding will, hopefully, help us to avoid repeating them. Our present task is to attempt to rectify some of these mistakes. To this end we list, in the order of their importance, our main tasks:

Recruiting new faculty.

To retain our "target" size of 38 faculty members, the Racah Institute must recruit at a rate of approximately 2 new faculty members per year (see the histogram of faculty ages, presented in Fig. 1) over the coming 4-5 years. As is evident in Fig. 2, the majority (8) of the experimental physicists currently in the department (15) will be retiring within the next 8 years. Thus, a sizeable proportion of newly recruited faculty in the coming years should be experimental physicists. Such sustained recruiting of both experimental and theoretical physicists will rectify the skewed age distribution that is evident in our institution. This should, in turn, raise the department's level even higher.

Recruitment of (at least) a new experimental group per year is a daunting task, financially, but is, in our view, crucial for both the development of physics in the Hebrew University and, on a larger scale, for the state of Israel. The financial cost of developing experimental physics includes not only the purchase of new equipment, but also the need for both the renewal of worn-out infrastructure and maintenance of a high-level technical staff to support this research. Laboratory construction almost always necessitates a complete overhaul of the laboratory infrastructure, which was generally constructed 40-50 years ago. This entails costs of $100,000-$200,000 for each new researcher. In addition, much of the critical infrastructure needed for general use (e.g. the campus He liquefication system) has long needed to be replaced, but has not been overhauled for lack of funds. Most of the current technical staff in the Institute has been decimated by both retirement and utilization of existing staff for teaching laboratories – to compensate for retirements in teaching staff personnel. Within a year, we will have *no* support in electronics (which is critical for both new and established experimental groups) and the computer/systems support currently supplied by the Institute is insufficient for the Institute's needs.

The Ph.D and M.Sc students that we, and other universities educate, form the core high-tech industries that are on the way to becoming the backbone of our economy. The state of the art experimental training and ideas that these students receive from our research laboratories feed these industries. Only by recruiting excellent young people, and equipping them properly can we maintain this technological edge. Despite the large expense entailed in this, we firmly believe that our society will reap the dividends multiplied hundreds of times over. The reverse, unfortunately, is also true. These facts, although quite obvious, are generally ignored at the national level.

Equipping existing experimental laboratories: Although critical for newly recruited faculty, the financial crunch felt by the universities in the past five years has also influenced the development of the established research groups and, especially, our teaching laboratories. There is virtually no significant funding available for the purchasing, upgrading, or refurbishing equipment in existing laboratories. The same statements mentioned above apply. Investment in experimental infrastructure will return high dividends in the future. The lack of investment will bring about decay which will only be felt when it is too late to easily correct it.

Housing the RI in a single building: There is not a lot of cross-fertilization between different research groups. As ridiculous as this might sound, a large part of this is due to "geography", as our institute currently resides in 4 separate buildings. Housing all of our researchers in a single building would create an atmosphere much more conducive to the spread of ideas across different groups.

Future directions of development

Biophysics: One direction in which the RI is moving is in the strengthening of our Biophysics group. It is our intension to recruit an additional young experimental group within the coming 3-5 years and, in parallel, try to co-ordinate this direction with the Life Sciences institute. Examples of such co-ordination could include a "Biophysics" study track in both BSc. and graduate studies (such a BSc. program has been formally proposed this year) and possible joint appointments between Life Sciences and Physics. The biophysics group may also be strengthened by the addition of a theoretical component – either from within the institute or by recruiting new faculty.

Condensed Matter Physics: A high priority of the Institute is in recruiting new experimental groups in both hard and soft condensed matter physics in the coming years, to replace the 8 experimentalists (all in experimental condensed matter) who will be retiring in the next decade. The theoretical condensed matter group, currently composed of 3-4 faculty members should also be enlarged.

Other directions: The other research directions in the institute will be strengthened, as needed, depending on the quality of the candidates. Possible new directions include soft condensed matter and phenomenological high energy groups.

Seminars

The departmental colloquium, in which topics of a more general interest are presented, convenes on a weekly basis. There are a number of weekly seminars in the Racah Institute.
These include:
The Joint High Energy Physics Seminar (weekly – joint with other institutions)
The Solid State Seminar (weekly)
The Astrophysics Lunch (weekly)
The Nonlinear Seminar (weekly to bi-weekly)
Nuclear Physics seminar (monthly – or more frequently depending on arriving guests)

In addition to these formal seminars there are a number of journal clubs, informal seminars, and student seminars that are convened throughout the Institute.

Conferences and Workshops

The Jerusalem Winter School in Physics is an outstanding school that is organized annually. It generally attacts the best international students and is one of the few such schools that is recognized by a yearly EU grant. Its subject varies, rotating between current topics in High Energy Physics, Astrophysics, Condensed Matter Physics, Nonlinear Physics, and lately Biophysics. These workshops are international events that were initiated in 1973 and directed first by Steven Weinberg, later by Ed Witten, and currently by David Gross.

In addition to the Winter School a number of conferences and workshops have taken place at the Hebrew University. Among the recent ones are:

International conference on Superfluids Under Rotation (April, 2007)
International conference on String Theory; Achievements and Perspectives (April, 2007)
The annual meeting of the Israel Physical Society (2006)
Workshop on Electronic Glasses, IAS October 2004
Science and Applications of Nanostructures, November (2003).
Galaxy Formation Workshop, Inst. Advanced Studies, Jerusalem (2003)

Graduate Student Prizes and Fellowships

There are a number of prizes that are given out annually to graduate students for excellence in research.

National prizes include:
The Wolf Prize (national prize MSc and PhD students)
The Complexity Fellowship (Wolfson Foundation)
The Clore Fellowships (Clore Foundation)
Intel prize (Intel)

Internal Prizes given out to graduate students for excellence in research in Physics include:
The Rosenblum Prize for astrophysics and cosmology
The Racah Prize for excellence in graduate research
The Solly Cohen and Shimon Ofer memorial prize for excellence in graduate research
The Goodman Prize awarded to an outstanding research paper by a PhD student
The Luxembourg Prize for excellence in graduate research
The Banin Prize for excellence in graduate research
The Gutwirth Prize for excellence in graduate research
The Schuller prize for excellence research toward an MSc degree
The Schindel prize for excellence in graduate research.
The Keresten prize for excellence in graduate research
The Saifan prize for excellence in graduate research
The Madan Prize for excellence in graduate research

Chairs in the Hebrew University

1. Prof. Eliezer Rabinovici: Leon H. and Ada G. Miller Memorial Chair
2. Prof. Tsvi Piran: Schwartzmann University Chair
3. Prof. Jacob Bekenstein: Michael Polak Chair of Theoretical Physics
4. Prof. Dan Davidov: Louis and Ida Shlansky Chair of Physics
5. Prof. Eliahu Friedman: Kalman and Malke Cooper Chair of Nuclear Physics
6. Prof. Isaac Balberg: The Enrique Berman Chair in Solar Energy.
7. Prof. Zvi Ovadyahu: Joseph and Sadie Danciger Chair of Physics
8. Prof. Nir Shaviv: Siegfried Samuel Wolf Senior Lectureship in Nuclear Physics
9. Prof. Oded Millo: The Harry Dejour chair of Applied Sciences
10. Professor Avishai Dekel: Andre Aisenstadt Chair of Theoretical Physics

International and national collaborations

The degree of scientific cooperation between members of our Institute and researchers in other institutions is relatively high. The majority of our faculty members have numerous collaborators both in Israel and abroad. Many of the faculty have bi-national grants either with the US , Germany, the European Union or the NSF. 30 current international grants include 11 BSF (US-Israel binational grants), 8 GIF (German-Israel Foundation), 2 DIP (large German-Israel grants), 1 DFG grant, 7 EU collaborative grants, and 1 Israel-Russia grant. In addition, this year members of our faculty are involved in 7 collaborative grants within Israel. A detailed list of these grants can be found in the appendix, where all of the grants obtained by each faculty member over the past 5 years are presented in detail.

Many of our academic staff are involved in conference/workshop organizing committees. Overall, the faculty of the RI have been involved in organizing over 70 international conferences and workshops in the past 5 years. In addition, 11 members of the Institute currently serve on 21 editorial boards. Members of the institute sit on numerous Israeli national boards and committees (e.g. the Israel Atomic Commission, the Israel High Energy committee, Israel Space Commission). Additional activity involves the Einstein center (Gutfreund), vice-presidency of the Israel Physics Society (Dekel), and pan-Middle Eastern scientific collaborations (Rabinovici).

Prizes won by Racah Institute members

Avi Schiller

a. 2002–2004: Siegfried Samuel Wolf Lecturer Chair of Physics.
b. 2001 Rector's prize for excellence in research, teaching and academic activity.

Arie Zigler

Fellow of the American Physical Society

Lazar Friedland

Fellow of the American Physical Society

Eran Sharon

a. Fullbright Postdoctoral Fellowship
b. Kennedy Prize

Jay Fineberg

a. Alon Fellowship
b. IBM Postdoctoral Fellowship
c. ICAM (Institute for Complex Adaptive Matter) scholar (2005)

Avishai Dekel

a. Blaise Pascal International Chair of Reserach, Ecole Normale Superieur (2004-06)
b. Miller Professorship, Berkeley (2004)
c. The list of the most highly cited scientists in space sciences
d. Elected president of the Israel Physical Society (2008-)

Tsvi Piran

a. Elected to list of the 250 most cited scientists in Space Science
b. Elected Distinguished Moore Fellow at Caltech

Jacob Bekenstein

a. 2005 Laureate: Israel Prize in Physics.

b. 2002 ``Thirty years of black hole physics", series of three issues in the journal Foundations of Physics, (Dec, 2002, Jan, Feb. 2003) in c. Bekenstein's honor.

c. 2001 Second prize essay (with A. Mayo), Gravity Research Foundation

d. Bergmann prize (1977)

e. Election to International Astronomical Union (1979)

f. Landau Prize (1981)

g. Gravity Foundation (US) first prize (1981)

h. Rothschild prize (1988),

i. Elected to Israel Academy of Sciences (1997)

j. Elected to World Jewish Academy of Sciences (2003)

Nir Shaviv

a. 2000 The Beatrice Tremaine Award (CITA)

b. 2004 The Siegfried Samuel Wolf Lectureship in nuclear physics (HU)

Avraham Gal

a. Prize of the Japan Society for Promotion of Science 2001

b. Alexander von Humboldt Research Award 1992

Oded Millo

a. Alon Fellowship

b. Landau Prize.

c. Weizmann Post-Doctoral Fellowship.

Eliezer Rabinovici

a. Kramers Professor, University of Utrecht (1996)

b. Miller Professor, University of California at Berkeley (2002)

c. Humboldt Award, MPI Golm and MPI Munich (2005)

d. Israeli representative to the SESAME

e. Chairman of the Israel High Energy Commission

Barak Kol

2003 The BSF Bergmann award

Haim Sompolinsky

Hebrew University Presidential Award for Outstanding Researcher, 2005

Nathalie Balaban

a. Dicke fellowship – Physics department, Princeton University.

b. 2003-2006 Fellow of the Horowitz Center for Complexity Science

Hagai Eisenberg

a. Rothschild Fellowship, 2002

b. The J.F. Kennedy Ph.D. prize of the Feinberg Graduate School, 2002

c. Alon Fellowship

Oded Agam

Alon Fellowship

Dror Orgad

Alon Fellowship

Amit Giveon

Alon Fellowship

Dan Davidov

a. Humboldt Awards-1996

b. Paris Science Award

Sorin Solomon

a. Keren Kayemet prize

b. Weizmann Fellowship

c. JF Kennedy Fellowship

d. Bantrell Fellowship

e. Levinson Fellowship

Eldad Bettelheim

Alon Fellowship

Re'em Sari

2006 Warner Prize of the American Astronomical Society
2004 Packard fellowship
2004 Sloan research fellowship
2003 Graduate Student Council Mentoring Award.
2002 Michelson Prize Postdoctoral Lectureship.
1998 Fairchild Fellowship at Caltech.
1998 Katzir prize for graduate students.
1998 Israel Physical Society award for outstanding graduate students.
1997 Clore Fellowship

Patents belonging to Racah Institute members

B. Laikhtman: Terahertz radiating device based on semiconductor coupled quantum wells. Pending.

Amir Saar: "Control of Optical signals by MOS (COSMOS) Devices"
Patent # PCT/IL03/00212 by J. Shappir, A. Sa'ar and N. Ben-Yoseph (2003).

Amir Saar: "Voltage Tunable Integrated Infrared Imager"
Patent # PCT/IL2004/00337 (20-4-2004) by A. Sa'ar and J. Shappir.

Amir Saar: Integrated active pixel sensor and method of its fabrication"
PCT #01610856\20-01 by A. Sa'ar and J. Shappir (2005).

Dan Davidov: 4 US patents and 1 European Patent (in the last 5 years)

Eran Sharon: A provisional patent in the USA
"Metrical Shaping": The Construction of Shape Transforming Thin Sheets, by Curvature Prescription", filed Nov. 15 2005.

Racah Institute members serving on Editorial Boards

Dan Davidov:
a. Synthetic Metals 1988-1996
b. Communication on Physics 1975-1977.

Avishai Dekel:
a. Journal of Cosmology and Particle Physics (2002-03)
b. Standing SOC of Commission 28 --- Galaxies, the International Astronomical Union (2006-09)
c. Director of 3 physics winter schools at the IAS, HUJI.
d. Chair or member of several SOCs of large scientific conferences.

Israel Felner:
a. Journal of Superconductivity

Tsvi Piran:
a. J. of Cosmology and Astroparticles,
b. Int. J. Modern Phys. D
c. Journal of Astrophysics and Cosmology, 2003-.
d. International Journal of Physics D, 1991-.
e. Nuovo Cimento B., 1986-.2005
f. Classical and Quantum Gravity, 1989-1994.
g. Coordinator, Israeli node of the EEC-RTN "GRBs Enigma and a Tool" 2002-2006
h. Co-Director Jerusalem Winter school for Theoretical Physics, 2000, 2006
i. Member of the Steering Committee, Israel Space Agency, 1999-2004;
j. Chairman, Organizing Committee, VIII Marcel Grossmann meeting, Jerusalem, 1997.
k. Co-Founder and Coordinator, Jerusalem Winter School for Theoretical Physics 1981-1992.
l. Co-Director ``Summer School on Gravitational Radiation" Les Houches, France, 1982.

m. Member of the International Organizing Committee Texas Symposium on Relativistic Astrophysics: Melborne 2006, Stanford, 2004, Texas, 2000, Paris, 1998, Chicago, 1996, Jerusalem, 1984.

n. Member of the International Organizing Committee: Marcel Grossmann meeting on Relativity and Gravitation: Rio, 2003, Rome, 2000, Kyoto, 1991, Perth 1998.

Jacob Bekenstein

a. General Relativity and Gravitation

Sorin Solomon

a. International Journal of Modern Physics C
b. Physics and Computers
c. ComPlexUs
d. Modeling and Understanding Functional Interactions in Life Sciences
e. Econophysics Forum (Internet Journal)
f. "New Economic Windows" Series in Springer-Verlag
g. Journal of Statistical Mechanics

Avraham Gal

a. Associate Editor, Nuclear Physics A (Nuclear and Hadronic Physics) 1990-present
b. Editorial Board Member, Physical Review C (Nuclear Physics) 1997-1999
c. Supervisory Editor, Nuclear Physics A (Nuclear and Hadronic Physics) 1997-present
d. Editor (with G.E. Brown) Carl B. Dover memorial Volume, Nucl. Phys. A625 pp. 1-512
e. Editor (with E. Hungerford) HYP03 Proceedings, Nucl. Phys. A754 (2005) pp. 1c-489c
f. Editor (with P. Bydzovsky and J. Mares) Topics in Strangeness Nuclear Physics, Springer Lecture Notes (2007)

Eliezer Rabinovici

a. Nuclear Physics B – (since 1989)
b. JHEP – (since its inception in 1992)

Victor Mandelzweig

a. Journal of Few Body Systems (2000-)

Haim Sompolinsky

a. Physical Review E
b. Neural Computation

Israel Nowik

a. Mossbauer Effect Data Index

Amit Giveon

a. Editor of JHEP

Research Centers and Chairs Established from 2001-2006

a. The Einstein Interdisciplinary Research Center (2005-, representing physics in the academic committee: Gutfreund, Dekel, Rabinovicci).

b. The Center for Understanding the Universe (including all astrophysics and HEP senior researchers. coordinator: Avishai Dekel).

3. Physical Infrastructure

The Racah Institute is situated in 5 different buildings, the Levin, Kaplun, Dancziger B, Marks and Bergman buildings. The majority of the space in these buildings is allocated for research. Within the Levin building the Institute and department offices together with the machine shop are located. Secretaries for each of the research subgroups are located within the other buildings. The helium liquification unit is located in the Dancziger B building.

Classes are given in a number of entirely separate buildings, located throughout the Givat Ram campus. These include Feldman A and B halls, the Sprinzak building, Canada Hall, Rothberg Hall, a number of classrooms in the Levy building, the Los Angeles building (chemistry courses), and

large halls in the Levin and Einstein buildings. All of these classrooms are shared by all of the departments within the Faculty of Mathematics and Sciences. The assignment of each course to its classroom is performed by the Faculty Mathematics and Sciences.

Each member of the senior academic staff has an office. Shared office space is provided for each of the junior academic staff. The space is sufficient for one to one student-teacher consultations. There are three small seminar rooms that can be used by either senior or junior staff if tutoring or consultations on larger scales are required. In addition we have a student "clubhouse" which seats 40-60 people that is used for both larger gatherings and an "informal" tutoring program in which a graduate student is made available for several hours a week to provide extra help for students. In each of the seminar rooms, standard audio-visual equipment (overhead and computer projectors) is available. There is also a demonstration laboratory in which a full-time technician is involved in both developing and repairing experimental demonstrations for use in undergraduate teaching. The demonstrations are performed in the classrooms, but the preparation is done in the demonstration laboratory. Each of the student laboratories (1st, 2nd, and 3rd year laboratories are obligatory), is also equipped with a small workshop and storage facilities. The institute's main machine shop is also available, at no charge, to the student laboratories. Precision machining for these laboratories is provided for both repair of existing equipment, the development of new experimental systems for teaching, and also the development of specialized experiments that are many times required by the students of our "advanced teaching laboratories", where the students independently carry out experiments of their own design. Teaching requirements are generally given priority over research needs, when time constraints are an issue.

Faculty of Science - Lecture halls and classrooms available for studies

Building/ *Institute*	**Halls over 150 seats**		**Halls with 70 - 150 seats**		**Classrooms with 35 - 70 seats**		**Classrooms with less of 35 seats**	
Levin	***Auditorium 8***	***150***						
Various other buildings	***Kaplan***	***212***	Levy 07	100	Sprinzak 25	35	Sprinzak 24	30
	Rothberg	***160***	*Levy 06*	*90*	Sprinzak 26	48	Sprinzak 102	*30*
	Feldman A	***215***	*Sprinzak 115*	*110*	Sprinzak 27	48	Sprinzak 202	*30*
	Feldman B	***215***	Sprinzak 117	70	Sprinzak 28	42	*New Teaching Labs Physics*	*30*
	Canada Hall	***318***	Sprinzak 217	70	Sprinzak 29	48	*New Teaching Labs Biology*	*24*
			Popick	75	Sprinzak 101	40	*New Teaching Labs Chemistry*	*30*
					Sprinzak 114	42		
					Sprinzak 116	48		
					Sprinzak 201	38		
					Sprinzak 213	42		
					Sprinzak 214	65		
					Sprinzak 215	56		
					Sprinzak 216	36		
					New	***60***		

					Teaching Labs Hall			
					Canada classroom	*68*		

There are four dedicated computer labs with 70 computers equipped with special adapters for use in various experiments. There are 30 computers for general purpose work and are physically located adjacent to the 1st year teaching laboratories. These computers are equipped with scientific software (Labview, MathCad, Matlab, Origin), and are solely for the use of physics students. The campus also contains a central computer farm equipped with 195 computers, including four computer classes with two types of layout, to accommodate frontal and team-based work. These classrooms are equipped with a software tool called NetOp-School which enables the teacher to project his computer's display to the students' computers. There are 175 additional computers in smaller computer labs and in the libraries around the campus. The computers provide access to library and e-learning resources, and are equipped with Office and a variety of mathematical, statistical and other scientific software packages.

Student laboratories in Physics

The three student laboratories are located in separate dedicated buildings.

The 1st year student laboratories are located within Beitan 9 building. There are approximately 100 seats in this laboratory which are distributed throughout 4 halls. These laboratories are for the use of all students taking the 1st year laboratory course. These include approximately 200 students from Physics, Chemistry, Earth and Planetary Sciences, Engineering, and the Exact Sciences program. The advanced 1st year laboratories are located in the same building. These laboratories utilize 11 small rooms, where each room is dedicated to a single experiment.

The 2nd year laboratories are located within a new laboratory building which is jointly used by the Physics, Chemistry, and Life Sciences student laboratory courses. The Physics section is located within the first floor of this building. It consists of a single large hall as well as 10 smaller rooms. This smaller rooms each accommodates either a given experiment or are used for the 2nd year advanced laboratory. The 2nd year laboratory accommodates approximately 25-30 students at one time, with a total of approximately 150 students per year utilizing them. These students include both Physics students and students from the Exact Sciences program.

The 3rd year laboratories are located in a separate building. This building has approximately 20 rooms in which 17 rooms house dedicated experimental systems. The additional rooms are used for student/teacher discussions relating to each experiment.

Each experiment in each of the laboratories is equipped with a dedicated computer, which is used to both collect and analyze data. There is a large variety of scientific equipment available in the laboratories. The equipment in the first year laboratory is changed weekly, in accordance with the specific experiment taking place at the time. The second and third year student laboratories have dedicated rooms and equipment for different experiments. The students circulate from one room to another, in accordance to their assigned experiments. Generally speaking, most of the equipment in these laboratories is obsolete and in constant need of repair. The department, in conjunction with the Faculty of Mathematics and Sciences, has made continuing efforts to upgrade this equipment, but the pace has been very slow, due to budgetary constraints. Over the past 5-8 years, we have been able to computerize most of the data acquisition in these laboratories, but most of the underlying laboratory equipment has not been replaced for, in many cases, 20-30 years.

Library

The Harman Science Library was established in 1984 when the Faculty of Science merged the collections of six departmental libraries: chemistry-physics, botany, genetics, zoology,

biochemistry and applied science into one central science library. In 2004, the Library of the Science Teaching Center was integrated into the collection. Until 2003, the library was part of the Faculty of Science. When the university established a new administrative entity, the Hebrew University Library Authority, there was reorganization and the library became part of the new Library Authority.

The Harman Science Library is the central science library of the Faculty of Science, which serves all students, teaching staff and researchers in the fields of chemistry, physics, life sciences and science teaching. It also serves first year students of mathematics, computer sciences, earth sciences, medicine, pharmacy, medical sciences, and the school of engineering, who study on the Givat Ram Campus.
The library contains:

- 58,357 monograph titles.
- 98,562 monograph items including volumes and multiple copies.
- 3,784 journal titles.
- 215,000 journal volumes.
- 19 electronic databases.

The library budget is used to purchase monographs (for courses and research), series, journals (print and electronic) and databases. The budget is divided evenly among the disciplines. The extremely high prices of journals in science - experimental science in particular – (chemistry, physics and life sciences), has greatly reduced our budget's purchasing power. The major portion of the budget is spent on journal subscription and a very small percentage is available to purchase monographs.

Strength and weakness respectively of the physical infrastructure

Strengths:
In general the physical infrastructure is adequate for our teaching and research needs. Strengths of the infrastructure are:
1. An excellent machine shop
2. The audio-visual capabilities in each of the large lecture halls
3. The availability, access, and state of the computational facilities for use by the students.
4. The software available for student use is at a high level and continually updated.
5. The physical size of the student laboratories is adequate.

Weaknesses:
1. The large geographical dispersion of the Institute. Our faculty are housed in 5 separate buildings. This physical separation seriously suppresses the natural cross-pollination that would arise from daily spontaneous interactions.
2. Library. Although the physical size of the Harmann library is adequate, the number of new reference books and textbooks has not been significantly updated for years, due to budgetary constraints. Whereas 20 years ago we could have been proud of the selection of books available in our library, currently, our library significantly lags behind science libraries in institution of comparable size around the world. Researchers routinely purchase whatever books are necessary from their own funds, but students do not have this luxury.
3. Student laboratory equipment. As mentioned above, the majority of the laboratory equipment in our student laboratories is obsolete and in a continuing state of disrepair. This equipment must be replaced to both enable the smooth operation of our teaching laboratories as well as to expose our students to modern laboratory equipment and techniques. There is also an additional and important reason for maintaining up to date equipment. This is in the realm of "public relations". The relations of the students to the material being taught is many times affected by the equipment that they are using. Although an experiment might be extremely interesting and important, the students may not appreciate this if a large amount of time is taken up in both unnecessary maintenance as well as activities that are obviously un-needed and unrelated to the experiment at hand.

4. Air-conditioning. Although there has been a concerted effort in recent years to modernize our classrooms, there still are a number of classrooms and laboratories which have not been air-conditioned. This is particularly important in the summer months, where large class sizes coupled with the lack of air-conditioning makes the conditions difficult for effective teaching.

4. Income and Expenditures of the Racah Institute

Income sources (2002-2007) - (NIS)

Year	Funds from University	Researcher's support	Salaries temporary personnel	Car expenses (technical staff)	Reserve Duty compensation	Workshop Income	Leaves of Absence
10/2001-9/2002	5,400,000	250,000	560,000	245,000	20,000	150,000	-
10/2002-9/2003	4,900,000	350,000	800,000	-	32,000	150,000	-
10/2003-9/2004	4,900,000		980,000	-	29,000	100,000	-
10/2004-9/2005	4,630,000	800,000	830,000	-	14,000	155,000	39,000
10/2005-9/2006	4,630,000	900,000	922,000	-	3000	168,000	90,000
*10/2006-9/2007	4,222,000	1,060,000	600,000	-	15,000	160,000	?

Table 4.1: The Racah Institute income from all sources over the last 5 years. The researchers' support is contributed voluntarily by faculty possessing research grants. The source of these funds is research grants. The remainder of the Institute's income comes from University sources, where the Income for 2006-7 are the values that the Institute has been promised for this year. These may well fluctuate.

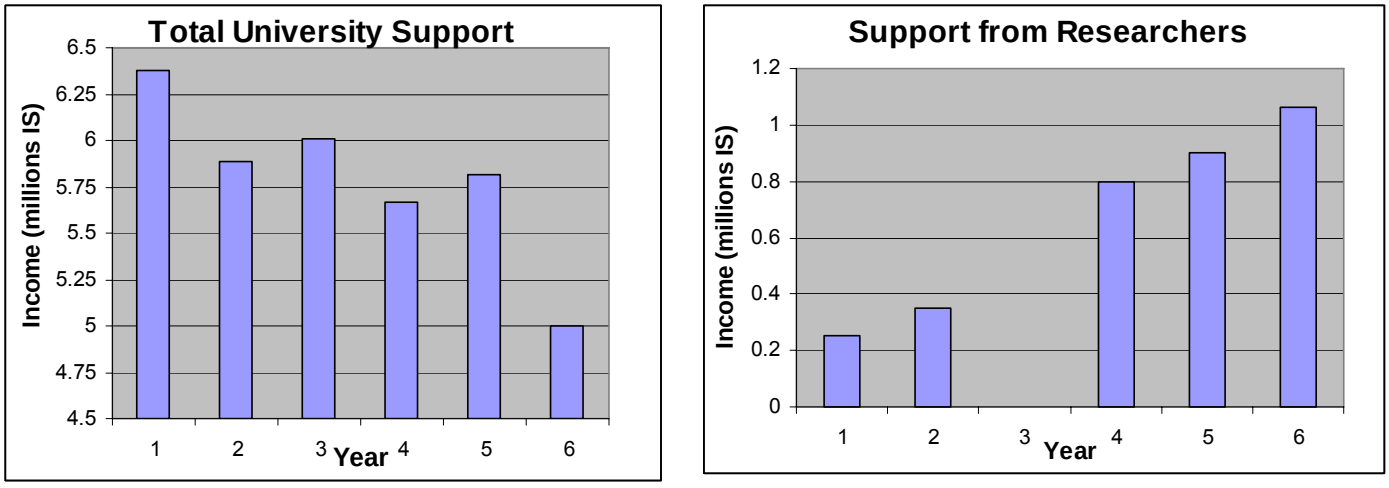


Figure 4.1: (left) Total income from University sources from 2001-2006 (right) Support from Racah Institute faculty that is required to fund a minimal amount of teaching assistants needed to maintain our teaching standards. Data are taken from Table 4.1.

Expenditures (2002-2007) - (NIS)

Year	**Total Expenses**	**Non-permanent Administrative Salaries**	**Teaching Assistants**	**Equipment for teaching labs**	**Running expenses**
2001-2002	6,470,000	700,000	4,690,000	650,000	430,000
2002-2003	6,180,000	760,000	4,800,000	420,000	200,00
2003-2004	5,730,000	590,000	4,650,000	290,000	200,000
2004-2005	6,355,000	635,000	5,200,000	180,000	340,00
2005-2006	6,550,000	680,000	5,250,000	430,000	190,000
2006-2007	6,200,000	750,000	5,100,000	300,000	200,000

Table 4.2: Break-down of the departmental expenses (in NIS) over the last five years. Note that while the overall expenses are more or less constant, the income from University sources has dropped by over 20% over the last 5 years. The difference is made up by researcher contributions. Over the past few years there have been minimal expenditures on infrastructure and new equipment in our teaching laboratories. Most of the funds spend on teaching laboratories (see break-down in Table 4.4) have been either for running expenses or repair of existing equipment.

Year	**No. of positions**	**Technicians and Engineers**			**Administration**
		Teaching Lab	**Workshop**	**Research**	
1998 - 1999	47.25	6.50	19.00	13.50	8.25
2000 - 2001	35.75	5.50	14.00	9.50	6.75
2002 - 2003	29.00	5.50	9.00	8.50	6.00
2004 - 2005	28.00	6.00	9.00	7.00	6.00
2006 - 2007	28.00	5.00	**9.00	7.00	6.00
2008 - 2009	25.00	4.00	8.00	7.00	*6.00

Table 4.3: The technical and administrative positions within the Racah Institute since 1999. Included are the number of non-academic personnel planned for 2008-9. This is on the basis of planned personnel cuts. Note that the number of total positions has been nearly halved in this time and that the majority of the non-academic personnel currently serve in either teaching (5 technicians + 2 secretarial staff) or administrative (Department administrator + 3 secretaries) positions. Only 7 of our technical staff serve in research capacities.

Teaching laboratories –Equipment and Maintenance

Year	Total Sum	1st year laboratory	2nd year laboratory	3rd year laboratory	Computer Class
10/2001-9/2002	$129,500	$55,000	$43,000	$26,000	$5500
10/2002-9/2003	$92,000	$11,000	$19,000	$56,000	$6000
10/2003-9/2004	$63,000	$2000	$30,000	$24,000	$7000
10/2004-9/2005	$42,000	$18,000	$6000	$16,000	$2000
10/2005-9/2006	$98,500	$30,000	$14,000	$52,000	$2,500
10/2006-9/2007	*$40,000				

Table 4.4: Breakdown (in US dollars) of teaching laboratory expenditures/per laboratory. Most of these expenses are for either disposables/running expenses or for renovations of existing equipment.

Budget explanations and assessment

Due to large budget cuts imposed over the last 6 years, the income of the Racah Institute from University sources has decreased by about 22%. This is shown in Figure 4.1 (left). The majority our running expenses are in meeting the costs of both student salaries (Teaching assistants) and necessary (but non-permanent) personnel. Salaries of permanent non-academic staff are paid directly by the University and do not enter our budget. As forced or natural retirements have decimated the non-academic staff (see Table 4.3), and the University (due to severe budget constraints) has frozen the hiring of permanent non-academic personnel over the last 5 years, the Institute has had to spend more money on the hiring of essential non-academic personnel than it receives for this purpose from University sources. Therefore, the expenditures needed to maintain a minimal level in both our teaching and essential services (e.g. computer support, secretarial services for both teaching and researchers, workers in our mechanics shop) have come at the expense of investments of infrastructure, laboratory equipment for our teaching laboratories, and fewer teaching assistants. These expenditures are met solely as a result of voluntary contributions from our faculty members whose source is from research grants (see Fig. 4.1 – right). These contributions currently account for about 20% of our budget. As Table 4.2 shows, researcher contributions have managed to stave off budget cuts in student salaries, so that we have managed to retain the minimal number of teaching assistants necessary to maintain our excersize sessions. We have not, however, been able to fund the number of MSc student stipends that is needed for the grading of course excersizes. Currently, we only have the manpower to randomly grade only about 20% of the excersizes submitted. If this situation is not rectified, the level of our teaching will inevitably suffer.

As Table 4.3 indicates, the number of technical staff (non-academic personnel) has dropped precipitously over the last five years. These reductions in technical staff are the result of a freeze on all non-academic hiring imposed by the University over this period. As mentioned above, we have, to a point, been able to supplement essential staff by hiring non-permanent technical staff from our running budget as well as by moving technical staff involved in research to non-research (e.g. teaching laboratories) capacities. This "juggling" of personnel initially resulted in "stream-lining" our technical staff and an increased efficiency. At present, however, these reductions (and further reductions planned over the coming years) will result in real damage to our research capabilities. This is true for both experimental and theoretical groups. The cuts have decimated the technical help available for new and established laboratory groups (where, for example, in new groups in bio-

physics, permanent laboratory technicians are essential) as well as critical functions such as electronic support (by 2008 the Racah Institute will have *no* in-house electronics support for both research and teaching laboratories – for comparison, in 2000 there were 6 or 7 full time support people). These cuts have also reduced in-house computational support to a single permanent support person – resulting in a real problem for both experimental and theoretical groups. The need for an excellent technical staff is a real necessity, if we are to be able to maintain excellence in research. On the other hand, there have been virtually *no* new hires of technical staff at the university over the last 5-6 years. Important technical expertise is being lost through retirements, and is not being passed on. This human infrastructure is no less important than state-of-the-art laboratory equipment. Obviously, this infrastructure is expensive and "wholesale" hiring should not be performed. The current freeze on the hiring of technical staff, however, is woefully short-sighted and (like all other infrastructure that is not maintained) will have disastrous consequences if not rectified.

The above budgetary constraints have also resulted in negligible expenditures on critical infrastructure. This includes both maintenance and purchase of equipment for our teaching laboratories as well as funds needed for research infrastructure, such as essential upgrading of our liquid helium capacities – which have urgently needed to be replaced for over 5 years. The frequent equipment break-downs and increased costs have resulted in increasing damage to our research capabilities.

Grants: Faculty Members and Senior Research Scientists (2001-)

Agam Oded

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1999-2002	Interaction effects in chaotic systems	BSF	$ 60,000
2.	1999-2002	Weak localization effects in ballistic systems	ISF	$ 120,000
3.	2002-2005	Disorder interactions and nonequilibrium effects in superconductor/insulator/normal metal junctions	ISF	$ 120,000
4.	2002-2005	Field theory of chaotic systems and maps	GIF	$ 200,000
5.	2005-2008	Mixed chaotic systems from the viewpoint of glass dynamics	ISF	$ 110,000
6.	2005-2009	A field theory approach for Laplacian growth problems	BSF	$ 120,000

Balberg Isaac

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2001-2007	Tunneling phenomena in nanostructured materials and devices	ISF Center of Excellence	$ 330,000 [with O. Millo (HU), Gad Koren (Technion) and G. Deutscher (TAU) - coordinator]
2.		matching: Variable temperature STM/AFM System	ISF	$ 330.000 (with M. Asscher, U. Banin, O. Millo all from the HU)
3.	2004-2006	Nano-Crystalline Silicon for a Silicon Light Source	INTEL Corp.	$ 27,000
4.	2007-2008	Transport in Nanocrystalline silicon	Israel Ministry of Science	$40.000

Barnea Nir

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1	2003	**Ab-initio calculation of inelastic cross-sections for light nuclei**	**The Israel science foundation (ISF)**	**161,200 IS + 27,400 US$**
2	2005	Ab-initio study of inelastic reactions in light nuclei	**The Israel science foundation (ISF)**	**176,000 IS+ 28,000 US**

Bekenstein Jacob D.

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2003	Fundamental restrictions on information storage, flow and processing rate from gravitation	ISF Israel Academy of Science	$ 85,005
2.	2004-2007	Entropy and Information Bounds	ISF Israel Academy of Science	$ 80,667

Biham Ofer

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2003	Quantum algorithms and information processing	the Fifth Framework IST program of the European Commission for studies	Total amount: € 20,000 per year for three years, splitted equally between the two PI's. Collaborator: Michael Ben-Or (CS Inst., HU)
2.	2001-2004	Formation of molecular hydrogen and other chemical reactions on dust grains in the interstellar medium	Israel Science Foundation and the Adler Foundation for Space Research for studies	Total amount: $ 25,000 per year for three years
3.	2004-2008	Interaction between gas and dust grains in the interstellar space	Israel Science Foundation and the Adler Foundation for Space Research for studies	₪ 170,000 per year for four years
4.	2006-2009	Regulatory networks of small RNA molecules	The Center for Complexity Science	$33,000/yr for 3 yrs, with H. Margalit and S. Altuvia

Davidov Dan

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	9/2005-8/2007	Near-field microscopy and spectroscopy	German DFG	€ 35,000 Per year
2.		Surface Plasmon resonance for biosensing dynamic variations in live cells	ISF (Israel Science Foundation)	₪ 170,000 With Dr. B. Aroeti
3.		Mm-wave camera based on magnetic nanoparticle	Ministry of industry (Avnet program)	₪ 260,000 Per year
4.		Mm wave sensing	Ministry of Science and Ministry of transportation	₪ 300,000 Per year
5.		Micro-optics and biosensing	Ministry of Science	₪ 190,000 Per year for the duration of three years

Dekel Avishai

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1999-2003	Large Scale Dynamics and Galaxy Formation	Us-Israel BSF Dekel, Faber, Primack UCSC	$ 70,000
2.	2002-2006	Galaxy Formation in CDM Cosmology: 3 Major Problems	Israel Science Foundation Dekel	$ 174,000
3.	2001-2004	Cosmological Dynamics of Dark Matter, Baryons and Galaxies	German-Israel Science Foundation; Dekel, White (MOA Garching), Nusser (Technion)	€ 225,000
4.	2006-2009	Galaxy Formation: Interfacing Theoretical Models with the Observed Universe	German-Israel Science Foundation; Dekel, Nusser, White (MPA Garching), Somerville (MPIA Heidelberg)	€ 174,608
5.	2004-2005	Formation of Galaxies and Structure in the Universe	Blaise Pascal International Chair of Research, Ecole Normale Supeieur, Paris; Dekel	€ 200,000
6.	2006-2009	Galaxy Interactions and the Formation and Structure of Elliptical galaxies	NASA ATP at UCSC; Primack, Dekel	$ 394,766

Eisenberg Hagai

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2007-20010	Quantum optics with multi-photon states	ISF	₪225,000x4
2.	2007-2009	Compact and efficient sources for entangled photons	Ministry of Science	₪800,000

Elitzur Shmuel

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2004	Superstrings	EU	€ 55,000/yr (shared by 3 people)
2.	2001-2004	Field Theory, String Theory and their Inter-relations	GIF	€ 76,000/yr (shared by 3 people)
3.	2001-2004	Center of Basic Interactions	ISF	₪ 900,000/yr (shared by 9 people)
4.	2001-2004	Aspects of String Theory and Gauge Theories	ISF	₪ 220,000/yr (shared by 3 people)
5.	1/2006-12/2010	Application of String Theory to Particle Physics and to Gravity and Cosmology	DIP	€ 725,000 (shared by 10 people)

Felner Israel

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2001-2003	Nano-size magnetic materials	Ministry of Science	$ 154,000
2.	2002-2004	Spontaneous Magnetic Vortices in magnetic superconductors	BSF	$ 108,000
3.	2002-2004	Charge transport in metal diboride thin layers	Intas	$ 3500
4.	2002-2005	Wires and thin films of MgB_2	Ministry of Energy and Infrastructure	₪ 1,500,000
5.	2005	Full magnetization process and nonlinear susceptibility	Israel-Russia fund	₪ 40,000
6.	2004-2007	Magneto-superconductors materials	ISF	₪ 604,000
7.	2005-2007	Preparation and characterization of nano-size superconductors	Ministry of Science	₪ 255,000
8.	2005-2007	Search for spontaneous phase separation in doped Manganites	ISF	₪ 90,000

Fineberg Jay

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1997-2000	Study of Dynamic Fracture	The United States – Israel Binational Science Foundation	$ 120,000
2.	1999-2002	The spatial and temporal behavior of superlattice structures formed by concurrently excited, nonlinearly interacting modes of parametrically driven surface waves	The Israel Science Foundation	$ 120,000
3.	2001-2004	Dynamic Fracture in Polyacrylamide Gels	The Israel Defence Forces research and development fund (MAFAT)	$ 100,000
4.	2002-2006	The Transition from Order to Disorder in Multiple-Frequency Parametrically Driven Surface Waves	The Israel Science Foundation	$ 160,000
5.	2005-2008	Dynamic Control of Friction	The Israel Science Foundation FIRST (Bikura)	$ 120,000 (with Michael Urbach of Tel-Aviv University)
6	2006-2007	The study of the onset of Friction	Silverman Fund	$12,000

Friedland Lazar

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1999-2002	Phase-locking and adiabatic control of ac-driven non-neutral plasmas	BSF	$ 60,000
2.	2000-2003	Pattern formation by synchronization in fluids and plasmas	ISF	$ 78,000
3.	2000-2003	Resonant and autoresonant phenomena in dynamics of nonlinear waves, solitons and vortices	INTAS (EU)	$ 13,000
4.	2004-2007	Control of nonlinear waves and vortices by synchronization	INTAS (EU)	$ 15,000
5.	2005-2009	Autoresonance of coupled nonlinear waves	BSF	$ 80,000
6.	2005-2009	Resonant kinetics and collective plasma and vorticity excitations driven by eikonal perturbations	ISF	$ 120,000
7.	2006-2010	Antihydrogen formation, trapping and control	ISF	$ 62,000

Friedman Eliahu

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2001-2005	Antiproton and antikaon interactions with nuclei near E=0	ISF (Israel Science Foundation)	₪ 506,641 (with A. Gal)
2.	2005-2007	In-medium nuclear interaction of hadrons at low energy	ISF (Israel Science Foundation)	₪ 123,000 For the first year (with A. Gal)

Gal Avraham

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	10/2001-09/2005	Antiproton and antikon interactions with nuclei near threshold	ISF (Israel Science Foundation) (jointly with Prof. Eliahu Friedman)	₪ 450,000
2.	10/2005 -09/2008	In-medium nuclear interactions of hadrons at low energy	ISF (Israel Science Foundation) (jointly with Prof. Eliahu Friedman)	extrapolated ₪ 370,000

Gat Omri

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.				

Giveon Amit

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1998-2002	Brane Dynamics, Gauge Theory and Geometry	BSF	$ 22,000 In the last year
2.	2000-2004	Superstrings	EU	€ 55,000 each year (shared by 3 people)
3.	2001-2004	Field Theory, String Theory and their Inter-relations	GIF	€ 76,000 each year (shared by 3 people)
4.	2001-2004	Center of Basic Interactions	ISF (Israel Science Foundation)	₪ 900,000 each year (shared by 9 people)
5.	2004-2006	Aspects of String Theory and Gauge Theories	ISF (Israel Science Foundation)	₪ 220,000 each year (shared by 3 people)
6.	2005-2009	Strings in Curved Space Time	BSF	$ 30,000 each year
7.	2006-2010	Application of String Theory to Particle Physics and to Gravity and Cosmology	DIP	€ 725,000 (shared by 10 people)
8.	2006-2010	Superstrings	EU	
9.	2006-2010	Research Center: String Theory – From Strong Interactions to Cosmology	ISF (Israel Science Foundation)	₪ 1,125,000 each year (shared by 9 people)

Glaberson William I.

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2007	Superfluids Under Rotation	Israel Academy of Sciences	$18000

Hoffman Yehuda

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2002-2007	Galaxy Formation and the Large Scale Structure"	Israel Science Foundation	$140000
2.	2001-2002	``The Structure of the Universe: from galaxies to Clusters and Beyond'	The S.A. Schonbrunn Research Endowment	$12000

Kol Barak

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2002-2005	Quantum field theory, gravitation and string theory	ISF (Israel Science Foundation) 228/02	$ 120,000
2.	2003-2005	Quantum field theory, exactly conformal deformations and quiver field theories	BSF (Bi-national Science Foundation) 2002/160	$ 30,000 / $ 60,000 (+ $ 5,000 Bergmann Award) with Amihay Hanany (MIT)
3.	2005-2009	Gravitation and High Energy Physics	ISF 607/05	4 x ₪ 242,000
4.	2005-2009	String Theory and Phase Transitions in General Relativity	BSF 2004/117	$ 60,000 / $ 120,000 with Itzhaki (Princeton Un)
5	2006-	Applications of String theory	DIP H.52	45,000 Euro with Giveon, Elitzur, and Rabinovici

Leviatan Amiram

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	09/1999-08/2002	Pseudospin and Related Symmetries in Nuclei	BSF With Prof. J.N. Ginocchio (LANL)	3 x $ 19,000
2.	10/2000-09/2004	Partial Symmetries in Nuclei	ISF (Israel Science Foundation)	x $ 30,635 and $ 10,000 equipment
3.	10/2004-09/2007	Intermediate Symmetry Structure in Nuclei	ISF	3 x $ 31,278

Livne Eli & Lichtenstadt Itamar

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2005-2008	Exploring the Neutrino Driven Supernova Scenario with Multi Dimensional Radioactive Hydrodynamics	ISF	IS 80,000/yr

Mandelzweig Victor

No' מס'	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2004	Hyperspherical Approach to Exact Solution of Few Body Equations and to Calculation of Cross-sections	Israeli Science Foundation	$ 100,652
2.	2005-2008	Application of the Quasilinearization Method	BSF	$ 60,000

Meerson Baruch

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1999-2002	Investigation of late stages of strong explosions in gases: self-similarity, vorticity and turbulence	ISF (Israel Science Foundation)	about $ 25,000 - $ 30,000 per year
2.	2002-2005	Phase ordering dynamics under global conservation: Ostwald ripening, coalescence and long-range correlations.	ISF (Israel Science Foundation)	about $ 25,000 - $ 30,000 per year
3.	2005-2007	Interfaces in granular matter	German-Israeli Foundation for Scientific Research and Development	about $ 25,000 - $ 30,000 per year
4.	2005-2008	Pattern formation in granular gases	ISF (Israel Science Foundation)	about $ 25,000 per year

Millo Oded

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	10/2000-10/2004	Tunneling phenomena in nanostructured materials and devices	ISF Center of excellence [with I. Balberg, G. Koren, G. Deutscher (TAU) – Coordinator]	$ 330,000
2.	10/2001-10/2003	Level Structure and Single Electron Tunneling in Semiconductor Nanoncrystals	BSF [with Banin, U. Landman]	$ 115,000
3.	10/2001 -	Variable temperature STM/AFM System	ISF + matching [with M.Asscher, U. Banin, I. Balberg]	$ 300,000
4.	1/2002-1/2006	Functional Nanoparticle Architecture	DIP (Israel-Germany)[with U. Banin (HU), coordinated by Itamar Willner (HU)]	€ 310,000
5.	7/2002–7/2004	Growth and characterization of semiconductor quantum rods	Faculty of Science	$ 36,000
6.	7/2003–7/2004	Local Probe Investigations of Metal Insulator Composites	YISSUM [with I. Balberg (HU)]	$ 25,000
7.	10/2004-10/2007	Tunneling phenomena in nanostructured materials and devices	ISF Center of excellence	NIS 880,000
8.	10/2004 -	Advanced nano-lithography equipment (for the Nanocenter)	ISF	$ 700,000
9.	2/2005-2/2008	Self-assembled nanocrystals – STREP program	EU [coordinated by L. Manna, Lecce, Italy].	€ 250,000 (our group)
10.	2005-2008	Electro-optical devices based on conjugated-polymer/semiconductor - nanocrystal composites	MOS [coordinated by N. Tessler, The Technion]	NIS 400,000 (our group)
11.	2006-2007	Local-probe investigations of the electronic properties of poly-crystalline solar-cell materials	HU	$ 25,000
12.	2007-2010	Defect tolerant solar-cell materials: Putting grain boundaries to work in Thin Film Chalcopyrite Solar Cells	Joint German-Israeli Research Program in Energy Research	(exact budget allocated to the HU group not

				yet known)

Orgad Dror

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	10/2002-10/2005	Geometry and Lattice Fluctuations in Stripe Phases of Strongly Correlated Systems	ISF (Israel Science Foundation)	$ 105,000
2.	10/2005-10/2009	Theory of bad Metals	BSF	$ 80,000

Ovadyahu Zvi

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2004-2007 (extended from 2000-2004)	Quantum transport in mesoscopic systems	ISF Excellence Center	total $ 300,000
2.	2001-2004	Aging and the Correlation gap in Electron Glasses	BSF	$ 36,000 annually (with Michael Pollak)
3.	4 years	Dimensionality and mesoscopic effects in Electron Glasses	BSF	$ 32,000 Annually

Paul Michael

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2003	Direct determination of radioactive nuclide production in nucleosynthesis reactions by accelerator mass spectrometry	BSF	$ 165,000 (co-PI M. Hass, Weizmann I.)
2.	2001-2003	Measurements of Long-Lived Radioisotopes in the Marine Environment	International Atomic Energy Agency (IAEA), Vienna	$ 172,960 (co-PI D. Berkovits, Soreq NRC)
3.	2001-2006	Radionuclide signatures of fresh nucleosynthesis deposited on Earth by cosmic dust	ISF	$ 210,000
4.	2004-2007	Development of a stellar-neutron source at SARAF - Phase I	Israel Council for Higher Education/IAEC	$ 205,000 (co-PI D. Berkovits)
5.	2006-2007	A feasibility study of a novel ^{41}Ca marker to assess bone turnover for breast cancer patients treated with aromatase inhibitor and bisphosphonate drug	University of Minnesota, Academic Health Center (AHC)	$24,888 (PI S. Hui, U. Minnesota, co-PI,s LLNL, Penn State U)

Piran Tsvi

No'	Years	Research	Agency	Total grant
1.	1999-2003	Gamma Ray Bursts	BSF	$ 29,000 per year
2.	1999-2003	Physics of Black Holes and Numerical Relativity	ISF	$ 20,000 per year
3.	2001-2003	Gamma-Ray Burst Sattelite	Misrad Hamada – Israel Space Agency	$ 10,000
4.	2002-2004	Ionization by Cosmic Rays and Rain Production (with Nir Shaviv)	ISF Bikura	$ 25,000 per year
5.	2002-2006	GRBs Enigma and a Tool	EU RTN	€ 180,000 (total)
6.	2003-2007	Theories of Gamma Ray Bursts	BSF	$ 20,000 per year
7.	2003-2007	Center for Excellent in High Energy physic (PI of the multi University center)	ISF	$ 200,000 per year to 4 Institutions

Questembert-Balaban Nathalie

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1	2003-2005	"Understanding the role of mechanical forces in cells using soft lithography"	ISF Bikoura	$ 50,000 per year+equipment. Total:180,000$
2	2005-2007	"A systems approach to epigenetic decisions in yeast"	HFSP	300,000$
3	2005-2007	"Studying bacterial persistence through quantitative single cell measurements and modeling"	ISF	210,000$
4	2006	"Dynamics of gene expression at the single cell level"	GIF Young Investigator Grants	€ 34,000
5	2003-2005	Complexity Fellowship (Salary coverage only)	Horowitz Foundation	120,000$

Rabinovici Eliezer

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1999-2003	The Physics of basic interactions	BSF	$22,000/yr
2.	2000-2004	Superstrings	EU	€ 185,000/yr (shared by 3)
3.	2001-2004	Field Theory, String Theory and their Inter-relations	GIF	€ 76,000/yr (shared by 3)
4.	2001-2004	Center of Basic Interactions (Center of Excellence)	ISF	₪ 900,000/yr (shared by 9)
5.	2001-2004	Aspects of String Theory and Gauge Theories	ISF	₪ 220,000/yr (shared by 3)
6.	2003-2007	Strings in Curved Space Time	BSF	$ 30,000/yr
7.	1/2006-12/2010	Application of String Theory to Particle Physics and to Gravity and Cosmology	DIP	€ 725,000 (shared by 10)

Sa'ar Amir

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	1997-2000	Optically pumped semiconductor based intersubband laser	BSF	3 x $ 21,500
2.	2000-2002	Locally modulated Bragg and quasi continuum states of asymmetric quantum wells	ISF (Israel Science Foundation)	3 x $ 55,000
3.	2001-2003	Optical inter-sub-level-transitions in Ge-Si quantum dots	China-Israel Binational fund (Ministry of Science)	2 x $ 15,000
4.	2001-2003	Quantum MOS transistors	Intel Grant	2 x $ 20,000
5.	2001-2004	Porous silcon for bio-photonic applications	Ministry of Science (Infrastructures program)	3 x $ 45,000
6.	2003-2005	Multi-color infrared photodetector for simultaneous imaging of thermal and laser pointer radiation	Magneton Project (Ministry of Industry and Trade)	2 x $ 75,000
7.	2003-2006	Electron-Beam Induced Current (EBIC) for characterization of new dielectric materials	EdCot Consortium (Ministry of Industry and Trade)	3 x $ 77,000

Sari Re'em

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2005	"Jets in Gamma Ray Bursts"	NASA Astrophysics Theory Grant	total $260,000
2.	2004		Packard Fellowship	total $625,000
3.	2004		Sloan Fellowship	total $40,000

Schiller Avraham

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2004	Interactions and Disorder in Quantum Transport of Mesoscopic and Inhomogeneous Systems	ISF center of excellence (Coordinator)	Personal annual sum: $ 41,000 total annual sum of $ 300,000
2.	2001-2002	Kondo Effect in Metal with Correlated Conduction Electrons	Israel-Niedersachsen research collaboration grant	Personal annual sum: DM 25,000 total annual sum of DM 50,000
3.	2004-2007	Interactions and Disorder in Quantum Transport of Mesoscopic and Inhomogeneous Systems	ISF center of excellence (Coordinator)	Personal annual sum: ₪ 110,000 total annual sum of ₪ 880,000

Sharon Eran

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2004-2005	Nonlinear physics	ISF Equipment	$ 280,000
2.	2004-2007	Coherent structures in rotating turbulence	ISF	₪ 220,000
3.	2004-2006	The interplay between genetic and mechanics during leaf growth	ISF (Bikura)	₪ 216,000
4.	2005	Equilibrium configurations of sheets with curved metrics	GIF - Young Scientists	€ 45,000
5.	2005-2007	The role of mechanical instabilities during leaf development	EU – NEST – initiator and coordinator	Total Budget: € 433,000, HUJI budget: € 160,000
6.	2005-2008	Inducible shape transformation in sheets with curved intrinsic metric	BSF	$ 45,000

Shaviv Nir J.

No' מס'	Years נימש	Research שם המחקר	Agency ממומ	Total grant סכום המענק
1.	2002-2006	The physics of objects brighter than the Eddington Limit	Israeli Science Foundation	$ 46,000 per year
2.	2003-2005	Mimicking atmospheric ionization and climate control	F.I.R.S.T (Bikura) grant by the Israeli Science Foundation	$ 40,000 per year, with Tsvi Piran (HU)
3.	2005-2008	Radiation Hydrodynamics of Porosity-Mediated Mass Loss from Super-Eddington Stars	National Science Foundation (US)	$ 150,000 per year, Co-PI with Stanley Owocki, U. Delaware
4.	2006-2009	Nonlinear structure in continuum driven winds and their application to massive stars, novae and high rate accretion flows	Israeli Science Foundation	$ 25,000 per year

Solomon Sorin

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2002-2005	Theoretical Physics	ISF	Approx $ 100,000
2.	2005-2008	GIACS	NEST; FP6; EC	approx € 1,500,000
3	2005-2009	CO3	NEST ; FP6, EC	approx € 1,500,000
4	2006-2010	DAPHNet	IST, FP6, EC	approx € 1,500,000

Sompolinsky Haim

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2002	Network Dynamics and Visual Processing	B.S.F.	$ 75,000
2.	2000-2006	The Representation of Complex Voluntary Movements	I.S.F.	$ 376,800
3.	2001-2004	Key Mechanisms for Neural Adaptation	Volkswagen Foundation	$ 42,000
4.	2003-2006	Cortical Mechanisms Underlying Orientation	B.S.F.	$ 80,000
5.	2005-2006	Temporal Coding in Neural Networks	Ministry of Defense	$ 70,000
6.	2006-2007	Temporal Coding in Neural Networks- salary	Ministry of Defense	$ 28,000
7.	2006-2007	Temporal Coding in Neural Networks- Equipment	Ministry of Defense	$ 32,000

Wagschal Yehuda and Perel Reuven

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2003-2007	Cross Section Adjustment	IAEC	IS 60,000/yr

Zigler Arie

No' מס׳	Years שנים	Research שם המחקר	Agency מממן	Total grant סכום המענק
1.	2000-2003	An Ultrashort-X-ray Emission	GDS BMBF	€ 135,000
2.	2000-2003	Plasma Channel Guided Laser Wakefield	BSF	$ 92,500
3.	2000- 2003	Improved harmonics generation	ISF (Israel Science Foundation)	$ 86,500
4.	2000- 2005	Generation of high energy X-ray	VATAT IAEC	$ 250,000
5.	2001-2004	Novel Excitation Schemes	GIF	€ 90,000
6.	2003-2006	Air channeling of ultra high intensity	BSF	$ 100,000
7.	2004-2007	An improved plasma Accelerator	ISF (Israel Science Foundation)	$ 120,000
8.	2004- 2007	Laser Channeling in air	IMOD	$ 607,000
9.	2004-2006	Laser pulse contrast improve using plasma	GIF	€ 105,000
10	2005-2007	Generation of fast particles	VATAT IAEC	$100,000
11	2007-2009	Interaction with clusters	Ministry of Science	$30,000
12	2007-2009	Laser interaction with snow	James Frank	$60,000

Publications: Faculty Members and Senior Research Scientists (2001-)

Agam Oded

1. O. Agam, AV Andreev, and B. Spivak, "Long-range correlations in the speckle patterns of directed waves", Phys. Rev. Lett. **97,** 223901 (2006).

2. E. Betteiheim and O. Agam, "Tip-splitting evolution in the idealized Saffman-Taylor problem", J. Phys. A. Math. Gen. **39**, 1759 (2006).

3. E. Bettelheim, O. Agam, A. Zabrodin, and P. Wiegmann, Singularities of the Hele-Shaw Flow and Shock Waves in Dispersive Media, Phys. Rev. Lett. **95**, 244504 (2005).

4. R. Ceder, O. Agam, and Z. Ovadyahu, Nonohmicity and energy relaxation in diffusive two-dimensional metals, Phys. Rev. B **72**, 245104 (2005).

5. R. Teodorescu , E. Bettelheim, O. Agam, A. Zabrodin, and P. Wiegmann, "Normal random matrix ensemble as a growth problem", Nucl. Phys. B **704** , 407-444 (2005).

6. R. Teodorescu , E. Bettelheim, O. Agam, A. Zabrodin, and P. Wiegmann, "Semiclassical evolution of the spectral curve in the normal random matrix ensemble as Whitham hierarchy" , Nucl. Phys. B **700**, 521 (2004).

7. N. Brenner, O. Agam, W. Bialek, and R.D. van Steveninck "Statistical properties of spike trains: Universal and stimulus-dependent aspects" Phys. Rev. E **66**, 031907 (2002).

8. O. Agam, E. Bettelheim, P.Wiegmann, and A. Zabrodin, "Viscous fingering and the shape of an electronic droplet in the quantum Hall regime", Phys. Rev. Lett. **88**, 236801 (2002).

9. O. Agam, and B.L. Altshuler, "Scars in parametrically excited surface waves", Physica A **302**, 310 (2001).

10. A. Ater, and O. Agam "Weak localization in disordered systems at the ballistic limit", Phy. Rev. B **63** , 205101 (2001).

11. E. Bettelheim, O. Agam, and N. M. Shnerb, ""Quantum phase transitions" in classical nonequilibrium processes", PHYSICA E **9**, 600-(2001).

12. N.M. Shnerb, E. Bettelheim, Y. Louzoun, O. Agam, and S. Solomon, "Adaptation of autocatalytic fluctuations to diffusive noise", Pys. Rev. E **63**, 021103 (2001).

13. O. Agam O and A. Schiller A, "Projecting the Kondo effect: Theory of the quantum mirage", Phys. Rev. Lett. **86**, 484 (2001).

Ashkenazy Yinon

1. Y. Ashkenazy, R.S. Averback and K. Albe, “Nanoscale rotation on Pt surfaces: twist boundaries”, Physical Review B, 64 (2001) 205409.

2. D. Mordehai, Y. Ashkenazy, I. Kelson, G. Makov, “Dynamic properties of screw dislocations in Cu: A molecular dynamics study”, Physical Review B, 67 (2003) 24112. 3.075; 7/60; 1.

3. SG. Mayr, Y. Ashkenazy, K. Albe, R.S. Averback, "Mechanisms of radiation-induced viscous flow: role of point defects", Physical Review Letters, 90 (2003) 55505.

4. Y. Zhong, Y. Ashkenazy, R.S. Averback "Ion beam smoothing of metal surfaces", Journal of applied physics, 94 (2003) 4432-4439.

5. S.G. Mayr, Y. Ashkenazy, R.S. Averback, "Evolution of thin-film morphologies in metals during ion beam bombardment", Nuclear Instruments and methods in physics B – Beam interactions with materials and atoms, 212 (2003) 246-252.

6. M. Okinwesky, Y. Ashkenazy, B.J. Huser, R.S. Averback, "Molecular dynamics simulations of void stability in amorphous Si", Journal of Applied Physics,96, (2004) 4181 – 4188.

7. Y.Ashkenazy, R.S. Averback, "Shock induced amorphization as the onset of spall", Applied Physics Letters, 86 (2005) 51907.

8. K. Nordlund, Y. Ashkenazy, R.S. Averback "Strings and interstitials in liquids, glasses and crystals", Europhysics Letters, 71 (2005) 625-631.

9. P. Krasnochtchekov, Y. Ashkenazy, K. Albe, R.S. Averback "Molecular dynamics study of the density scaling of inert gas condensation", Journal of chemical Physics, 123 (2005) 154314.

10. Y. Ashkenazy, R.S. Averback "A microscopic view of glass and liquid crystallization – revealing the structure and dynamics of liquids", Phys Rev. Lett – submitted (2007).

Balberg Isaac

1. Bipolar phototransport in π-conjugated polymer/C_{60} composites, I. Balberg, R. Naidis, M.-K. Lee, J. Shinar and L.F. Fonseca, Appl. Phys. Lett. **79**, 197-199 (2001).

2. Tomographic-like reconsruction of the Percolation Cluster as a Phase Transition, N. Shimoni, D. Azulai I. Balberg and O. Millo, Phys. Rev. B **66**, 020102R1-4 (2002)

3. A simultaneous experimental determination of the distribution and character of the two band tails in disordered semiconductors, I. Balberg, *Invited paper*, *Festschrift in Honor of S.R. Ovshinski*, J. of Optoelecrtonics and Advanced Materials, **4**, 437-454 (2002).

4. 1/f or Flicker noise in Cellular percolation systems, C. Chiteme, D.S. McLachlan and I. Balberg, Phys. Rev. B **67**, 024207, 1-12 (2003).

5. Electrical-thermal switching in carbon black-polymer composites as a local effect, D. Azolay, M. Eylon, O. Eshkenazi, D. Toker, M. Balberg, O. Millo and I. Balberg, Phys. Rev. Lett. **90**, 236601, 1-4, (2003).

6. Tunneling and percolation in metal-insulator composite materials, D. Toker, D. Azolay, N. Shimoni, I. Balberg and O. Millo, Phys. Rev. B, **68**, 041403(R), 1-4, (2003).

7. The special electrical properties and the corresponding applications of carbon black-polymer composies, I. Balberg , *invited paper*, 10th Intl' Symposium on Continuum Models and Discrete Systems, Shoresh 2003. Publised in Nato Science Series:II: Mathematics, Physics and Chemistry: 158, part II, 47-53 (Kluwer Dordrecht, 2004).

8. State Distribution in Hydrogenated Microcrystalline Silicon, I. Balberg, Y. Dover, R. Naides, J.P. Conde and V. Chu, Phys. Rev. B, **69**, 035203, 1-19 (2004).

9. Percolation and Tunneling in Composite Materials, I. Balberg, D. Azolay, D. Toker and O. Millo, *invited review*, International Journal of Modern Physics B, **18**, 2091-2121 (2004).

10. Radiative versus nonradiative decay processes in silicon nanocrystals probed by time resolved photoluminescence spectroscopy, M. Dovrat, Y. Oppenheim, J. Jedrzejewski, I. Balberg and A. Sa'ar*, Phys. Rev. B. **69**, 155311; 1-8 (2004).

11. Current Routes in Hydrogenated Microcrystalline Silicon, D. Azulay, I. Balberg, V. Chu, J.P. Conde and O. Millo, Phys. Rev. B, **71**, 113304 (2005).

12. Where Does the Photocurrent Flow in Polycrystalline CdS?, D. Azulay, S. Silbert, O. Millo, N. Negahavi and I. Balberg, Appl. Phys. Lett. **86**, 212102:1-3, 2005.

13. Luminesence and Electrical Transport Mechanisms in Systems of Semiconductor Nanocrystals, I. Balberg, *Invited paper*, Proc. of the first Int'l Worshop on semiconductor Nanocrystals (Budapest September, 2005), p. 291.

14. Resonant Coupling between Surface Vibrations and Electronic States in Silicon Nanocrystals at the Strong Confinement Regime, A. Sa'ar, Y. Reichman, M. Dovrat, D. Kraf, J. Jedrzejewsk, and I. Balberg, Nanoletters, **5**, 2443-2447 (2005).

15. Tunneling and Non-Universality in Continuum Percolation Systems, C. Grimaldi and I. Balberg, Phys. Rev. Lett. **96**, 066602, 1-4 (2006).

16. Size-Dependent Local Conductance Properties of CdSe Nanocrystal Ensembles, D. Toker, I. Balberg, O. Zelaya-Angel, E. Savir, O. Millo, Phys. Rev. B. **73**, 045317 (2006).

17. Obsevation of Reversed Current in the Scanning Tunneling Spectra of Fullerene-Like WS_2 Nanoparticles, D. Azulay, F. Kopnov, R. Tene, I. Balberg and O. Millo, Nanoletters, **6**, 760-766 (2006).

18. Ehhancedment of the Photoluminescence Properties of Porous Silicon by Silica Gel Coating, Y. Posada, L.F. Fonseca, P. Vallejo, L. San Miguel and I. Balberg, J. Appl. Phys. **99**, 114313 (2006).

19. Monte Carlo Results for Continuum Percolation in Low and High Dimensions, N. Wagner, I. Balberg and D. Klein, Phys. Rev. E. **74**, 011127 (2006).

20. Silicon Nanocrystallites at the Strong, Confinement Regime: From Quantum Confinement to Surface Chemistry, A. Sa'ar, M. Dovrat, J. Jedrejewski I. Popov and I. Balberg. Phys. Stat. Sol. (c). in press, (2006).

21. Electronic Transport in Si-SiO_2 Nanocomposite Films, M.L. Ciurea, V.S. Tedorescu, V. Iancu and I. Balberg, Chemical Physics Letters, **423**, 225-228 (2006).

22. The Effect of Light Induced Degredation on the Sensitization Phenomenon in a-Si:H, I Balberg and Y. Dover, *Invited paper*, *Festschrift in Honor of Prof. R. Grigorovici*, J. of Optoelecrtonics and Advanced Materials, **8**, 1996-2002 (2006).

23. The Effect of Light Induced Degredation on the Sensitization Phenomenon in a-Si:H, I Balberg and Y. Dover, *Invited paper*, *Festschrift in Honor of Prof. R. Grigorovici*, J. of Optoelecrtonics and Advanced Materials, **8**, 1996-2002 (2006).

24. Current Routes in Polycrystalline $CuInSe_2$ and $Cu(In,Ga)Se_2$ Films, D. Azulay, O. Millo, I. Balberg, H.-W. Schock, I. Visoly-Fisher and D. Cahen, Solar Energy and Solar Energy Materials, **91**, 85-90 (2007).

25. Electrical Transport Phenomena in Systems of Semiconductor Quantum Dots, I. Balberg, *invited paper*, Nanomat 2006 (Antalya, June 2006), J. of Nanoscience and Nanotechnology, in press.

26. Piezoresistivity in Apparent Non-universal Systems, N. Johner, P. Ryser, C. Grimaldi and I. Balberg, Phys. Rev. B, in press.

Barnea Nir

1. N. Barnea, W. Leidemann and G. Orlandini, State dependent effective interaction for the hyperspherical formalism with noncentral forces, Nucl. Phys. A **693**, 565 (2001).

2. N. Barnea, V. D. Efros, W. Leidemann, and G. Orlandini, Total ^{4}He photoabsorption cross section reexamined: Correlated versus effective interaction hyperspherical harmonics, Phys. Rev. C **63**, 057002 (2001).

3. H. Kamada, A. Nogga, W. Gl\"ockle, E. Hiyama, M. Kamimura, K. Varga, Y. Suzuki, M. Viviani, A. Kievsky, S. Rosati, J. Carlson, S. C. Pieper, R. B. Wiringa, P. Navr\'atil, B. R. Barrett, N. Barnea, W. Leidemann and G. Orlandini, Benchmark Test Calculation of a Four-Nucleon Bound State, Phys. Rev. C **64**, 044001 (2001).

4. M. Marchisio, S. Bacca, N. Barnea, W. Leidemann and G. Orlandini, Microscopic calculation of six-body inelastic reactions with complete final state interaction: Photoabsorption of ^{6}He and ^{6}Li, Phys. Rev. Lett. **89**, 052502 (2002).

5. N. Barnea, W. Leidemann and G. Orlandini, Improved effective interaction for the hyperspherical formalism, Phys. Rev. C **67**, 054003 (2003).

6. M. Marchisio, N. Barnea, W. Leidemann and G. Orlandini, Efficient method for Lorentz integral transform of reaction cross sections, Few-body syst. **33**, 259 (2003).

7. O. Mintkevich and N. Barnea, Wave function for no-core effective interaction approaches, Phys. Rev. C **69**, 044005 (2004).

8. S. Quaglioni, W. Leidemann, G. Orlandini, N. Barnea and V. Efros, Two-body photodisintegration of ^{4}He with full final state interaction, Phys. Rev. C **69**, 044002 (2004).

9. S. Bacca, N. Barnea, W. Leidemann and G. Orlandini, Effect of P-wave interaction in ^{6}He and ^{6}Li photoabsorption, Phys. Rev. C **69**, 057001 (2004).

10. N. Barnea, S. Bacca, W. Leidemann and G. Orlandini, Photodisintegration of light nuclei Few-body syst. **34**, 127 (2004).

11. W. Leidemann, S. Bacca, N. Barnea and G. Orlandini, Effective interaction method for hyperspherical harmonics, Nucl. Phys. A **737**, 231 (2004).

12. D. Gazit and N. Barnea, Neutrino neutral reaction on ^{4}He : Effects of final state interaction and realistic NN force, Phys. Rev. C **70**, 048801 (2004).

13. S. Bacca, H. Arenhovel, N. Barnea, W. Leidemann and G. Orlandini, Ab initio calculation of ^{7}Li photodisintegration, Phys. Lett. B **603**, 159 (2004).

14. N. Barnea, V. D. Efros, W. Leidemann, and G. Orlandini, Incorporation of three--nucleon force in the effective interaction hyperspherical harmonic approach, Few-body syst. **35**, 155 (2004).

15. Y. Ronen, N. Barnea and W. Leidemann, An □-particle model for ^{16}O, is there a new 4-body scale?, Few-body syst. **38**, 97 (2006).

16. N. Barnea, W. Leidemann, G. Orlandini, V. D. Efros, and E. L. Tomusiak, On the accuracy of hyperspherical harmonics approaches to photonuclear reactions, Few-body syst. **39**, 1 (2006).

17 N. Barnea, J. Vijande, and A. Valcarce, Four-quark spectroscopy within the hyperspherical formalism, Phys. Rev. D **73**, 054004 (2006).

18. D. Gazit, S. Bacca, N. Barnea, W. Leidemann, and G. Orlandini, Alpha-particle photoabsorption with a realistic nuclear force, Phys. Rev. Lett. **96**, 112301 (2006).

19. N. Barnea, W. Leidemann, G. Orlandini, Test of J-matrix inverse scattering potentials on electromagnetic reactions of few-nucleon systems, Phys. Rev. C **74**, 034003 (2006).

20. D. Gazit, N. Barnea, S. Bacca, W. Leidemann, and G. Orlandini, Photonuclear sum rules and the tetrahedral configuration of 4He, Phys. Rev. C **74**, 061001 (2006).

21. N. Barnea and E. Fridmann, Radial sensitivity of kaonic atoms and strongly bound $\bar K$ states, Phys. Rev. C **75**, 022202 (2007).

22. D. Gazit, N. Barnea, Low Energy Inelastic Neutrino Reactions on ^{4}He, Phys. Rev. Lett. (submitted for publication).

Bekenstein Jacob D.

1. "The Case for Discrete Energy Levels of a Black Hole", chapter in *2001: A Spacetime Odyssey:* Proceedings of the Inaugural Conference of the Michigan Center for Theoretical Physics, eds. M. J. Duff and J. T. Liu (World Scientific Publishing, Singapore 2002), pp. 21-31.

2. "Quantum Information and Quantum Black Holes", two lectures in NATO school, published in *Advances in the Interplay Between Quantum and Gravity Physics*, eds. P. G. Bergmann and V. de Sabbata (Kluwer, Dordrecht 2002), pp 1-26.

3. "Building Blocks of a Black Hole" (with G. Gour), Physical Review D**66**, 024005 (2002).

4. "Fine-Structure Constant Variability, Equivalence Principle and Cosmology", Phys. Rev. D**66**, 123514 (2002).

5. "Preparing the State of a Black Hole", chapter in *Inquiring the Universe*, eds. J. M. Salim, S. E. P. Bergliaffa, L. A. Oliveira and V. A. De Lorenci (Frontier Group 2003). pp 17-32.

6. "Information in the Holographic Universe", Scientific American **289**, 58-65 (2003).

7. "Black Holes and Information Theory", review in Contemporary Physics **45**, 31 (2004).

8. "Relativistic Gravitation Theory for the Modified Newtonian Dynamics Paradigm", Phys. Rev. D**70**, 083509 (2004).

9. "Are There Hyperentropic Objects ?", Phys. Rev. D**70**, 121502(R) (2004).

10. "Black Hole Physics and Astrophysics", lectures at NATO Advanced Study Institute *Neutrinos and Explosive Events in the Universe*, chapter in *Neutrinos and Explosive Events in the Universe*, eds. M. M. Shapiro, T. Stanev and J. P. Wefel (Springer, Dordrecht 2005), pp. 149-173.

11. "How Does the Entropy/Information Bound Work ?", {Foundations of Physics **35**, 1805 (2005).

12. "Black Holes: Physics and Astrophysics", chapter in *Neutrinos and Explosive Events in the Universe*, eds. M. M. Shapiro, T. Stanev and J. P. Wefel (Springer, Dordrecht 2005), pp. 149-173.

13. "Information in the Holographic Universe", updated version of article by the same name from Scientific American in special issue *Frontiers of Physics* (Scientific American, February 2006).

14. "A Primer to Relativistic MOND Theory" (with R. H. Sanders), in *Mass Profiles and Cosmological Structures,* eds. G. Mamon, F. Combes, C. Deffayet and B. Fort (EAS Publication Series, Vol. 20, 2006).

15. "Modified Newtonian Dynamics Habitats Within the Solar System" (with J. Magueijo), Phys. Rev. D**73**, 103513 (2006).

16. "Perfect Magnetohydrodynamics as a Field Theory" (with G. Betschart), Phys. Rev. D**74**, 083009 (2006).

18. "The Modified Newtonian Dynamics-MOND-and its Implications for new Physics", review in Contemporary Physics, in press 2007.

19. "Information in the Holographic Universe", updatied version of article by the same name from Scientific American in special issue *Black Holes* (Scientific American, March 2007).

Biham Ofer

1. Analysis of generalized Grover's quantum search algorithms using recursion equations, E. Biham, O. Biham, D. Biron, M. Grassl, D.A. Lidar and D. Shapira, Phys. Rev. A 63 , 012310 (2001).

2. Evidence for universality within the classes of deterministic and stochastic sandpile models. O. Biham, E. Milshtein and O. Malcai, Phys. Rev. E 63 , 061309 (2001).

3. Master equation for hydrogen recombination on grain surfaces. O. Biham, I. Furman, V. Pirronello and G. Vidali Astrophysical Journal 553, 595 (2001).

4. Entanglement monotone derived from Grover's algorithm. O. Biham, M.A. Nielsen and T.J. Osborne, Phys. Rev. A65, 062312 (2002).

5. Exact results for hydrogen recombination on dust grain surfaces. O. Biham and A. Lipshtat, Phys. Rev. E 66, 056103 (2002).

6. The effect of unitary noise on Grover's quantum search algorithm. D. Shapira, S. Mozes and O. Biham, Phys. Rev. A 67, 042301 (2003).

7. Sandpile models and random walkers on finite lattices. Y. Shilo and O. Biham, Phys. Rev. E 67, 066102 (2003).

8. Moment eqution for chemical reactions on interstellar dust grains. A. Lipshtat and O. Biham, Astronomy & Astrophysics 400, 585 (2003).

9. Analysis of Grover's quantum search algorithm as a dynamical system. O. Biham, D. Shapira and Y. Shimoni Phys. Rev. A 68, 022326 (2003).

10. One dimensional quantum walk with unitary noise. D. Shapira and O. Biham, Phys. Rev. A 68, 062315 (2003).

11. Enhanced production of HD and D_2 molecules on small dust grains in diffuse clouds. A. Lipshtat, O. Biham and E. Herbst Mon. Not. R. Astron. Soc 348 , 1055 (2004).

12. Characterization of pure quantum states of multiple qubits using the Groverian entanglement measure. Y. Shimoni (S), D. Shapira and O. Biham, Phys. Rev. A 69, 062303 (2004).

13. Efficient simulations of gas-grain chemistry in interstellar clouds. A. Lipshtat and O. Biham, Phys. Rev. Lett 93, 170601 (2004).

14. Modeling of negative autoregulated genetic networks in single cells. A. Lipshtat , H.B. Perets, N.Q. Balaban and O. Biham, Gene, Evolutionary Genomics 347, 265 (2005).

15. Molecular hydrogen formation on ice under interstellar onditions. H.B. Perets, O. Biham, G. Manico, V. Pirronello, J. Roser, S. Swords (S) and G. Vidali, The Astrophysical Journal 627, 850 (2005).

16. Algebraic analysis of quantum search with pure and mixed states. D. Shapira, Y. Shimoni and O. Biham,Phys. Rev. A71,042320 (2005).

17. Reaction kinetics in a tight spot. O. Biham, J. Krug (C), A. Lipshtat and T. Michely, Small 1, 502 (2005).

18. The effect of grain size distribution on H$_2$ formation rate in the interstellar medium. A. Lipshtat and O. Biham, Mon. Not. R. Astron. Soc 362, 666 (2005).

19. The Forbes 400, the Pareto power-law and efficient markets. O.S. Klass, O. Biham, M. Levy, O. Malcai (S) and S. Solomon, Economics Letters 90, 290 (2006).

20. Entangled quantum states generated by Shor's factoring algorithm. Y. Shimoni, D. Shapira and O. Biham, Phys. Rev. A, 72, 062308 (2005).

21. Molecular hydrogen formation on porous dust grains. H.B. Perets and O. Biham, Mon. Not. R. Astron. Soc. 365, 801 (2006).

22. Groverian measure of entanglement for mixed states, D. Shapira, Y. shimoni and O. Biham, Phs. Rev. A 73, 044301 (2006).

23. Genetic toggle switch without cooperative binding, A. Lipshtat, A. Loinger, N.Q. Balaban and O. Biham, Phys. Rev. Lett. 96, 188101 (2006).

24. Dissipative sandpile models with universal exponents, O. Malcai, Y. Shilo and O. Biham, Phys. Rev. E 73, 056125 (2006).

25. Stochastic simulations of genetic switch systems, A. Loinger, A. Lipshtat, N.Q. Balaban and O. Biham, Phys. Rev. E 75, 021904 (2007).

26. Groverian entanglement measure of pure quantum states with arbitrary partitions, Y. Shimoni and O. Biham, Phys. Rev. A 75, 022308 (2007).

27. Efficient simulations of interstellar gas-grain chemistry using moment equations, B. Barzel and O. Biham, Astrophys. J. Lett. 658, in press (2007).

Davidov Dan

1. Copty AB , Neve-Oz Y , Barak I Golosovsky M , **Davidov D**, Evidence for a specific microwave radiation effect on the green fluorescent protein, BIOPHYSICAL JOURNAL 91 (4): 1413-1423 AUG 15 2006

2. Noach S, Manevich M, Eisenberg NP, **Davidov D**, Klebanov M, Lyubin V, Optical near-field lithography in chalcogenide films, OPTICAL MATERIALS 28 (8-9): 1054-1057 JUN 2006

3. Sakran F, Golosovsky M, **Davidov D**, Monod P , Localized spin-wave excitation by the evanescent microwave scanning probe , REVIEW OF SCIENTIFIC INSTRUMENTS 77 (2): Art. No. 023902 FEB 2006.

4. Popov O, Zilbershtein A. and Davidov D. Random lasing from dye-gold nanoparticles in polymer films: Enhanced gain at the surface-plasmon-resonance wavelength, APPLIED PHYSICS LETTERS 89 (19): Art. No. 191116 NOV 6 2006

5. Lirtsman V, Ziblat R, Golosovsky M, **Davidov D**, Pogreb R, Sacks-Granek V, Rishpon J, Surface-plasmon resonance with infrared excitation: Studies of phospholipid membrane growth , JOURNAL OF APPLIED PHYSICS 98 (9): Art. No. 093506 NOV 1 2005

6. Golosovsky A, Neve-Oz Y, **Davidov D**, Magnetic-field-tunable photonic stop band in a three-dimensional array of conducting spheres, PHYSICAL REVIEW B 71 (19): Art. No. 195105 MAY 2005

7. Golosovsky M, Neve-Oz Y, **Davidov D**, et al. Phase shift on reflection from metallodielectric photonic bandgap materials, PHYSICAL REVIEW B 70 (11): Art. No. 115105 SEP 2004

8. Sakran F, Copty A, Golosovsky M, **Davidov D**. Scanning ferromagnetic resonance microscopy and resonant heating of magnetite nanoparticles: Demonstration of thermally detected magnetic resonance, APPLIED PHYSICS LETTERS 84 (22): 4499-4501 MAY 31 2004

9. Sakran F, Copty A, Golosovsky M, **Davidov D** et al. Electron spin resonance microscopic surface imaging using a microwave scanning probe, APPLIED PHYSICS LETTERS 82 (9): 1479-1481 MAR 3 2003

10. Saado Y, Golosovsky M, **Davidov D**, et al. Tunable photonic band gap in self-assembled clusters of floating magnetic particles, PHYSICAL REVIEW B 66 (19): Art. No. 195108 NOV 15 2002

11. Golosovsky M, Saado Y, **Davidov D**, Energy and symmetry of self-assembled two-dimensional dipole clusters in magnetic confinement, PHYSICAL REVIEW E 65 (6): Art. No. 061405 Part 1 JUN 2002.

12. Abu-Teir M, Sakran F, Golosovsky M, **Davidov D** et al. Local contactless measurement of the ordinary and extraordinary Hall effect using near-field microwave microscopy, APPLIED PHYSICS LETTERS 80 (10): 1776-1778 MAR 11 2002

Dekel Avishai

1. Non-linear Stochastic Galaxy Biasing in Simulations: Type, Scale and Redshift Dependence; Somerville, R.S., Lemson, G., Sigad, Y., Dekel, A., Colberg, J., Kauffmann, G., \& White, S.D.M. 2001, MNRAS, 320, 289.

2. Cosmological Parameters from Velocities, CMB and Supernovae; Bridle, S.L., Zehavi, I., Dekel, A., Lahav, O., Hobson, M.P., Lasenby, A.N. 2001, MNRAS, 321, 333.

3. Profiles of dark haloes: evolution, scatter, and environment; Bullock, J.S., Kolatt, T.S., Sigad, Y., Somerville, R.S., Kravtsov, A.V., Klypin, A.A., Primack, J.R., \& Dekel, A. 2001, MNRAS, 321, 559.

4. Strong Evolution in the Luminosity-Velocity Relation at z>1?; Bullock, J.S., Dekel, A., Kolatt, T.S., Primack, J.R., \& Somerville, R.S. 2001, ApJ 550, 21.

5. Galaxy Formation at z~3: Constraints from Spatial Clustering; Wechsler, R.H., Somerville, R.S., Bullock, J.S., Kolatt, T.S., Primack, J.R., Blumenthal, G.R., \& Dekel, A. 2001, ApJ, 554, 85.

6. A Universal Angular-Momentum Profile for Galactic Halos; Bullock, J.S., Dekel, A.,

Kolatt, T.S., Kravtsov, A.V., Klypin, A.A., Porciani, C., \& Primack, J.R. 2001, ApJ, 555, 240.

7. Cosmological Density and Power Spectrum from Peculiar Velocities: Nonlinear Corrections and PCA; Silberman, L., Dekel, A., Eldar, A., \& Zehavi, I. 2001, ApJ, 557, 102.

8. Modeling Angular-Momentum History in Dark-Matter Haloes; Maller, A.H., Dekel, A., \& Somerville, R.S. 2002, MNRAS, 329, 423.

9. Concentrations of Dark Halos from their Assembly Histories; Wechsler, R.H., Bullock, J.S., Primack, J.R., Kravtsov, A.V., \& Dekel, A. 2002, ApJ, 568, 52.

10. Testing Tidal-Torque Theory: I. Spin Amplitude and Direction; Porciani, C., Dekel, A., \& Hoffman, Y. 2002, MNRAS, 332, 325.

11. Testing Tidal-Torque Theory: II. Alignment of Inertia and Shear and the Characteristics of Proto-haloes; Porciani, C., Dekel, A., \& Hoffman, Y. 2002, MNRAS, 332, 339.

12. Towards a resolution of the Galactic Spin Crisis: Mergers, Feedback, and Spin Segregation; Maller A.~H. \& Dekel A. 2002, MNRAS, 335, 487.

13. Simulating the Formation of the Local Galaxy Population; Mathis. H., Lemson. G., Springel, V., Kauffmann, G., White, S.D.M., Eldar, A., \& Dekel, A. 2002, MNRAS, 333, 739.

14. Galctic Halo Cusp-Core: Tidal Compression in Mergers; Dekel, A., Devor, J., \& Hetzroni, G. 2003, MNRAS, 341, 326.

15. Dark-Halo Cusp: Asymptotic Convergence; Dekel, A., Arad, I., Devor. J., \& Birnboim, Y. 2003, ApJ, 588, 680.

16. Feedback and the Fundamental Line of Low-Luminosity LSB/dwarf Galaxies; Dekel, A., \& Woo, J. 2003, MNRAS, 344, 1131.

17. Virial Shocks in Galactic Haloes?; Birnboim, Y., \& Dekel, A. 2003, MNRAS, 345, 349.

18. Photo-evaporation in dwarf galaxies; Shaviv, N., \& Dekel, A. 2004, astro-ph/0305527

19. The Large-Scale Tidal Velocity Field; Hoffman, Y., Eldar, A., Zaroubi, S., \& Dekel, A. 2004, astro-ph/0102190

20. Scaling Relations of Local Spiral Galaxies.I. Observational Foundations; Courteau, S., MacArthur, L.A., Dekel, A., van den Bosch, F., McIntosh, D.H., \& Dale, D. 2004, astro-ph/0310440

21. Massive black hole seeds from low angular momentum material; Koushiappas, S.M., Bullock, J.S., \& Dekel, A. 2004, MNRAS, 354, 292.

22. Phase-Space Structure of Dark-Matter Haloes: Scale-Invariant PDF Driven by Substructure; Arad, I., Dekel, A., \& Klypin, A.A. 2004, MNRAS, 353, 15.

23. Lost \& Found Dark Matter in Elliptical Galaxies; Dekel, A., Stoehr, F., Mamon, G.A.,

Cox, T.J., Novak, G.S. \& Primack, J.R. 2005, Nature, 437, 70.

24. On the Correlations of Massive Black Holes with their Host Galaxies; Novak, G.S., Faber, S.M. \& Dekel, A. 2006, ApJ, 637, 96.

25. Galaxy Bimodality due to Cold Flows and Shock Heating; Dekel, A. \& Birnboim, Y. 2006, MNRAS, 368, 2.

26. Modelling the Galaxy Bimodality: Shutdown Above a Critical Halo Mass; Cattaneo, A., Dekel, A., Devriendt, J., Guiderdoni, B. \& Blaizot, J. 2006, MNRAS, 370, 1651.

27. The Dissipative Merger Progenitors of Elliptical Galaxies; Dekel, A. \& Cox, T.J. 2006, MNRAS, 370, 1445.

28. Shapes of Stellar Systems and Dark Halos from Simulations of Galaxy Major Mergers; Novak, G.S., Cox, T.J., Primack, J.R., Jonsson, P. \& Dekel, A. 2006, ApJL, 646L, 9.

29. Natural Downsizing in Hierarchical Galaxy Formation; Neistein, E., van den Bosch, F.C. \& Dekel, A. 2006, MNRAS, 372, 933.

30. A Revised Model for the Formation of Disk Galaxies: Quiet History, Low Spin, and Dark-Halo Expansion; Dutton, A.A., van den Bosch, F.C., Dekel, A. \& Courteau, S. 2007, ApJ, 654, 27.

31. Properties of Dark Matter Haloes in Clusters, Filaments, Sheets and Voids; Hahn, O., Porciani, C., Carollo, C.M., Dekel, A. 2007, MNRAS, 375, 489.

32. Star Formation in AEGIS Field Galaxies Since $z=1.1$: Staged Galaxy Formation and a Model of Mass-Dependent Gas Exhaustion; Noeske, K.G., Faber, S.M., Weiner, B.J., Koo, D.C., Primack, J.R., Dekel, A., Papovich, C., et al. 2007, ApJL, 660, 47.

33. Bursting and Quenching in Massive Galaxies without Major Mergers or AGNs; Birnboim, Y., Dekel, A., Neistein, E. 2007, MNRAS, in press.

34. The Evolution of Dark Matter Halo Properties in Clustesr, Filaments, Sheets and Voids; Hahn, O., Carollo, C.M., Porciani, C., Dekel, A. 2007, MNRAS, in press.

35. Predicting the Properties of Dissipative Galaxy Merger Remnants; Covington, M., Cox, T.J., Dekel, A., Jonsson, P., Primack, J.R. 2007, ApJ, in press.

Eisenberg Hagai

1. "Self-Focusing and Defocusing in Waveguide Arrays", R. Morandotti, H.S. Eisenberg, Y. Silberberg, M. Sorel and J.S. Aitchison, Phys. Rev. Lett. **86**, 3296 (2001)

2. "Kerr Spatio-Temporal Self-Focusing in a Planar Glass Waveguide", H.S. Eisenberg, M. Morandotti, Y. Silberberg, S. Bar-Ad, D. Ross and J.S. Aitchison, Phys. Rev. Lett. **87**, 043902-1 (2001)

3. "Optical Discrete Solitons in Waveguide Arrays: I) Soliton Formation", H. S. Eisenberg, R. Morandotti, Y. Silberberg, J.M. Arnold, G. Pennelli and J.S. Aitchison, J. Opt. Soc. Am. B **19**, 2938 (2002)

4. "Optical Discrete Solitons in Waveguide Arrays: II) Dynamic Properties", U. Peschel, R. Morandotti, J. S. Aitchison, H.S. Eisenberg and Y. Silberberg, J. Opt. Soc. Am. B **19**, 2637 (2002)

5. "Band-gap structure of waveguide arrays and excitation of Floquet-Bloch solitons", D. Mandelik, H.S. Eisenberg, Y. Silberberg, R. Morandotti, J.S. Aitchison, Phys. Rev. Lett. **90**, 053902 (2003)

6. "Observation of mutually trapped multiband optical breathers in waveguide arrays", D. Mandelik, H.S. Eisenberg, Y. Silberberg, R. Morandotti, J.S. Aitchison, Phys. Rev. Lett. **90**, 253902 (2003)

7. "Strong Spatiotemporal Localization in a Silica Nonlinear Waveguide Array", D. Cheskis, S. Bar-Ad, R. Morandotti, J.S. Aitchison, H.S. Eisenberg, Y. Silberberg and D. Ross, Phys. Rev. Lett. **91**, 223901 (2003)

8. "Quantum entanglement of a large number of photons", H.S. Eisenberg, G. Khoury, G. Durkin, C. Simon and D. Bouwmeester, Phys. Rev. Lett. **93**, 193901 (2004)

9. "Multiphoton path entanglement by non-local bunching", H.S. Eisenberg, J.F. Hodelin, G. Khoury, and D. Bouwmeester, Phys. Rev. Lett. 94, 090502 (2005)

10. "Optics in non homogeneous waveguide arrays", R. Morandotti, H.S. Eisenberg, D. Mandelik, Y. Silberberg, D. Modotto, M. Sorel, C.R. Stanley, J.S. Aitchison, Opt. Elect. Rev. 13, 103 (2005)

11. "Effects of linear modes on the evolution of discrete solitons", U. Peschel, F. Lederer, R. Morandotti, H.S. Eisenberg, Y. Silberberg, J.S. Aitchison, J. Opt. Soc. Am. B 23, 62 (2006)

12. "Observation of bunching of two Bell states", H.S. Eisenberg, J.F. Hodelin, G. Khoury, and D. Bouwmeester, Phys. Rev. Lett. 96, 160404 (2006)

13. "Nonlinear Interferometry via Fock-State Projection", G. Khoury, H.S. Eisenberg, E.J.S. Fonseca and D. Bouwmeester, Phys. Rev. Lett. 96, 203601 (2006)

Book Chapter:

1. "Discrete Solitons" by Hagai Eisenberg and Yaron Silberberg, in "Nonlinear Photonic Crystals", Editor Richard Slusher, (Springer-Verlag, 2002).

Elitzur Shmuel

1. S. Elitzur, A. Giveon, M. Porrati, E. Rabinovici, "Multitrace Deformations of Vector and Adjoint Theories and their Holographic Duals" submitted to JHEP.

2. Dmitri Burshtyn, Shmuel Elitzur, Yaakov Mandelbaum, "Probing Orientifold Behavior Near NS Branes" JHEP 0403 (2004) 022.

3. Shmuel Elitzur, Amit Giveon, Eliezer Rabinovici, "Removing Singularities" JHEP 0301 (2003) 017.

4. S. Elitzur, A. Giveon, D. Kutasov, E. Rabinovici, "From Big Bang to Big Crunch and Beyond" JHEP 0206 (2002) 017.

5. Shmuel Elitzur, Gor Sarkissian, " D-Branes on a gauged WZW model" Nucl.Phys. B625 (2002) 166-178.

Felner Israel

1. Signature of nearly invisible Defects in $PrBa_2Cu_3O_7$ and $Pr_{2-z}Ce_zSr_2NbCu_2O_{10}$, H. A. Blackstead, J.D. Dow and I. Felner and W.B. Yelon, Phys. Rev. B **63**, 094517 (2001).

2. Absence of superconductivity in BeB_2, I.Felner , Physica B **353**, 119 (2001).

3. Metal-to Insulator Transition and magnetic Ordering in $CaRu_{1-x}Cu_xO_3$, I.M. Bradaric, I. Felner and M. Gospodinov, Phys. Rev B. **65**, 024421 (2001).

4. Tunneling spectroscopy and magnetization measurements of the Superconducting properties of MgB_2 , Sharoni, I. Felner and O. Millo , Phys. Rev B. **63**, 220508 (R) (2001).

5. Ruthenocuprates $RuSr_2(Eu,Ce)_2Cu_2O_{10}$:Intrinsic magnetic multilayers, I. Zivkovic, Y. Hiray, B.H. Frazer, M. Prester, D.Drobane, A. Ariosa, H, Berger, D. Pavuna, G. Margaritondo, I. Felner and M. Onnellion , Phys. Rev B. **65**, 144420 (2002).

6. Anisotropy order-disorder transition line in $La_{2-x}Sr_xCuO_4$, Y. Radzyner, A. Shaulov, Y. Yeshurun,I. Felner and J. Shimoyama , Phys. Rev. B **65**, 214525 (2002).

7. Magnetic-Superconducting phase diagram of $Eu_{2-x}Ce_xRuSr_2Cu_2O_{10}$, I. Felner, U. Asaf and E. Galstyan , Phys. Rev. B **66**, 024503 (2002).

8. Magnetic and Mossbauer studies of $CaRu_{1-x}M_xO_3$ (M=Ti and Fe), I. Felner, U. Asaf I. Nowik and I. Bradaric,Phys. Rev. B 66, 054418 (2002).

9. Magneto-resistance Hysteresis and Critical Current Density in Granular $RuSr_2Gd_{2-x}Ce_xCu_2O_{10}$, I. Felner , E. Galstyan B. Lorenz, D. Cao, Y.S. Wang Y.Y. Xue and C.W. Chu, Phys. Rev. B **67**, 134506 (2003).

10. Disorder and thermally driven vortex-lattice melting in $La_{2-x}Sr_xCuO_4$, Y. Radzyner, A. Shaulov, Y. Yeshurun , I. Felner, K.Kishio and J. Shimoyama , Phys. Rev. B **65**, 100503 (2002).

11. Chemical control of hole-doped superconductivity and magnetism in $Gd_{2-x}Ce_xRuSr_2Cu_2O_{10}$, A.C. Mclaughlin, J.P. Attfield, U. Asaf and I.Felner , Phys. Rev. B **68**, 014503 (2003).

12. Copetition of superconductivity and magnetism in $MoSr_2R_{1.5}Ce_{0.5}Cu_2O_{10}$, I, Felner and E. Galstyan, Phys. Rev. B **68**, 064507 (2003).

13. Magnetization study of $RuSr_2Y_{1.5}Ce_{0.5}Cu_2O_{10}$, I, Felner, V.P.S. Awana and E. Takayama-Moromachi , Phys. Rev. B **68**, 094508 (2003).

14. Tuning the superconducting state in the magnetic $MoSr_2YCu_2O_8$ materials, I. Felner and E. Galstyan, Phys. Rev. B **69**, 024512 (2004).

15. Model for magnetism in $RuR_{1.5}Ce_{0.5}Sr_2Cu_2O_{10}$ based on magnetzation and Mossbauer studies, Felner, E. Galstyan, R. H. Herber and I. Nowik, Phys. Rev. B **70**, 094504 (2004).

16. Coexistence of Magnetism and Superconductivity in $R_{1.4}Ce_{0.6}SRuSr_2Cu_2O_{10}$ (R=Eu and Gd): A Moun-spin-rotation and magnetization Study, A. Shengelaya, R. Khasanov, D.G. Eshchenko, I. Felner, U. Asaf, H. Keller and K.H. Muller, Phys. Rev. B **69**, 024517 (2004).

17. Tunneling and Magnetic Characterеristics of superconducting ZrB_{12} Single Crysrals, M.I. Tsindlickht, G.L. Leviev, I. Asulin, A. Sharoni, O.Millo, I. Felner, Yu. B. Pederno, V. B. Flippov and M.A. Belogolovskii, Phys. Rev. B **69**, 212508 (2004).

18. The Internal Magnetic Field in Superconducting Ferromagnets, G.L. Leviev, M.I.. Tsindlickht E.B. Sonin and I. Felber, Phys. Rev. B **70**, 212503 (2004)

19. The Possible Origin of the Higher Magnetic Transition in $RuSr_2Eu_{1.5}Ce_{0.5}Cu_2O_{10}$, I. Felner, E. Galstyan and I. Nowik, Phys. Rev. B **71**, 064510 (2005).

20. Changes in Ferromagnetic spin Structre Induced by Exchange Bias, W.A.A. Macedo, B. Sahoo, V. Kuncser, J. Eisenmenger, I. Felner, J. Nogues, Kai Liu, W. Keune and Ivan .K. Schuller , Phys. Rev. B **70**, 224414 (2004).

21. The low-frequency response of single crystal $ZrB_{12,}$ M.I. Tsindlickht, V.M. Genkin, G..L. Leviev, I. Felner, Yu. B. Pederno and V. B. Flippov, Phys. Rev. B **71**, 064506 (2005)

22. Sonochemical Synthesis of Nanocystalline Rare Earth Orthoferrite Using Fe(CO)5 Precursor, M. Sivakumar, A. Gedanken, D. Bhattacharya, I. Brukental, Y. Yeshurun, W. Zhong, Y.D. Du, I. Felner and I. Nowik , Chem. Mater. 16, 3623 (2004)

23. Sonochemical Reaction of $[Fe(CO)_5]$ with 1-Methylimidazole in An Ionic Liquid Formation of $[(1\text{-Methylimidazole})_6FeII](PF_6)2$, D. S. Jacob, V Kahlenberg, K.Wurst, L A. Solovyov,I Felner,L Shimon, H,E. Gottlieb and A. Gedanken Eur. J. Inorg. Chem. 13, 2669 (2005)

24. Magnetoswitchable controlled hydrophilicity/hydrophobicity of electrode surfaces using alkyl-chain-functionalized magnetic particles: Application for switchable electrochemistry,E. Katz, L. Sheeney-Haj-Ichia, B. Basner, I. Felner and I. Willner , Langmuir 20, 9714 (2004)

25. Dielectric Properties of $Na_{0.7}CoO_2$ and of the superconducting $Na_{0.3}CoO_2$ *13 H2O P. Ben-Ishai, E. Sader , Yu. Feldman, I. Felner and M. Weger J. Supercond. 18 (4): 455-459 (2005)

26. Anisotropic magnetization of $RuSr_2Eu_{1.5}Ce_{0.5}Cu_2O_{10}$ (Ru-1222) thin films, I. Felner, G. Kopnov and G. Koren, Physica C 432, 270 (2005).
27. Mossbauer and magnetic studies of bulk and fine-powder $SrRuO_3$ and Sr-Cu-RuO_3 systems, I. Felner, K. Nomura and I. Nowik, Phys. Rev. B 73 064401 (2006).

28. Glasslike low frequency ac response of ZrB_{12} and Nb single crystal in the surface superconducting state. M.I. Tsindlekht, G.I. Leviev, V.M. Genkin and I. Felner, Phys. Rev. B 73 104507 (2006).

29. Magnetic properties of crystalline $La_{0.9}Ca_{0.1}MnO_3$: comparison of bulk and nanometer-sized samples. E. Rozenberg, G. Jung, M. Auslender, G. Gorodetsky, I. Felner, E. Sominski, A. Gedanken and Ya. M. Mukovskii, J. Appl. Physics, 99, 08Q305 (2006).

30. Transport, thermal and magnetic properties of $RuSr_2Gd_{1.5}Ce_{0.5}Cu_2O_{10}$, a magnetic superconductor. D.G. Naugle, D.D. Rathnayaka, V.B. Krasovitsky, B.I. Belevtsev, M.P. Anatska, G. Agnoiet and I. Felner, J. Appl. Physics, 99, 08M501 (2006).

31. Are ionic Liquids a Boon for the Synthesis of Inorganic Materials ? A General Method for the Fabrication of Nanosize Fluoridse, D.S. Jacob, L. Bitton, J. Grinblat, I. Felner, Y. Koltypin and A. Gedanken, Chem. Mater., 18, 3162 (2006).

32. Magnetiztion scaling in the ruthenate-cuprate $RuSr_2Eu_{1.4}Ce_{0.6}Cu_2O_{10}$ (Ru-1222) S. Garcia, L. Ghivelder, S. Soriano and I. Felner, Europ. Phys. J. B53 307 (2006)

33. Mossbauer Spectroscopy Studies of Spin Reorientation in Amorphous and Crystalline $(Co_{0.2}Fe_{0.8})_{72.5}Si_{12.5}B_{15}$ Glass coated Micro-wires, I. Nowik, I. Felner and H. Garcia-Miquel, I. Magn. Magn. Mater. (in press)

34. Superconductivity and Magnetism in the Rutheno-Cuprates $RuR_{2-x}Ce_xSr_2Cu_2O_{10}$ (Ru-1222) and $RuSr_2RCu_2O_{10}$ (Ru-1212, R=Eu and Gd) I. Felner, "Studies of High Temperature Superconductors Vol 46 2006, Nova Science Publishers. Inc. by A. Narlikar P. 169.

35. Experimental study of magneto-superconductor $RuEu_{1.5}Ce_{0.5}Sr_2Cu_2O_{10}$: peculiar effect of Co doping on complex magnetism and TC variation. VPS. Awana, H. Kishan, O. Eshkenazi, I. Felner, R. Rawat, V. Ganesan and A.V. Narlikar, J. Phys. Conden.-Matter, 19 026203 (2007)

36. 392. Critical current density in the MgB_2 nanoparticles prepared under autogenic pressure at elevated temperature. V.G. Pol, S.V. Pol, I. Felner and A. Gedanken, Chem. Phys. Letters, 433, 115-119 (2006)

Fineberg Jay

1. E. Sharon, G. Cohen, and J. Fineberg, "Crack Front Waves: Localized solitary waves in dynamic fracture"Nature **410**, 6834 (2001).

2. J. Fineberg, E. Sharon and G. Cohen, "Crack Front Waves in Brittle Fracture"Proceedings of the 10th international conference on fracture (Hawaii 2001)

3. O. Lioubashevski and J. Fineberg, "A Shock Wave Criterion for Propagating Solitary States in driven surface waves", Phys. Rev. **E63**, 5302 (2001).

4. H. Arbell and J. Fineberg, "Superlattice states in driven surface waves"Phys. Rev. **E65**, 036224 (2002).

5. E. Sharon, G. Cohen, and J. Fineberg, "Effects of Crack Front Waves on dynamic fracture", Phys. Rev. Lett. **88**, 085503 (2002).

6. A. Sagy, Z. Reches, J. Fineberg, "Dynamic Fracture by Large Extraterrestrial Impacts as the Origin of Shatter-Cones", Nature **418**, 310-313 (2002).

7. J. Fineberg, E. Sharon, and G. Cohen, "Crack Front Waves in Dynamic Fracture",The International Journal of Fracture, 119 (3): 247-261 (2003).

8. A. M. Rucklidge, M. Silber, and J. Fineberg, "Secondary instabilities of hexagonal Faraday waves",Trends in Mathematics: Bifurcations, Symmetry, and Patterns, 101-114 (2003) (Birkhauser Verlag, Basel 2003)

9. T. Epstein and J. Fineberg, "Control of Spatio-temporal Disorder in Parametrically Forced Surface Waves",Phys. Rev. Lett. **92**, 244502 (2004).

10. S. M. Rubinstein, G. Cohen, and J. Fineberg, Detachment Fronts and the onset of friction, Nature **430,** 1005-1009 (2004).

11. E. Sharon, G. Cohen, and J. Fineberg, Comment on " Interaction of Shear Waves and Propagating Cracks", Phys. Rev. Lett. **93** (9): Art. No. 099601 (2004).

12. J. Fineberg, "Close-up on cracks", Nature **426**, 131-2 (2004).

13. A. Livne, G. Cohen, O. Ben-David and J. Fineberg, "Universal Aspects of Dynamic Fracture in Brittle Materials",in Experiments in Chaos, (AIP) 2004.

14. T. Epstein and J. Fineberg, "Control and Characterization of Spatio-temporal Disorder in ParametricallyExcited Surface Waves", Pramana Journal of Physics 64 (6): 903-913 (2005).

15. A. Sagy, Z. Reches, and J. Fineberg, "Shatter Cones: Branched, Rapid Fractures formed by Shock Impact", J. Geophys. Res.-Solid Earth **109** (B10): Art. No. B10209 (2004).

16. A. Livne and J. Fineberg, "Universal Aspects of Dynamic Fracture in Brittle Materials", Proceedings of the 11th International Conference on Fracture (Turino, 2005).

17. A. Livne, G. Cohen and J. Fineberg, "Universality and hysteretic dynamics in rapid fracture", Phys. Rev. Lett. 94, 224301 (2005).

18. S. Rubinstein and J. Fineberg, “The Onset of Frictional Slip”, Proceedings of the 11th International Conference on Fracture (Turino, 2005).

19. S. M. Rubinstein, M. Shay, G. Cohen, and J. Fineberg, "Crack-Like processes governing the onset of Frictional Slip", International Journal of Fracture **140**, 201-212 (2006).

20. Sagy, G. Cohen, Z. Reches, J. Fineberg, "Dynamic Fracture of Granular Material Under Quasistatic Loading", J. Geophys. Res., 111, B04406, doi:10.1029/2005JB003948. (2006).

21. T. Epstein and J. Fineberg, "Grid States and Nonlinear Selection in Parametrically Excited Surface Waves", Phys. Rev. **E73** 055302 (Rapid Communication) (2006).

22. Oded Ben-David, Michael Assaf, Jay Fineberg, and Baruch Meerson, "Experimental Study of Parametric Autoresonance in Faraday waves", Phys. Rev. Lett. **96** 154503 (2006)

23. S. M. Rubinstein, G. Cohen, and J. Fineberg, “Contact area measurements reveal loading-history dependence of static friction”, Phys. Rev. Lett. **96**, 256103 (2006).

24. J. Fineberg, "The Dynamics of Rapidly Moving Tensile Cracks in Brittle Amorphous Material", *Dynamic Fracture Mechanics*, ed. A. Shukla, World Scientific (2006).

25. A. Livne, O. Ben-David and J. Fineberg, "Oscillations in Rapid Fracture", Phys. Rev. Lett. **98,** 124301 (2007).

26. S. M. Rubinstein, G. Cohen, and J. Fineberg, The Dynamics of Precursors to frictional sliding. Phys. Rev. Lett. (to appear 2007)

Friedland Lazar

1. R.R. Lindberg, A.E. Charman, J.S. Wurtele, L. Friedland , and B.A. Shadwick, Phys. Plasmas. 13, 123103 (2006).

2. L. Friedland , P. Khain, and A.G. Shagalov, Phys. Rev. Lett. 96, 225001 (2006).

3. L. Friedland and A.G. Shagalov, Phys. Rev. E 73, 066612 (2006).

4. G. Marcus, A. Zigler, and L. Friedland, Europhys. Lett. 74, 43 (2006).

5. L. Friedland, Proc. of the Symposium: PhysCon2005 (invited), St. Petersburg, Russia, 2005.

6. Y. Gopher, L. Friedland, and A.G. Shagalov, Phys. Rev. E **72**, 036604 (2005).

7. G. Marcus, L. Friedland, and A. Zigler, Phys. Rev. A **72**, 033404 (2005).

8. F. Peinetti, W. Bertsche, J. Fajans, J. Wurtele, and L. Friedland, Phys. Plasmas **12**, 062112 (2005).

9. L. Friedland and A.G. Shagalov, Phys. Rev. E **71**, 03206 (2005).

10. L. Friedland, Proc. of the Symposium: Frontiers of Nonlinear Physics (invited), Nizhny Novgorod, Russia, 2004.

11. L. Friedland, F. Peinetti, W. Bertsche, J. Fajans, and J. Wurtele, Phys. Plasmas **11**, 4305 (2004).

12. R.R. Lindberg, A.E. Charman, J.S. Wurtele, and L. Friedland, Phys. Rev. Lett. **93**, 055001 (2004).

13. G. Marcus, L. Friedland, and A. Zigler, Phys. Rev. A **69**, 013407 (2004).

14. M. Khasin and L. Friedland, Phys. Rev. E **68**, 066214 (2003).

15. W. Bertsche, J. Fajans, and L. Friedland, Phys. Rev. Lett. **91**, 265003 (2003).

16. L. Friedland and A.G. Shagalov, Phys. Rev. Lett. **90**, 074101 (2003).

17. E. Grosfeld and L. Friedland, Phys. Rev. E **65**, 046230 (2002).

18. L. Friedland and A.G. Shagalov, Phys. Fluids **14**, 3074 (2002).

Friedman Eliahu

1. Unified optical-model approach to low-energy antiproton annihilation on nuclei and to antiprotonic atoms, Nucl. Phys. A 689 (2001) 721-740; C.J. Batty, E. Friedman, A. Gal.

2. Study of chirally motivated low-energy K- optical potentials Nucl. Phys. A 696 (2001) 173-193, A. Cieply, E. Friedman, A. Gal, J. Mares.

3. Indications of partial chiral symmetry restoration from pionic atoms, Phys. Lett. B 524 (2002) 87-92; E. Friedman.

4. Density dependence of the s-wave repulsion in pionic atoms, Nucl. Phys. A 710 (2002) 117-130; E. Friedman.

5. The s-wave repulsion and deeply bound states in pionic atoms: fact and fancy, Nucl. Phys. A 721 (2003) 842c-845c; E. Friedman, A. Gal.

6. Testing the K- nucleus interaction in (K- {stop},pi) reactions, Nucl. Phys. A 721 (2003) 975c-978c; A. Cieply, E. Friedman, A. Gal, J. Mares.

7. Renormalization of the isovector pi N amplitude in pionic atoms, Nucl. Phys. A 724 (2003) 143-156; E.Friedman, A. Gal.

8. Testing chiral dynamics in pionic atoms, Phys. Lett. B 578 (2004) 85-90; E. Friedman, A. Gal.

9. Antiprotonic Potentials from Global Fits to the PS209 Data, Nuclear Instruments and Methods in Physics Research B 214 (2004) 160-163; E. Friedman, A. Gal.

10. Low energy analyzing powers in pion-proton elastic scattering, Phys. Lett. B 588 (2004) 155-162; The Ay collaboration at PSI.

11. Medium effects of low energy pions, Acta Physica Polonica B 35 (2004) 979-990; E. Friedman

12. K^- nucleus potentials consistent with kaonic atoms, Acta Physica Polonica B 35 (2004) 1011-1018; E. Friedman A. Gal, J. Mares and A. Cieply.

13. The in-medium isovector pi N amplitude from low energy pion scattering, Phys. Rev. Letters 93 (2004) 122302-(1-4); E. Friedman et. al.

14. Widths of antikaon -nuclear deeply bound states in a dynamical model, Phys. Lett. B 606 (2005) 295-302; J. Mares, E. Friedman, A. Gal.

15. Traces of Theta+ pentaquark in K+ nucleus dynamics, Phys. Rev. Letters 94 (2005) 072301-(1-4); A. Gal, E. Friedman.

16. Antiproton-nucleus potentials from global fits to antiprotonic X-rays and radiochemical data, Nucl. Phys. A 761 (2005) 283-295; E. Friedman, A. Gal, J. Mares.

17. Elastic scattering of low energy pions by nuclei and the in-medium isovector pi N amplitude, Phys. Rev. C 72 (2005) 034609-(1-8) E. Friedman et. al.

18. Medium modification of hadronic interactions from low energy experiments, Inter. J. Modern Phys. A 20 (2005) 1759-1764; E. Friedman.

19. Room for S=+1 pentaquark in K^+ nucleus phenomenology, Phys. Rev. C 73 (2006) 015208 (1-6); A. Gal and E. Friedman.

20. K nuclear states in a dynamical model, Nucl. Phys. A 770 (2006) 84-105; J. Mares, A. Gal and E. Friedman

21. Pionic charge exchange on the proton from 40 to 250 MeV, Phys. Lett. B 639 (2006) 424-428; the CX collabotation at PSI.

22. Nuclear dynamics of K bound states, AIP Conf. proceedings 842 (2006) 428-431; J. Mares, E. Friedman and A. Gal

23. Elastic scattering of low energy pions by nuclei and the in-medium isovector amplitude, AIP Conf. proceedings 842 (2006) 437-439; The LEPS collaboration at PSI

24. Radial sensitivity of kaonic atoms and strongly bound K states, Phys. Rev. C rapid communication (2007) in press; N. Barnea and E. Friedman

Gal Avraham

1. $\bar{p}$ Nuclear Interactions near Threshold, A. Gal, Nucl. Phys. **A699** (2002) 300c-307c [plenary talk, 3rd Int'l Conf. Perspectives Hadronic Physics, Trieste 2001].

2. Light Lambda-Lambda Hypernuclei and the Onset of Stability for Lambda-Xi Hypernuclei, I.N. Filikhin and A. Gal, Phys. Rev. **C65** (2002) 041001 (Rapid Communication) 1-4.

3. Faddeev-Yakubovsky Calculations for Light Lambda-Lambda Hypernuclei, I.N. Filikhin and A. Gal, Nucl. Phys. **A707** (2002) 491-509.

4. Faddeev-Yakubovsky search for Lambda-Lambda hydrogen-4, I.N. Filikhin and A. Gal, Phys. Rev. Lett. **89** (2002) 172502, 1-4.

5. The onset of binding for Lambda-Lambda and Lambda-Xi Hypernuclei, A. Gal, Few-Body Systems Suppl. **14** (2003) 251-256 [plenary talk, 18th Eur. Conf. Few-Body Probl. Physics, Bled 2002].

6. The s-wave repulsion and deeply bound pionic atoms: fact and fancy, E. Friedman and A. Gal, Nucl. Phys. **A721** (2003) 842c-845c [parallel talk, PANIC '02, Osaka 2002].

7. To bind or not to bind: Lambda-Lambda hypernuclei and Xi hyperons, A. Gal, Nucl. Phys. **A721** (2003) 945c-950c [parallel talk, PANIC '02, Osaka 2002].

8. Testing the K^- nucleus interaction in (K^-_{stop},π) reactions, A. Cieply, E. Friedman, A. Gal and J. Mares, Nucl. Phys. **A721** (2003) 975c-978c [parallel talk, PANIC '02, Osaka 2002].

9. Renormalization of the isovector π N amplitude in pionic atoms, E. Friedman and A. Gal, Nucl. Phys. **A724** (2003) 143-156.

10. Faddeev calculations for the A=5,6 Lambda-Lambda hypernuclei, I.N. Filikhin, A. Gal and V.M. Suslov, Phys. Rev. **C68** (2003) 024002, 1-8.

11. Testing Chiral Dynamics in Pionic Atoms, E. Friedman and A. Gal, Phys. Lett. **B578** (2004) 85-90.

12. 40 Years of Lambda-Lambda Hypernuclei, A. Gal, Acta Phys. Pol. **B35** (2004) 991-1001 [invited talk, 28th Mazurian Lakes Conf. Phys., Krzyze 2003].

13. K^- nucleus potentials consistent with kaonic atoms, A. Cieply, E. Friedman, A. Gal and J. Mares, Acta Phys. Pol. **B35** (2004) 1011-1018 [invited talk, 28th Mazurian Lakes Conf. Phys., Krzyze 2003].

14. Fifty Years of Hypernuclei and Beyond, A. Gal, Prog. Theor. Phys. Suppl. **156** (2004) 1-16 [plenary talk, Yukawa Annu. Symp., Nishinomya 2003].

15. Antiprotonic Potentials from Global Fits to the PS209 Data, E. Friedman and A. Gal, Nucl. Inst. Meth. Phys. Res. **B214** (2004) 160-163.

16. Cluster models of Lambda-Lambda-6He and Lambda-9Be hypernuclei, I. Filikhin, A. Gal and V.M. Suslov, Nucl.Phys. **A743** (2004) 194-207.

17. Widths of $\overline{K}$ – nuclear deeply bound states in a dynamical model, J. Mares, E. Friedman and A.Gal, Phys. Lett. **B606** (2005) 295-302.

18. Traces of θ^+ pentaquark in K^+ nucleus dynamics, A. Gal and E. Friedman, Phys. Rev. Lett. **94** (2005) 072301,
1-4.

19. Hypernuclear Physics and Beyond, A. Gal, Proceedings of the International School of Physics "Enrico Fermi" Course CLVIII, Eds. T. Bressani et al. (SIF Bologna 2005) pp. 35-53.

20. Lambda-Lambda Hypernuclei and Stranger Systems, A. Gal, Nucl. Phys. **A754** (2005) 91c-102c [plenary talk, HYP03, Jlab 2003].

21. Antiproton-nucleus potentials from global fits to antiprotonic X-rays and radiochemical data, E. Friedman, A. Gal and J. Mares, Nucl. Phys. **A761** (2005) 283-295.

22. Nuclear dynamics of $\overline{K}$ bound states, J. Mares, E. Friedman and A. Gal, in: *Particles and Nuclei*, Eds. P.D. Barnes *et al*., AIP Conf. Proc. **842** (New York 2006) pp. 428-430 [parallel talk, PANIC05, Santa Fe 2005].

23. Room for S = +1 pentaquark in K^+- nucleus phenomenology, A. Gal and E. Friedman, Phys. Rev. **C73** (2006) 015208, 1-6.

24. $\overline{K}$ nuclear bound states in a dynamical model, J. Mares, E. Friedman and A. Gal, Nucl. Phys**. A770** (2006) 84-105.

25. $\overline{K}$-nuclear deeply bound states?, A. Gal, to be published in Int'l. J. Mod. Phys. E (nucl-th/0604067) [plenary talk, ISHIP06, Frankfurt 2006].

26. Obituary: Richard Henry Dalitz, FRS (1925-2006), F.E. Close and A. Gal, Nucl. Phys. **A771** (2006) 3-7.

27. The scientific publications of Richard Henry Dalitz, FRS (1925-2006), I.J.R. Aitchison, F.E. Close, A. Gal and D.J. Millener, Nucl. Phys. **A771** (2006) 8-25.

28. On the scattering length of the K^-d system, A. Gal, to be published in Int'l J. Mod. Phys. A (nucl-th/0607067) [plenary talk, MESON'06, Krakow 2006].

29. Overview of $\overline{K}$-nuclear quasi-bound states, A. Gal, to be published in Nucl. Phys. A (nucl-th/0610090) [plenary talk, FB18, Santos 2006].

30. The hypernuclear physics heritage of Dick Dalitz (1925-2006), A. Gal, to be published in Eur. Phys. J. A (physics/0701019) [plenary talk, HYP06, Mainz 2006].

31. Faldeev calculation of a K^-pp quasi-bound state, N.V. Shevchenko, A. Gal and J. Mares, to be published in Phys. Rev. Lett. (nucl-th/0610022).

Gat Omri

1. Fischer B, Gat O, Gordon A, and Kaertner FX, Opt. Express **14**, 11142-11154 (2006).

2. Katz M, Gordon A, Gat O, and Fischer, Phys. Rev. Lett. **97**, 113902 (2006).

3. Gat O, Meerson B, and Vilenkin A, Phys. Rev. E **73**, 065302 (2006).

4. Vodonos B, Bekker A, Smulakovsky V, Gordon A, Berger N, Gat O, and Fischer B, Opt. Lett. **30**, 2787--2789 (2005).

5 Gat O, Gordon A, and Fischer B, New J. Phys. **7**, 151 (2005).

6. Weill R, Rosen A, Gordon A, Gat O and Fischer B, Phys. Rev. Lett. **95**, 013903 (2005).

7. Avron J. E , Gat O, and Kenneth O, Phys. Rev. Lett. **93**, 186001 (2004).

8. Vodonos B, Weill R, Gordon A, Bekker A, Smulakovsky V, Gat O and Fischer B, Phys. Rev. Lett. **93**, 153901 (2004).

9. Gat O, Gordon A, and Fischer B, Phys. Rev. E **70**, 046108 (2004).

10. Avron JE , Gat O, Kenneth O and Sivan U, Phys. Rev. Lett. **92**, 040201 (2004).

11. Gat O, Avron JE, Phys. Rev. Lett. **91**, 186801 (2003).

12. Gat O, Avron JE, New J. Phys. **5**, 44 (2003).

Giveon Amit

1. Amit Giveon, David Kutasov, FUNDAMENTAL STRINGS AND BLACK HOLES. JHEP 0701:071, 2007.]

2. Amit Giveon, Dan Gorbonos, ON BLACK FUNDAMENTAL STRINGS. JHEP 0610:038, 2006.

3. A. Giveon, A. Konechny, E. Rabinovici, A. Sever, THERMODYNAMICAL PROPERTIES OF SOME COSET CFT BACKGROUNDS. Fortsch.Phys.54:102-115, 2006.

4. S. Elitzur, A. Giveon, M. Porrati, E. Rabinovici, MULTITRACE DEFORMATIONS OF VECTOR AND ADJOINT THEORIES AND THEIR HOLOGRAPHIC DUALS. JHEP 0602:006, 2006. [HEP-TH 0511061]

5. Amit Giveon, David Kutasov, THE CHARGED BLACK HOLE/STRING TRANSITION. JHEP 0601:120, 2006.

6. S. Elitzur, A. Forge, A. Giveon, E. Rabinovici, K., Intriligator, SUPERPOTENTIALS AND VACUA IN SUSY GAUGE THEORIES. In *London 1996, Gauge theories, applied supersymmetry and quantum gravity* 247-254

7. A. Giveon, D. Kutasov, E. Rabinovici, A. Sever, PHASES OF QUANTUM GRAVITY IN ADS(3) AND LINEAR DILATON BACKGROUNDS. Nucl.Phys.B719:3-34, 2005. [HEP-TH 0503121]

8. Amit Giveon, Amit Sever, STRINGS IN A 2-D EXTREMAL BLACK HOLE. JHEP 0502:065, 2005. [HEP-TH 0412294]

9. Amit Giveon, Anatoly Konechny, Eliezer Rabinovici, Amit Sever, ON THERMODYNAMICAL PROPERTIES OF SOME COSET CFT BACKGROUNDS. JHEP 0407:076, 2004. [HEP-TH 0406131]

10. Ofer Aharony, Amit Giveon, David Kutasov, LSZ IN LST. Nucl.Phys.B691:3-78, 2004. [HEP-TH 0404016] Cited 33 times in the HEP (SPIRES-SLAC) database.

11. Amit Giveon, Barak Kol, Amos Ori, Amit Sever, ON THE RESOLUTION OF THE TIMELIKE SINGULARITIES IN REISSNER-NORDSTROM AND NEGATIVE MASS SCHWARZSCHILD. JHEP 0408:014, 2004.

12. Amit Giveon, Anatoly Konechny, Ari Pakman, Amit Sever, TYPE 0 STRINGS IN A 2-D BLACK HOLE. JHEP 0310:025, 2003.

13. Amit Giveon, Eliezer Rabinovici, Amit Sever, BEYOND THE SINGULARITY OF THE 2-D CHARGED BLACK HOLE. JHEP 0307:055, 2003.

14. Amit Giveon, Eliezer Rabinovici, Amit Sever, STRINGS IN SINGULAR TIME DEPENDENT BACKGROUNDS. Fortsch.Phys.51:805-823, 2003. [HEP-TH 0305137] Cited 19 times in the HEP (SPIRES-SLAC) database. [Full entry]

15. Amit Giveon, Ari Pakman, MORE ON SUPERSTRINGS IN ADS(3) X N. JHEP 0303:056, 2003.

16. Shmuel Elitzur, Amit Giveon, Eliezer Rabinovici, REMOVING SINGULARITIES. JHEP 0301:017, 2003.

17. L. Girardello, A. Giveon, M. Porrati, A. Zaffaroni, S-DUALITY IN N=4 SUPERSYMMETRIC GAUGE THEORIES. In *Leuven 1995, Gauge theories, applied supersymmetry, quantum gravity* 199-204 In *Palaiseau 1995, Susy 95* 303-308,

18. A. Giveon, STRINGS AND QUANTUM FIELDS. In *Budapest 2001, High energy physics* hep2001/289,

19. S. Elitzur, A. Giveon, D. Kutasov, E. Rabinovici, FROM BIG BANG TO BIG CRUNCH AND BEYOND. JHEP 0206:017, 2002.

20. S. Elitzur, A. Giveon, D. Kutasov, E. Rabinovici, G., Sarkisian, D-BRANES IN THE BACKGROUND OF NS FIVEBRANES. Int.J.Mod.Phys.A16:880-890, 2001. In *Ann Arbor 2000, Strings* 240-250.

21. A. Giveon, A. Kehagias, H. Partouche, GEOMETRIC TRANSITIONS, BRANE DYNAMICS AND GAUGE THEORIES. JHEP 0112:021, 2001.

22. Amit Giveon, David Kutasov, Adam Schwimmer, COMMENTS ON D-BRANES IN ADS(3). Nucl.Phys.B615:133-168, 2001.

23. Amit Giveon, David Kutasov, NOTES ON ADS(3). Nucl.Phys.B621:303-336, 2002.

24. Ignatios Antoniadis, Savas Dimopoulos, Amit Giveon, LITTLE STRING THEORY AT A TEV. JHEP 0105:055, 2001.

25. Riccardo Argurio, Amit Giveon, Assaf Shomer, STRING THEORY ON ADS(3) AND SYMMETRIC PRODUCTS. Fortsch.Phys.49:409-418, 2001.

Glaberson William I.

1. Sensitive measurement of the Kosterlitz-Thouless Transition, Shalva Ben-Ezra and William I. Glaberson, in press.

2. Quartz Microbalance Study of Superfluid Helium Thin Films Adsorbed on a Hydrogen Pre-plated Gold Surface, Shalva Ben-Ezra and William I. Glaberson, *Physica B: Condensed Matter 329, 2003 250*.

3. Effect of imposed superflow on the superfluid dissipation in the vicinity of the Kosterlitz–Thouless transition, S. Ben-Ezra and W. I. Glaberson, *Physica B: Condensed Matter 284, 2001, 119.*

4. Vortex diffusivity in thin superfluid helium films, S. Ben-Ezra and W. I. Glaberson ,*Physica B: Condensed Matter 284, 2001 122*

Hoffman Yehuda

1. S. Zaroubi, G. Squires, D. de Gasperis, A., Evrard, Y. Hoffman and J. Silk "Deprojection Galaxy Cluster X-ray, Sunyaev-Zel'dovich Temperature Decrement and Weak Lensing Mass Maps", Astrophys. J., **561**, 600 (2001)
2. S. Zaroubi, M. Bernardi, L. N., da Costa, Y. Hoffman, M. V. Alonso, G. Wegner, C. N. A. Willmer, and P. S. Pellegrini, "Large-Scale Power Spectrum and Structures From the ENEAR galaxy Peculiar Velocity Catalog", MNRAS, **326**, 375 (2001)
3. E.L. Lokas, and Y. Hoffman, "The spherical Collapse Model in a Universe with Cosmological Constant", Proceedings of the 3rd International Workshop on the Identification of Dark Matter", edited by N. J. C..Spooner and V. Kudryavtsev (World Scientific, Singapore), p. 121 (2001)
4. Y. Hoffman, "The Large Scale Structure: Bayesian Analysis and Beyond", Targeted talk, in "Mining the Sky", Proceedings of the MPA/ESO/MPE Workshop , Ed. A. J. Banday, S. Zaroubi, and M. Bartelmann. Heidelberg: Springer-Verlag, p. 223 (2001)
5. A. El-Zant, I. Shlosman and Y. Hoffman, "Dynamical Friction in CDM Haloes", Astrophys. J., **560**, 636 (2001)
6. A. El-Zant, I. Shlosman and Y. Hoffman, "The Central Kiloparsec of Starbursts and AGN: The La Palma Connection, ASP Conference Proceedings Vol. 249. Ed. J. H. Knapen, J. E. Beckman, I. Shlosman, and T. J. Mahoney. ISBN: 1-58381-089-7. San Francisco: Astronomical Society of the Pacific, p. 160. (2001)
7. C. Porciani, A. Dekel, and Y. Hoffman, `'Testing Tidal-Torque Theory: I. Spin Amplitude and Direction", MNRAS, **332**, 325 (2002)
8. C. Porciani, A. Dekel, and Y. Hoffman, `'Testing Tidal Torque Theory: II. Alignments of Inertia and Shear and the Characteristics of Proto-haloes", MNRAS, **332**, 339 (2002)
9. A. Klypin, Y., Hoffman, A.V. Kravtsov, and S. Gottlober, "Constrained Simulation of the Nearby Universe: the Local Supercluster", Astrophysical J., **596**,19 (2003)
10. A.V. Kravtsov, A. Klypin and Y. Hoffman, "Constrained Simulations of the Real Universe: II. Observational Signatures of Intergalactic Gas in the Local Supercluster Region", Astrophysical J., **571**, 563 (2002)
11. S. Zaroubi, E. Branchini, Y. Hoffman, and L. da Costa, `'Consistent beta Values from Density-Density and Velocity-Velocity Comparison", MNRAS, **336**, 1234 (2002)
12. S. Gottlober, A. Klypin, A. Kravtsov, Y. Hoffman, and A. Faltenbacher, "ART Simulations of the Local Universe", in the series "High Performance Computing in Science and Engineering in Munich 2002" (Springer-Verlag), astro-ph/0208398, (2002)
13. S. Gottlober,E.L. Lokas, A. Klypin, and Y. Hoffman, "The Structure of Voids", MNRAS, **344**,715 (2003)
14. E.L. Lokas, P. Bode and Y. Hoffman, "Cluster Mass Function in the Quintessential Universe" , MNRAS, **349**, 595 (2004)
15. A. El-Zant, Y. Hoffman, J. Primack, F. Combes, and I. Shlosman, "Flat-Cored Dark Matter in Cuspy Clusters of Galaxies", Astrophysical J. Lett, **607**, 75 (2004)
16. A. Faltenbacher, Allgood, B., S. Gottlöber, G. Yepes, and Y. Hoffman, "Imprints of mass accretion on properties of galaxy clusters", MNRAS, **362**, 1099 (2005)
17. E. Romano-Diaz, A. Faltenbacher, D. Jones, C. Heller, Y. Hoffman, and I. Shlosman, "Constrained Cosmological Simulations of Dark Matter Halos", Astrophysical J. Lett., **637**, 93 (2006)

18. D. Tocchini-Valentini, Y. Hoffman, and J. Silk, "Non-parametric reconstruction of the primordial power spectrum at horizon scales from WMAP data", MNRAS, **367**, 1095 (2006)
19. Y. Hoffman, E. Romano-Diaz, A. Faltenbacher, D. Jones, C. Heller, and I. Shlosman, "Constrained Simulations of Dark Matter Halos", Proceedings of the XXIst IAP Colloquium "Mass Profiles and Shapes of Cosmological Structures", France, Editors G. Mamon, F. Combes, C. Deffayet, B. Fort, (EAS Publications Series) Vol. 20, p. 15) (2006)
20. Y. Hoffman, "Gaussian Fields and Constrained Simulations of the Large Scale Structure", (Summary of a lectures series given at the summer school "Data Analysis in Cosmology", Valencia 2004, to be published by Springer-Verlag within the series Lecture Notes in Physics.) (2005)
21. E. Romano-Diaz, E., Y. Hoffman, C. Heller, A. Faltenbacher, D. Jones, and I. Shlosman, "Evolution of characteristic quantities for dark matter halo density profiles" , Astrophysical J., **657**, 56 (2007)
22. A. Faltenbacher, Y. Hoffman, S. Gottlober, and G. Yepes, "Entropy of gas and dark matter in galaxy clusters" , MNRAS, **376**, 1327 (2007)
23. Y. Ascasibar, Y. Hoffman, and S. Gottloeber, "Secondary infall and dark matter haloes", MNRAS, **376**, 393 (2007)
24. L.A. Martinez-Vaquero, G. Yepes, and Y. Hoffman, "Constrained simulation of the local universe: I. Mass and motion in the Local Volume", MNRAS (in press, arXiv e-prints 0704.3385) (2007)
25. Y. Hoffman, O. Lahav, G. Yepes, and Y. Dover, "The Future of the Local Large Scale Structure: the roles of Dark Matter and Dark Energy", JCAP (submitted, ArXiv e-prints 0705.4477) (2007)
26. Y. Hoffman, E. Romano-Diaz, I. Shlosman, and C. Heller, "Evolution of Phase-Space Density in Dark Matter Halos", Astrophysical J. (submitted, ArXiv e-prints 0706.0006) (2007)

Kol Barak

1. Barak Kol, CHOPTUIK SCALING AND THE MERGER TRANSITION. JHEP 0610:017, 2006. [HEP-TH 0502033].

2. Barak Kol, PERTURBATIONS AROUND BACKGROUNDS WITH ONE NON-HOMOGENEOUS DIMENSION. [HEP-TH 0609001]

3. Barak Kol, THE POWER OF ACTION: THE DERIVATION OF THE BLACK HOLE NEGATIVE MODE. [HEP-TH 0608001]

4. Barak Kol, A NEW ACTION-DERIVED FORM OF THE BLACK HOLE METRIC. [GR-QC 0608001]

5. Vadim Asnin, Barak Kol, Michael Smolkin, ANALYTIC EVIDENCE FOR CONTINUOUS SELF SIMILARITY OF THE CRITICAL MERGER SOLUTION. Class.Quant.Grav.23:6805-6827, 2006. [HEP-TH 0607129]

6. Barak Kol, Evgeny Sorkin, LG (LANDAU-GINZBURG) IN GL (GREGORY-LAFLAMME). Class.Quant.Grav.23:4563-4592, 2006. [HEP-TH 0604015]

7. Dan Gorbonos, Barak Kol, MATCHED ASYMPTOTIC EXPANSION FOR CAGED BLACK HOLES: REGULARIZATION OF THE POST-NEWTONIAN ORDER. Class.Quant.Grav.22:3935-3960,2005. [HEP-TH 0505009]

8. Barak Kol, CHOPTUIK SCALING AND THE MERGER TRANSITION. JHEP 0610:017, 2006. [HEP-TH 0502033]

9. Barak Kol, THE PHASE TRANSITION BETWEEN CAGED BLACK HOLES AND BLACK STRINGS: A REVIEW. Phys.Rept.422:119-165, 2006. [HEP-TH 0411240]

10. Barak Kol, Evgeny Sorkin, ON BLACK-BRANE INSTABILITY IN AN ARBITRARY DIMENSION. Class.Quant.Grav.21:4793-4804, 2004. [GR-QC 0407058]

11. Dan Gorbonos, Barak Kol, A DIALOGUE OF MULTIPOLES: MATCHED ASYMPTOTIC EXPANSION FOR CAGED BLACK HOLES. JHEP 0406:053, 2004. [HEP-TH 0406002]

12. Amit Giveon, Barak Kol, Amos Ori, Amit Sever, ON THE RESOLUTION OF THE TIMELIKE SINGULARITIES IN REISSNER-NORDSTROM AND NEGATIVE MASS SCHWARZSCHILD. JHEP 0408:014, 2004. [HEP-TH 0401209]

13. Evgeny Sorkin, Barak Kol, Tsvi Piran, CAGED BLACK HOLES: BLACK HOLES IN COMPACTIFIED SPACE-TIMES. 2. 5-D NUMERICAL IMPLEMENTATION. Phys.Rev.D69:064032, 2004. [HEP-TH 0310096]

14. Barak Kol, Toby Wiseman, EVIDENCE THAT HIGHLY NONUNIFORM BLACK STRINGS HAVE A CONICAL WAIST. Class.Quant.Grav.20:3493-3504, 2003. [HEP-TH 0304070]

15. Barak Kol, SPECULATIVE GENERALIZATION OF BLACK HOLE UNIQUENESS TO HIGHER DIMENSIONS. [HEP-TH 0208056]

16. Barak Kol, EXPLOSIVE BLACK HOLE FISSION AND FUSION IN LARGE EXTRA DIMENSIONS. [HEP-PH 0207037]

17. Barak Kol, TOPOLOGY CHANGE IN GENERAL RELATIVITY, AND THE BLACK HOLE BLACK STRING TRANSITION. JHEP 0510:049, 2005. [HEP-TH 0206220]

18. Barak Kol, ON CONFORMAL DEFORMATIONS. JHEP 0209:046, 2002. [HEP-TH 0205141]

19. Ofer Aharony, Barak Kol, Shimon Yankielowicz, ON EXACTLY MARGINAL DEFORMATIONS OF N=4 SYM AND TYPE IIB SUPERGRAVITY ON ADS(5) X S**5. JHEP 0206:039, 2002. [HEP-TH 0205090]

20. Oren Bergman, Eric G. Gimon, Barak Kol, STRINGS ON ORBIFOLD LINES. JHEP 0105:019, 2001. [HEP-TH 0102095]

Leviatan Amiram

1 *"Test of Nuclear Wave Functions for Pseudospin Symmetry"*, J.N. Ginocchio and A. Leviatan, Physical Review Letters **87** (2001) 072502 1-4.

2. *"Consequences of a Relativistic Pseudospin Symmetry for Radial Nodes and Intruder Levels in Nuclei*",
A. Leviatan and J.N. Ginocchio, Physics Letters B **518** (2001) 214-220.

3. *"Strange Decays from Strange Resonances*", R. Bijker and A. Leviatan, Revista Mexicana de Fisica **47**,
Suplemento 2 (2001) 37-41, Proc. XXIII Symposium on Nuclear Physics, Oaxtepec, México (2001).

4 *"Relativistic Pseudospin Symmetry in Nuclei*", J.N. Ginocchio and A. Leviatan, Proc. NATO Advanced Research Workshop on "The Nuclear Many-Body Problem 2001",(W. Nazarewicz and D. Vretenar Eds.), Kluwer Academic Publish. NATO Science Series II. Mathematics, Physics and Chemistry (2002) Vol. 53, p. 117-124.

5. *"Relativistic Pseudospin Symmetry and the Structure of Nuclear States"*, A. Leviatan and J.N. Ginocchio, Proc. NATO Advanced Research Workshop on "The Nuclear Many-Body Problem 2001", (W. Nazarewicz and D. Vretenar Eds.), Kluwer Academic Publish., NATO Science Series II. Mathematics, Physics and Chemistry (2002) Vol. 53, p. 125-130.

6. *"Extended M1 Sum Rule for Excited Symmetric and Mixed-Symmetry States in Nuclei",* N. A. Smirnova,
N. Pietralla, A. Leviatan, J.N. Ginocchio and C. Fransen, Physical Review C **65** (2002) 024319 1-10.

7. *"Partial Dynamical Symmetry in the Symplectic Shell Model*", J. Escher and A. Leviatan, Physical Review C **65** (2002) 054309 1-20.

8. *"Generalized Partial Dynamical Symmetries in Nuclear Spectroscopy",* A. Leviatan, Proc. Int. Conf. on Nuclear Structure ``Mapping the Triangle", (A. Aprahamian, S. Pittel and N.V. Zamfir Eds.), AIP (2002)
0-7354-0093-8/02, 188-192.

9. *"Extended M1 Sum Rule for Mixed-Symmetry States",* N.A. Smirnova, N. Pietralla, A. Leviatan, J.N. Ginocchio
and C. Fransen, Proc. Int. Conf. on Nuclear Structure ``Mapping the Triangle", (A. Aprahamian, S. Pittel and
N.V. Zamfir Eds.), American Institute of Physics (2002) 0-7354-0093-8/02, 257-258.

10. *"Generalized Partial Dynamical Symmetry in Nuclei",* A. Leviatan and P. Van Isacker, Physical Review Letters **89** (2002) 222501 1-4.

11. "*Critical-Point Symmetry in a Finite System*", A. Leviatan and J.N. Ginocchio, Physical Review Letters **90** (2003) 212501 1-4.

12. *"Partial Dynamical Symmetry as an Intermediate Symmetry Structure"*, A. Leviatan, Proc. Int. Conf. on Symmetries in Nuclear Structure, (A. Vitturi and R.F. Casten Eds.), World Scientific (2003), 22-31.

13. "*Critical Points in Nuclei and Interacting Boson Model Intrinsic States*", J.N. Ginocchio and A. Leviatan, Proc. Int. Conf. on Symmetries in Nuclear Structure, (A. Vitturi and R.F. Casten Eds.), World Scientific (2003), 191-200.

14. *"Test of Pseudospin Symmetry in Deformed Nuclei*", J.N. Ginocchio, A. Leviatan, J. Meng and S. G. Zhou, Phys. Rev. C, **69** (2004), 034303 1-11.

15. "*Supersymmetric Patterns in the Pseudospin, Spin, and Coulomb Limits of the Dirac Equation with Scalar and Vector Potentials*", A. Leviatan, Phys. Rev. Lett. **92** (2004), 202501 1-4.

16. ""*Relativistic Pseudospin Symmetry as a Supersymmetric Pattern in Nuclei",* A. Leviatan, Proc. 8th Int. Spring Seminar on Nuclear Physics, "Key Topics in Nuclear Structure", (A. Covello Ed.), World Scientific (2004), 177-184.

17. *Pseudospin, Spin, and Coulomb Dirac-Symmetries: Doublet Structure and Supersymmetric Patterns"* A. Leviatan, Proc. Int. Workshop on Blueprints for the Nucleus: From First Principles to Collective Motion, Int. Journal of Modern Physics E, **14** (2005), 111-119.

18. "*X(5) Critical-Point Structure in a Finite System*", A. Leviatan, Physical Review C **72** (2005), 031305 1-5.

19. "*Quantum Phase Transitions in a Finite System*", A. Leviatan, Proc. Int. Workshop on "Symmetries and Low-Energy Phase Transitions in Nuclear-Structure Physics", (G. Lo Bianco Ed.), Universita degli Studi di Camerino (2005) 51-56.

20. "*Critical-Point Structure in Finite Nuclei"*, A. Leviatan, Proc. Int. Conf. on "Frontiers in Nuclear Structure, Astrophysics and Reactions: FINUSTAR", (S.V. Harissopulos, P. Demetriou and R. Julin Eds.), AIP Conf. Proc. **831** (2006), 203-207.

21. "*First-Order Quantum Phase Transition in a Finite System",* A. Leviatan, Phys. Rev. C **74** (2006), 051301 1-4.

22. "*Quantum Shape-Phase Transitions in Finite Nuclei",* A. Leviatan, Proc. 2nd Int. Conf. on "Collective Motion in Nuclei Under Extreme Conditions", (2006), Nucl. Phys. A, in press

23. "Partial Dynamical Symmetry at Critical-Points of Quantum Phase Transitions", A. Leviatan, (2007), submitted to Physical Review Letters.

Livne Eli

1. Livne E., Meerson B. and Sasorov P. : 'Symmetry-breaking instability and strongly peaked periodic clustering states in a driven granular gas ' ,Phys.Rev.E65,021302, 2002.

2. Kurzweil Y., Livne E. ans Meerson B. : ' Generation of Vorticity and Turbulent Cooling of Hot Channels in Gases ' ,Physics of Fluids,V14(3), 1030, 2002.

3. Livne E. , Meerson B. and Sasorov P. : ' Symmetry breaking and coarsening of clusters in a protypical driven granular gas ', Phys.Rev.E66,050301(R), 2002.

4. Kurzweil Y., Livne E. and Meerson B. : 'Vorticity production and turbulent cooling in hot channels in gases: three dimensions versus two dimension', Physics of Fluids,V15(3),752,2003.

5. Ott C.D., Burrows A., Livne E. and Walder R. : ' Gravitational Waves from Axisymmetric, Rotating Stellar Core Collapse ' , Ap.J.,600,834,2004.

6. Livne E., Burrows A., Walder R, Lichtenstadt I and Thompson T. :' Two-Dimensional, Time-Dependent, Multi-Group, Multi-Angle Radiation Hydrodynamics Test Simulation in the Core-Collapse Supernova Context ', Ap.J.,607,277,2004.

7. Efrati E., Livne E. and Meerson B. : 'Hydrodynamic condensations and singularities in a freely cooling inelastic gas ', Phys.Rev.Lett. 94,088001,2005.

8. Asida S.M., Livne E. and Stein J , and Metzker : '3D Simulations of Rayleigh-Taylor Instability Using VULCAN/3D ', Astrophysics and Space Sc.,298,363,2005

9. Glasner A., Livne E and Truran J. : 'The Sensitivity of Multidimensional Nova Calculations to the Outer Boundary Conditions ', Ap.J.,625,347,2005.

10. Walder R., Burrows A, Cott C.D., Livne E. and Jarrah M. : 'Anisotropies in the Neutrino Fluxes and Heating Profiles in Two-dimensional, Time-dependent, Multi-group Radiation Hydrodynamics Simulations of Rotating Core-Collapse Supernovae' , Ap.J.,626,317,2005.

11. Livne E. , Asida S. and Hoeflich P. : 'On the Sensitivity of Deflagrations in Chandrasekhar Mass White Dwarfs to Initial Conditions ', Ap.J.,632,443,2005

12. Ott C.D, Burrows A., Thompson T.A., Livne E. , Walder R. : 'The Spin Periods and Rotional Profiles of Neutron Stars at Birth ', ApJS, 164,130,2006

13. Burrows A., Livne E. , Dessart L., Ott C.D, Murphy J. : 'A New Mechanism for Core-Collapse Supernova Explosions ', Ap.J.,640,878,2006

14. Dessart L., Burrows A., Livne E. ,Ott C.D : 'Multi-Dimensional Radiation/Hydrodynamic Simulations of Protoneutron Star Convection', Ap.J,.,645,534,2006

15. Dessart L., Burrows A., Ott C.D, Livne E. , S. Y. Yoon, N. Langer : 'Multi-Dimensional Simulations of the Accretion-Induced Collapse of White Dwarfs to Neutron Stars ', Ap.J.,644,1063,2006

16. Ott,D.,C., Burrows A, Dessart L., Livne E. : 'A New Theory for Gravitational Waves Signature of Core-Collapse Supernovae ', Phys.Rev.Let.,Vol96,Issue 20,id 201102,2006

17. Burrows A., Livne E. , Dessart L., Ott C.D, Murphy J. : 'An Acoustic Mechanism for Core Collapse Supernova Explosions ', New Astronomy Reviews,50,478,2006

18. Burrows A., Livne E. , Dessart L., Ott C.D, Murphy J. : 'Features of the Acoustic Mechanism of Core-Collapse Supernova Explosions ', Ap.J.,655,416,2007

19. Fouxon I., Meerson B., Assaf M., Livne E. : 'Formation and Evolution of Density Singularities in Hydrodynamics of Inelastic Gases ' accepted for PRE(rapid communication), 2007, manuscript ID R11704PRE

20. Livne E. , Dessart L. and Burrows A., Meakin C.A. : 'A Two-Dimensional Magneto-Hydrodynamics Scheme for General Unstructured Grids ' accepted for The Astrophysical Journal , Feb. 2007

21. Glasner,S.,A., Livne,E. and Truran,J.,W. : 'Novae - The Evolution From Onset of Convection to the Runaway ' accepted by Ap.J , Jan 2007

22. Burrows, Adam; Dessart, Luc; Livne, Eli; Ott, Christian D.; Murphy, Jeremiah : 'Simulations of Magnetically-Driven Supernova and Hypernova Explosions in the Context of Rapid Rotation ' submitted to ApJ (arXiv:astro-ph/0702539) , feb 2007

23. Fouxon I., Meerson B., Assaf M., Livne E. : 'Formation of Density Singularities in Hydrodynamics of Freely Cooling Inelastic gases : a Family of Exact Solutions ' submitted to Phys. Fluids, march 2007

Mandelzweig Victor

1. R. Krivec, V. Mandelzweig and K. Varga, "Local properties of three-body atomic wave function", Phys. Rev. A61, 062503 (2000).

2. R. Krivec, M. Amusia and V. Mandelzweig, "High-energy limit of the double-electron photoionization cross section of the Helium atom", Phys. Rev. A62, 064701 (2000).

3. R. Krivec, M. Ya. Amusia and V. B. Mandelzweig, "The nuclear charge dependence of the two-electron high-frequency photoionization cross section", Phys. Rev. A63, 052708 (2001).

4. R. Krivec, M. Ya. Amusia and V. B. Mandelzweig, "Calculation of the contribution of the quasi-free mechanism to the two-electron photoionization cross section", Phys. Rev. A64, 012713 (2001)

5. R. Krivec and V. B. Mandelzweig, "Numerical Investigation of Quasilinearization Method in Quantum Mechanics", Comp. Phys. Comm. 138, 69 (2001)

6. V. B. Mandelzweig and F. Tabakin, "Quasilinearization Approach to Nonlinear Problems in Physics", Comp. Phys. Comm., 141,268 (2001)

7. V. B. Mandelzweig and R. Krivec "Quasilinearization method and its application to physical problems", Bled Workshops in Physics, v. 2, p 10 (2001).

8. R. Krivec, V. B. Mandelzweig and M. Ya. Amusia "Are there locally precise wave functions", Bled Workshops in Physics, v. 2, p 45 (2001).

9. R. Krivec, M. Ya. Amusia and V. B. Mandelzweig, "High frequency limit of two-electron ionisation cross-sections", Surface Review and Letters 9, 1161 (2002).

10. M. Ya. Amusia, E. G. Drukarev, R. Krivec and V. B. Mandelzweig, "Ultrarelativistic limit for the two-electron photoionization cross section", Phys. Rev. A66, 052706 (2002).

11. M. Ya. Amusia, E. G. Drukarev, R. Krivec, and V. B. Mandelzweig, "High Energy Limit of the Two-Electron Photoionization Processes in the Helium-Like Systems", in AIP Proceedings "X-Ray and Inner-shell Processes", vol. 652, pp.123-130, American Institute of Physics, Melville, New York (2003).

12. R. Krivec and V. B. Mandelzweig "Quasilinearization approach to quantum mechanics", Comp. Phys. Comm., 152,165-174 (2003).

13. M. Ya. Amusia, R. Krivec and V. B. Mandelzweig, "Two-electron Photoionisation cross-sections at High Energies", Few Body Systems Suppl.14,147-152 (2003).

14. V. B. Mandelzweig, "Quasilinearization Method and its Application to Physical Problems",Few Body Systems Suppl. 14,185-190 (2003).

15. R. Krivec, M. Ya. Amusia, and V. B. Mandelzweig, "High-frequency two-electron photoionization cross section of triplet states", Phys. Rev. A 67, 062720 (2003).

16. R. Krivec, V. B. Mandelzweig and F. Tabakin, "Quasilinear Approximation and WKB ", Few Body Systems 34,57 (2004).

17. M. Ya. Amusia, R. Krivec and V. B. Mandelzweig,"Two-electron photoionization of He and Helium-like ions", Nucl. Phys. A737, S201 (2004).

18. M. Ya. Amusia, E. G. Drukarev, R. Krivec, and V. B. Mandelzweig, High Energy Behavior of the Photoionization Processes in the Two-Electron Systems, Few Body Systems 35, 3 (2004).

19. R. Krivec, V. B. Mandelzweig, "Quasilinearization Method and summation of the WKB series" Phys. Lett. A337, 354-359 (2005).

20. E. Liverts, M.Ya. Amusia, E.G. Drukarev, R. Krivec and V. B. Mandelzweig "Shape variation of the two-electron photoionization spectrum with photon energy growth", Phys. Rev. A71, 012715 (2005).

21. M. Ya. Amusia, E. G. Drukarev, R. Krivec, E. Liverts, V. B. Mandelzweig and A. I. Michailov "Two-electron processes in atom-photon interactions", AIP Conference Proceedings, vol. 768, pp 311-316 (2005).

21. R. Krivec, V. B. Mandelzweig, "Fast convergent quasilinearization approach to quantum problems", AIP Conference Proceedings, vol. 768, pp 413-419 (2005)

23. V.B. Mandelzweig "Quasilinearization Method: Nonperturbative approach to Physical Problems", Physics of Atomic Nuclei 68, 1227-1258 (2005); Yadernaya Fizika 68, 1277-1308 (2005).

24. M. Ya. Amusia, E. G. Drukarev and V. B. Mandelzweig, "Quasifree Mechanism in Ionization Processes", Physica Scripta. 72, C22-C29 (2005).

25. R. Krivec, V. B. Mandelzweig, "Quasilinearization Method and WKB" ,Comp. Phys. Comm., 174, 119-126 (2006).

26. E. Z. Liverts, M. Ya. Amusia, R. Krivec, V. B. Mandelzweig, "Boundary solutions of the two-electron Schrodinger equation at two-particle coalescences of the atomic systems", Phys. Rev. A73, 012514 (2006).

27. M. Ya. Amusia, R. Krivec, E. Z. Liverts and V. B. Mandelzweig, "Calculation of the photoionization with de-excitation cross sections of He and Helium-like ions" , JETP 102, 556-561 (2006).

28. E. Z. Liverts, V. B. Mandelzweig and F. Tabakin, "Analytic Calculation of Energies and Wave Functions of the Quartic and Pure Quartic Oscillators", Journal of Mathematical Physics 47, 062109 (2006).

29. M. Ya. Amusia, E. Z. Liverts and V. B. Mandelzweig "Two-electron photoionization of endohedral atoms", Phys. Rev. A74, 042712 (2006).

30. E. Z. Liverts, M. Ya. Amusia, E. G. Drukarev, V. B. Mandelzweig "Wavefunctions of Helium-Like Systems in Limiting Regions" JETP 103, 690 (2006).

31. V. B. Mandelzweig, "Comparison of Quasilinear and WKB approximations", Ann. Phys. (N.Y.), 321 (2006) 2810

32. R. Krivec, V.B. Mandelzweig, F. Tabakin, "Quasilinear and WKB Solutions in Quantum Mechanics", Proceedings of the 3rd Asia-Pacific Conference on Few Body Problems,pp 24-27, World Scientific, 2007.

33. E. Z. Liverts, E. G. Drukarev, V. B. Mandelzweig "Accurate Analytic Presentation of Solution of the Schroedinger Equation with Arbitrary Physical Potential and its Applications", Ann. Phys. (N.Y.), 2007, accepted for publication.

34. E. Z. Liverts and V. B. Mandelzweig, "Accurate Analytic Presentation of Solution for the Spiked Harmonic Oscillator Problem", Ann. Phys. (N.Y.), 2007, accepted for publication.

Meerson Baruch

1. Symmetry-breaking instability and strongly peaked periodic clustering states in a driven granular gas. E. Livne, B. Meerson and P.V. Sasorov, Phys. Rev. E **65**, 021302 1-6 (2002).

2. Hydrodynamics of "thermal" granular convection. X. He, B. Meerson and G. Doolen, Phys. Rev. E **65**, 030301 1-4 (Rapid Communication) (2002).

3. Phase separation and coarsening in electrostatically driven granular media. I.S. Aranson, B. Meerson, P.V. Sasorov and V.M. Vinokur, Phys. Rev. Lett. **88**, 204301 1-4 (2002).

4. Symmetry-breaking and coarsening of clusters in a prototypical driven granular gas. E. Livne, B. Meerson and P.V. Sasorov, Phys. Rev. E (Rapid Communication) **66**, 060301 1-4 (2002).

5. Onset of thermal convection in a horizontal layer of granular gas. E. Khain and B. Meerson, Phys. Rev. E **67**, 021306 1-6 (2003).

6. Close-packed floating clusters: granular hydrodynamics beyond the freezing point? B. Meerson, T.Poeschel and Y. Bromberg, Phys. Rev. Lett. **91**, 0243011-4 (2003).

7. Oscillatory instability in a driven granular gas. E. Khain and B. Meerson, Europhys. Lett. **65**, 193-199 (2004).

8. Giant fluctuations at a granular phase separation threshold. B. Meerson, T. Poeschel, P.V. Sasorov and T. Schwager, Phys. Rev. E **69**, 021302 1-9 (2004).

9. Hydrodynamic singularities and clustering in a freely cooling inelastic gas. E. Efrati, E. Livne, and B. Meerson, Phys. Rev. Lett. **94**, 088001, 1-4 (2005).

10. Towards a continuum theory of clustering in a freely cooling inelastic gas. B. Meerson and A. Puglisi, Europhys. Lett. **70**, 478-484 (2005).

11. The role of discrete particle noise in the Ostwald ripening. B. Meerson, L.M. Sander, and P. Smereka, Europhys. Lett. **72**, 604-610 (2005).

12. Scaling and self-similarity in an unforced flow of inviscid fluid trapped inside a viscous fluid in a Hele-Shaw cell. A. Vilenkin, B. Meerson, and P.V. Sasorov, Phys. Rev. Lett. **96**, 044504 (1-4) (2006).

13. Experimental study of parametric autoresonance in Faraday waves. O. Ben-David, M. Assaf, J. Fineberg, and B. Meerson, Phys. Rev. Lett. **96**, 154503, 1-4 (2006).

14. Self-similar relaxation dynamics of a fluid wedge in a Hele-Shaw cell. O. Gat, B. Meerson, and A. Vilenkin, Phys. Rev. E (Rapid Communications) **73**, 065302(R), 1-4 (2006).

15. Shear-induced crystallization of a dense rapid granular flow: Hydrodynamics beyond the melting point. E. Khain and B. Meerson, Phys. Rev. E **73**, 061301, 1-11 (2006).

16. Thermal collapse of a granular gas under gravity. D. Volfson, B. Meerson, L.S. Tsimring, Phys. Rev. E **73**, 061305, 1-5 (2006).

17. Spectral formulation and WKB approximation for rare-events statistics in reaction systems. M. Assaf and B. Meerson, Phys. Rev. E **74**, 1-11, 041115 (2006).

18. Spectral theory of metastability and extinction in birth-death systems. M. Assaf and B. Meerson, Phys. Rev. Lett. **97**, 200602, 1-4 (2006).

19. Phase separation of a driven granular gas in annular geometry. M. Diez-Minguito and B. Meerson, Phys. Rev. E **75**, 011304, 1-8 (2007).

20. Self-similar asymptotics for a class of Hele-Shaw flows driven solely by surface tension. B. Meerson, P. V. Sasorov, and A. Vilenkin, Physica D (to appear) (2007); physics/0610103.

21. Spectral theory of metastability and extinction in a branching-annihilation reaction. M. Assaf and B. Meerson, Phys. Rev. E (to appear); cond-mat/0612157.

22. Close-packed granular clusters: hydrostatics and persistent Gaussian fluctuations. B. Meerson, M. Diez-Minguito, T. Schwager, and T. Poeschel, Granular Matter (to appear); cond-mat/0701449.

Millo Oded

1. "Local and macroscopic tunneling spectroscopy of $Y_{1-x}Ca_xBa_2Cu_3O_{7-\delta}$ films: evidence for a doping dependent *is* or id_{xy} component in the order parameter", A. Sharoni, O. Millo, A. Kohen, Y. Dagan, R. Beck, G. Deutscher, and G. Koren, Phys. Rev. B 65, 134526(1-7) (2002).

2. "Tomographic-like reconstruction of the percolation cluster as a phase transition", N. Shimoni, D. Azulay, I. Balberg, and O. Millo, Phys. Rev. B 66, R020102(1-4) (2002).

3. "Size dependent tunneling and optical spectroscopy of CdSe quantum rods", D. Katz, T.Wizansky, O. Millo, E. Rothenberg, T. Mokari and U. Banin, Phys. Rev. Lett. 89, 86801(1-4) (2002).

4. "Voltage induced electrical connectivity on a percolation cluster", N. Shimoni, D. Azulay, I. Balberg, and O. Millo, Phys. Stat. Sol. (b) 230, 143-149 (2002).

5. "Scanning tunneling spectroscopy of a-axis $YBa_2Cu_3O_{7-\delta}$ films: *k*-selectivity and the shape of the superconductor gap", A. Sharoni, O. Millo, G. Leibovitch, A. Kohen, R. Beck, G. Deutscher, and G. Koren, Europhys. Lett. 62, 883-889 (2003). (paper selected for publication in the "Virtual Journal of Applications of Superconductivity", 2003).

6. "Tunneling and percolation in metal-insulator composuite materials", D. Toker, D. Azulay, N. Shimoni, N. Shimoni, I. Balberg, and O. Millo, Phys. Rev. B 68, R041403(1-4) (2003).

7. "The electrical-thermal effect in carbon black/polymer composites as a local effect", D. Azulay, M. Eilon, N. Shimoni, D. Toker, O. Millo, and I. Balberg, Phys. Rev. Lett. 90, 236601(1-4) (2003).

8. "Manifestation of the Verwey transition in the tunneling spectra of magnetite nanocrystals", P. Poddar, T. Fried, G. Markovich, A. Sharoni, D. Katz, T. Wizansky, and O. Millo, Europhys. Lett., 64, 83-88 (2003).

9. "Junction Symmetry Effects in Resonant Tunneling Through InAs Nanocrystal Quantum Dots" D. Katz, U. Banin, S-H. Kan, and O. Millo, Physica A 392, 328-334 (2003).

10. "Proximity effect in gold coated $YBa_2Ca_3O_{7-\delta}$ films studied by scanning tunneling spectroscopy", A. Sharoni, I. Asulin, G. Koren, and O. Millo, Phys. Rev. Lett. 92, 017003(1-4) (2004).

11. "Electronic level structure and single electron charching effects in CdSe quantum rods", E. Rothenberg, T. Mokari, M. Kazes, U. Banin, D. Katz, D. Steiner, and O. Millo, invited paper to a special issue on *Single Molecule Spectroscopy*, the Israel Journal of Chemistry 44, 391-400 (2004).

12. "Intersublevel optical transitions in In As nanocrystals probed by photo-induced absorption spectroscopy: the role of thermal activation", D. Krapf, S.-H. Kan, U. Banin, O. Millo and A. Sa'ar, Phys. Rev. B 69, 073301(1-4) (2004).

13. "Transport and charging in single semiconductor nanocrystals", E. Nachum, T. Mokari, A. Aharoni, U. Banin, N. Shimoni, and O. Millo, Nanoletters 4, 103-108 (2004).

14. “Charging and quantum size effects in tunneling and optical spectroscopy of CdSe nanorods”, Oded Millo, David Katz, Dov Steiner, Eli Rothenberg, Taleb Mokari, Miri Kazes, and Uri Banin, Nanotechnology 15, R1-R6 (2004).

15. “Tunneling and magnetic characteristics of superconducting ZrB_{12} single crystals”, M. Tsindlekht, G.I. Leviev, I. Asulin, A. Sharoni, I. Felner, O. Millo, Yu. Paderno, V. Filipov, and M. Belogolovskii, Phys. Rev. B 69, 212508(1-4) (2004).

16. “Zero-dimensional and quasi one-dimensional effects in semiconductor nanorods”, D. Steiner, D. Katz, O. Millo, A. Aharoni, S.H. Kan, T. Mokari, and U. Banin, Nanoletters 4, 1073-1077 (2004).

17. “Coexistence of Superconductivity and Magnetism in $MoSr_2RCu_2O_8$ (R=rare-earth, Mo-1212)”, I. Felner, E. Galstyan, I. Asulin, A. Sharoni and O. Millo, (submitted to Phys. Rev. B).

18. “Unusual proximity effect in gold coated YBCO(110): Penetration of the zero bias conductance peak”, I. Asulin, A. Sharoni, O. Yuli, G. Koren, and O. Millo, Phys. Rev. Lett. 93, 157001 (2004).

19. “Current routes in hydrogenated microcrystalline silicon”, D. Azulay, I. Balberg, J.P. Conde, V. Chu, and O. Millo, Phys. Rev. B 71, 113304 (2005).

20. “Transition from zero-dimensional to one-dimensional behavior in InAs and CdSe nanorods”, O. Millo, D. Steiner, D. Katz, A. Aharoni, S.H. Kan, T. Mokari, and U. Banin, Physica E 26, 1-8 (2005).

21. “Where does the photocurrent flow in Polycrystalline CdS?”, D. Azulay, O. Millo, S. Silbert N. Naghavi, and I. Balberg, Appl. Phys. Lett. 86, 212102 (1-3) (2005).

22. “Ring stain effect in room temperature dispersions of silver nanoparticles yields high electrical conductivity”, S. Magdassi, M. Grouchko, D. Toker, A. Kamyshny, I. Balberg, and O. Millo, Langmuir 21, 10264-10267 (2005).

23. “Electronic structure of metal-semiconductor nanojunctions in gold-CdSe nano-dumbbells”, D. Steiner, T. Mokari, U. Banin, and O. Millo, Phys. Rev. Lett. 95, 056805 (2005).

24. “Size dependent local conductance properties of CdSe nanocrystal ensembles”, D. Toker, I. Balberg, O. Zelaya-Angel, E. Savir, and O. Millo, Phys. Rev. B 73, 45317 (1-6) (2006).

25. “Observation of reversed current in the tunneling spectra of inorganic fullerene WS_2 nanoparticles”, D. Azulay, I. Balberg, R. Tenne, F. Kopanov, and O. Millo, Nano Letters 6, 760-764 (2006).

26. “Evidence for crossed Andreev reflections in bilayers of (100)$YBa_2Cu_3O_{7-\square}$ and the itinerant ferromagnet $SrRuO_3$”, I. Asulin, O. Yuli, G. Koren, and O. Millo, Phys. Rev. B 74, 092501 (2006).

27. “Level structure of InAs quantum dots in two-dimensional assemblies”, Dov Steiner, D. Azulai, A. Aharoni, U. Banin, and O. Millo, Nano Lett. 6, 2201-2205 (2006).

28. "Current routes in Polycrystalline $CuInSe_2$ and $Cu(In,Ga)Se_2$ films", D. Azulay, O. Millo, I. Balberg, H.W. Schock, I. Visoly-Fisher, and D. Cahen, Sol. Ener. Mat. Sol. Cells 91, 85-90 (2007).

29. "Scanning tunneling spectroscopy studies of the pseudo-gap and the x=1/8 anomaly in $La_{2-x}Sr_xCuO_4$ ", O. Yuli, I. Asulin, G. Koren, and O. Millo, Phys. Rev. B (accepted).

30. "Macroscopic and microscopic manifestations of percolation transitions in semiconductor composites", D. Azulay, E. Savir, J.P. Conde, V. Chu, and O. Millo, and I. Balberg, (in preparation).

31. "Tunneling and magnetisation studies of superconducting YB_6 single crystals", M. Tsindlekht, G.I. Leviev, I. Asulin, O. Yuli I. Felner, O. Millo, Yu. Paderno, V. Filipov, and M. Belogolovskii (in preparation).

32. "Effects of spin scattering and exchange field on the zero bias conductance peak in (110)$YBa_2Cu_3O_{7-\square}$ - $SrRuO_3$ bilayers" I. Asulin, O. Yuli, G. Koren and O. Millo. (in preparation).

Books, invited review papers and invited chapters in books:

33. "Tunneling and optical spectroscopy of semiconductor nanocrystal quantum dots: Single particle and ensemble properties", U. Banin and O. Millo, in "*Semiconductor and Metal Nanocrystals*", V. Klimov, Ed. (Dekker, New York, 2004), pp. 289-323.

34. "Electrical Studies of Single Quantum Dots", O. Millo and U. Banin, Annual Review of Physical Chemistry **54**, 465-492 (2003).

35. "Tunneling and optical spectroscopy of semiconductor nanocrystals", U. Banin and O. Millo**,** Invited book chapter in "*Nanoparticles from theory to applications*", G. Schmid, Ed. (Wiley-VCH, NY, 2004), pp. 305-322.

36. "Tunneling and percolation in composite materials", I. Balberg, D. Azulay, D. Toker, and O. Millo, Int. J. Mod. Phys. B **18**, 2091-2121 (2004).

Papers in conference proceedings:

37. "Tunneling and optical spectroscopy of CdSe nanorods", D. Katz, T. Wizansky, O. Millo, E. Rothenberg, T. Mokari and U. Banin, Proceedings of the 26th Conference on the Physics of Semiconductors (2002).

38. "Size and shape dependence of the electronic states in CdSe quantum rods", E. Rothenberg, T. Mokari, U. Banin, D. Katz, T. Wizansky, and O. Millo, Mat. Res. Soc. Symp. Proc. **737**, E17.1.1 (2002).

39. "Observation of the Verwey Transition in Fe_3O_4 Nanocrystals", G. Markovich, T. Fried, P. Poddar, A. Sharoni, D. Katz, T. Wizansky, and O. Millo, Mat. Res. Soc. Symp. Proc. **746**, Q4.1, (2003).

40. "Local tunneling spectroscopy study of the proximity effect in gold coated $YBa_2Cu_3O_{7-\square}$", A. Sharoni, I. Asulin, G. Koren, and O. Millo, Superconductor Science and Technology, (2003).

41. “Where does the current flow in microcrystalline silicon”, I. Balberg, D. Azulay, O. Millo, Y. Dover, J. Conde and V. Chu, Proc. of the 14th Int’l Conf. on Photovoltaic Science and Engineering, Bangkok, 2004 (Chulalogkorn University, Bankok, 2004), pp. 1021-1022.

42. “Local probe investigations of current flow in microcrystalline silicon” D. Azulay, O. Millo, I. Balberg, J.P. Conde, and V. Chu, Proceedings of the 12th Sede-Boqer Symposium on Solar Energy Production (2004).

43. “The superconductor proximity effect in Au-$YBa_2Cu_3O_{7-\square}$ bilayer films: The role of order parameter anisotropy” O. Millo, I. Asulin, A. Sharoni, O. Yuli, G. Koren, Microelectronics Journal **36**, 539–542, (2005).

44. “Scanning tunneling spectroscopy studies of the proximity effect in $YBa_2Cu_3O_{7-\square}$-SrRuO3 superconductor-ferromagnet bilayers”, O. Millo, O. Yuli, G. Koren, and I. Asulin, “*Strongly Correlated Electron Materials*” SPIE proceedings **5932**, 5932-16 (2005).

45. “Local photoconductivity measurements of polycrystalline semiconductor films: The role of grain-boundaries”, D. Azulay, O. Millo, I. Balberg, and D. Cahen, proceedings of the 13 Sede-Boqer Symposium on Solar Energy Production (2006).

Orgad Dror

1. E. W. Carlson, D. Orgad, S. A. Kivelson and V. J. Emery, ``Stripes, electron fractionalization, and ARPES", J. Phys. Chem. Sol. **63**, 2213 (2002)

2. M. Granath, V. Oganesyan, D. Orgad and S. A. Kivelson, ``Distribution of spectral weight in a system with disordered stripes", Phys. Rev. B **65**, 184501 (2002).

3. E. W. Carlson, V. J. Emery, S. A. Kivelson and D. Orgad, "Concepts in high temperature superconductivity", in "The Physics of Superconductors: Superconductivity in Nanostructures, High-Tc and Novel Superconductors, Organic Superconductors", Vol 2, p. 275-452, edited by K. H. Bennemann and J. B. Ketterson (Springer-Verlag 2004).

4. D. Orgad, ``Interacting electrons on a fluctuating string", Phys. Rev. B 69, 205104 (2004) .

5. S. Baruch and D. Orgad, ``Weak-coupling phase diagrams of bond-aligned and diagonal doped Hubbard ladders", Phys. Rev. B **71**, 184503 (2005).

6. U. London, T. Giamarchi and D. Orgad, ``Disorder effects in fluctuating one-dimensional interacting systems", Phys. Rev. B **73**, 134201 (2006).

7. D. I. Golosov and D. Orgad, ``Boundary energies and the geometry of phase separation in double-exchange magnets", Phys. Rev. B **74**, 104403 (2006).

8. D. Orgad, "The Tomonaga-Luttinger Model and the Chern-Simons Theory for the Edges of Multi-layer Fractional Quantum Hall Systems", Phys. Rev. B **75**, 035301 (2007).

Ovadyahu Zvi

1. "Non-Equilibrium Field Effect and Memory in the Electron-Glass", A. Vaknin, Z. Ovadyahu, and M. Pollak, Phys. Rev. B **65**, 134208 (2002).
2. "Transport in the Electron-Glass under energy pumping", V. Orlyanchik, A Vaknin, and Z. Ovadyahu, Phys. Stat. Sol., **b239**, 67 (2002).
3. "Impairing the memory of an electron-glass by IR excitation", V. Orlyanchik, A.Vaknin, Z. Ovadyahu, and M. Pollak, Phys. Stat. Sol., **b239**, 61 (2002).
4. "Effects of e-e interactions near the metal-insulator transition in indium-oxide films", Z. Ovadyahu, in: ***High Magnetic Fields***, Lecture Notes in Physics, Springer (2002) pp 397.
5. "Non-eauilibrium dynamics and aging in the electron glass", Z. Ovadyahu, in: ***Slow relaxations and nonequilibrium dynamics in condensed matter***, Les-Houches Session LXXVII, EDP Sciences, Springer Verlag (2002), pp 625.
6. "Decoherence in Disordered Conductors at Low Temperatures, the effect of Soft Local Excitations" Y. Imry, Z. Ovadyahu, and A. Schiller, Euresco Conference on Fundamental Problems of Mesoscopic Physics, Granada, September (2003), and cond-mat/0312135
7. "History-dependent relaxation and the energy scale of correlation in the Electron-Glass", Z. Ovadyahu, and M. Pollak, Phys. Rev. B **68**, 184204 (2003).
8. "Stress-aging in the electron-glass", V. Orlyanchik and Z. Ovadyahu, Phys. Rev. Letters, **92**, 066801 (2004).
9. "Non-ohmicity and energy relaxation in diffusive 2D metal", Roy Ceder, Oded Agam, and Zvi Ovadyahu, Phys. Rev. B **72**, 245104 (2005).
10. "Conductance noise in interacting Anderson insulators driven far from equilibrium", V. Orlyanchik and Z. Ovadyahu, Phys. Rev. B **72**, 024211 (2005).
11. "A model for the electron glass", M. Pollak and Z. Ovadyahu, Phys. Stat. Sol., **C3**, 283 (2006).
12. "Temperature and field dependence of Dynamics in the Electron-Glass", Z. Ovadyahu, Phys. Rev. B **73**, 214208 (2006).
13. "A quench-cooling procedure compared with the gate-protocol for aging experiments in the Electron-Glass", Z. Ovadyahu, Phys. Rev. B **73**, 214204 (2006).
14. "Non-Gaussian conductance noise in disordered electronic systems due to a nonlinear mechanism", V. Orlyanchik, V. I. Kozub, and Z. Ovadyahu, Phys. Rev. B **74**, 233101 (2006).

Paul Michael

1. Experimental Limit to Interstellar ^{244}Pu Abundance, M. Paul *et al*., Astrophys. J. Lett, 558 (2001) L133-L135.

2. Large Angle Elastic Alpha Scattering on a N = Z Nucleus above A=40, E. Rehm *et al*., Phys. Rev. Lett. 89 (2002) 132501.

3. Widths of astrophysically important resonances in ^{18}Ne, B. Harss *et al*., Phys. Rev. C 65 (2002) 035803/1-9.

4. A window on nucleosynthesis through detection of short-lived radionuclides, M. Paul *et al*., Nucl. Phys. A 719 (2003) 29c-36c.

5. Flint mining in prehistory recorded by in-situ-produced cosmogenic ^{10}Be, G. Verri *et al*., Proc. Nat. Acad. Sci. 101 (2004) 7880-7884.

6. Determination of the ^{8}B Neutrino Spectrum, W.T. Winter *et al*., Phys. Rev. Lett. 91 (2004) 252501.

7. Influence of Nuclear Structure on Sub-Barrier Hindrance in Ni + Ni Fusion, C. L. Jiang *et al*., Phys. Rev. Lett. 93 (2004) 012701.

8. Stellar (n,γ) cross sections of ^{62}Ni, H. Nassar *et al*., Phys. Rev. Lett. 94 (2005) 092504/1-4.

9. Search for excited states in ^{7}He with the (d,p) reaction, A. H. Wuosmaa *et al*., Phys. Rev. C 72 (2005) 061301(R).

10. Flint procurement strategies in the Late Lower Palaeolithic recorded by in situ produced ^{10}Be in Tabun and Qesem Caves (Israel), G. Verri *et al*., J. Archaeological Sci. 32 (2005) 207-213.

11. ^{40}Ca(α,γ)^{44}Ti Reaction in the Energy Regime of Supernova Nucleosynthesis, H. Nassar *et al*., Phys. Rev. Lett. 96 (2006) 041102-(1-4).

12. Development of a detection method for ^{244}Pu by Resonance Ionization Mass Spectrometry, A. Ofan *et al*., New Astron. Rev. 50 (2006) 640-643.

13. Improved measurement of the ^{44}Ti half-life from a 14-year long study, I. Ahmad *et al*., Phys. Rev. C 74 (2006) 065803-1-8

15. A Pilot Study of the Feasibility of Long-term Human Bone Balance During Perimenopause Using a ^{41}Ca tracer, S.K Hui *et al*., Nucl. Instr. and Meth. Phys. Res. B (2007), doi: 10.1016/j.nimb.2007.02.003; *in press*

Perel Reuven L

1. R.L. Perel, J.J. Wagschal and Y. Yeivin, "Actual and Potential Measurements of Fission-Rate Ratios in the NIST Iron Sphere," Reactor Dosimetry: Radiation Metrology and Assessment, ASTM STP 1398, John G. Williams, David W. Vehar, Frank H. Ruddy and David M. Gilliam, Eds., American Society for Testing and Materials, West Conshohocken, PA, 344-351 (2001).

2. R.L. Perel, J.J. Wagschal and Y. Yeivin, "PV-Surveillance Dosimetry and Adjustment: Review of Several Significant Oral Laws," Reactor Dosimetry: Radiation Metrology and Assessment, ASTM STP 1398, John G. Williams, David W. Vehar, Frank H. Ruddy and David M. Gilliam, Eds., American Society for Testing and Materials, West Conshohocken, PA, 486-493 (2001).

3. C. Konno, U. Fischer, R.L. Perel, "Benchmark and MC Sensitivity/Uncertainty Analyses of FNS Beryllium and Iron TOF Experiments and IPPE Nickel TOF Experiment Using EFF-3 Data," Journal of Nuclear Science and Technology, Supplement 2, p. 1045-1048 (2002).

4. R.L. Perel, "Sensitivity of Leakage from Iron Spheres to the Angular Distribution of Secondary Neutrons," in "Reactor Dosimetry in the 21th Century, Proceedings of the 11th

International Symposium on Reactor Dosimetry, Brussels, Belgium 18-23 August 2002", J. Wagemans, H. Ait-Abderrahim, P. D'hondt, C. De Raedt, Eds., World Scientific Publishing, Singapore, 697-703 (2003) (**invited**).

5. R.L. Perel, "Monte Carlo Calculation of Sensitivities to Secondaries' Angular Distributions," Nucl. Sci. Eng. **143**, 121-131 (2003).

6. K. Seidel, M. Angelone, P. Batistoni, Y. Chen, U. Fischer, H. Freiesleben, C. Negoita, R.L. Perel, M. Pillon, S. Unholzer, "Measurement and Analysis of Neutron and Gamma-ray Flux Spectra in SiC," Fusion Engineering and Design **69**, 379-383 (2003).

7. Y. Chen, U. Fischer, I. Kodeli, R.L. Perel, M. Angelone, P. Batistoni, L. Petrizzi, M. Pillon, K. Seidel, S. Unholzer, "Sensitivity and Uncertainty Analyses of 14 MeV Neutron Benchmark Experiment on Silicon Carbide," Fusion Engineering and Design **69**, 437-442 (2003).

8. U. Fischer, I. Kodeli, C. Konno, R.L. Perel, "Sensitivity Analysis for a 14 MeV Neutron Benchmark using Monte Carlo and Deterministic Computational Methods," Fusion Engineering and Design **70**, 221-232 (2004).

9. D. Leichtle, U. Fischer, I. Kodeli, R.L. Perel, M. Angelone, P. Batistoni, P. Carconi, M. Pillon, I. Schäfer, K. Seidel, R. Villari, G. Zappa, "Sensitivity and Uncertainty Analyses of the Tritium Production in the HCPB Breeder Blanket Mock-up Experiment," Proceedings of the 24th Symposium of Fusion Technology – SOFT-24, Warsaw, Sep. 11-15, (2006).

10. U. Fischer , P. Batistoni, R. Forrest , C. Konno, R.L. Perel, K. Seidel, and S.P. Simakov, "Development Needs of Nuclear Data for Fusion Technology," ND-2007, The International Conference on Nuclear Data for Science and Technology, Nice, France, April 22-27, 2007.

11. A.J.Koning, M.Avrigeanu, V.Avrigeanu, P. Batistoni, E. Bauge, M.-M.Be, P. Bem, D. Bernard, O. Bersillon, A. Bidaud, O. Bouland, A. Courcelle, C.J. Dean, P. Dos-Santos-Uzarralde, B. Duchemin, I. Duhamel, M.C. Duijvestijn, E. Dupont, U. Fischer, R.A. Forrest, F. Gunsing, W. Haeck, H. Henriksson, A. Hogenbirk, T.D. Huynh, R. Jacqmin, C. Jouanne, J.Keinert, M.A.Kellett, I.Kodeli, J.Kopecky, H. Leeb, D. Leichtle, J. Leppanen, O. Litaize, M.J. Lopez Jimenez, M. Mattes, E. Menapace, R.W. Mills, B. Morillon, C. Mounier, A.L. Nichols, G. Noguere, C. Nordborg, A. Nouri, R.L. Perel, P. Pereslavtsev, R.J. Perry, M. Pescarini, M. Pillon, A.J.M. Plompen, D. Ridikas, P. Romain, Y. Rugama, P. Rullhusen, C. de Saint Jean, A. Santamarina, E. Sartori, K. Seidel, O. Serot, S. Simakov, J.-Ch. Sublet, S. Tagesen, A. Trkov, S.C. van der Marck, and H.Vonach, "The JEFF evaluated nuclear data project," ND-2007, The International Conference on Nuclear Data for Science and Technology, Nice, France, April 22-27, 2007.

Piran Tsvi

1. **T. Piran,** Gamma-ray bursts - A primer for relativists, 2002, grg..conf, 259

2. **T. Piran,** Gamma-Ray Bursts, 2002, IJMPA, 17, 2727

3. **T. Piran,** Demotion looms for gamma-ray bursts., 2002, Sci, 295, 986

4. El-Ad, H., H. Martel, M. Lecar, and **T. Piran,** The Cluster Mass Function in COBE- and Cluster-normalized Cold Dark Matter Simulations, 2002, ApJ, 565, 649

5. **T. Piran** and E. Nakar, How to Construct a GRB Engine?, 2002, arXiv:astro-ph/0202403

6. Nakar, E. and **T. Piran,** Temporal properties of short gamma-ray bursts, 2002, MNRAS, 330, 920

7. Nakar, E. and **T. Piran,** Time-scales in long gamma-ray bursts, 2002, MNRAS, 331,

8. Nakar, E. and **T. Piran,** Gamma-Ray Burst Light Curves-Another Clue on the Inner Engine, 2002, ApJ, 572, L139

9. Nakar, E., **T. Piran,** and J. Granot, The Detectability of Orphan Afterglows, 2002, ApJ, 579, 699

10. **T. Piran,** The Energy of Gamma-ray Bursts, 2003, ASPC, 308, 355

11. Nakar, E. and **T. Piran,** On-axis orphan afterglows, 2003, NewA, 8, 141

12. **T. Piran,** Astronomy: Glowing embers, 2003, Nature, 422, 268

13. **T. Piran** and S. Ayal, GRB Remnants, 2003, AIPC, 662, 313

14. Sorkin, E. and **T. Piran,** Initial Data for Black Holes and Black Strings in 5D, 2003, PhRvL, 90, 171301

15. Nakar, E., **T. Piran,** and J. Granot, Variability in GRB afterglows and GRB 021004, 2003, NewA, 8, 495

16. Oren, Y. and **T. Piran,** Collapse of charged scalar fields, 2003, PhRvD, 68, 044013

17. Nakar, E., **T. Piran,** and E. Waxman, Implications of the bold gamma-ray polarization of GRB 021206, 2003, JCAP, 10, 5

18. Nakar, E. and **T. Piran,** Modeling Fluctuations in Gamma-Ray Burst Afterglow Light Curves, 2003, ApJ, 598, 400

19. Granot, J., E. Nakar, and **T. Piran,** Astrophysics: refreshed shocks from a gamma;-ray burst, 2003, Nature, 426, 138

20. **T. Piran** and N. J. Shaviv, On the Low Progenitor Mass of the Binary Pulsar J0737-3039B, 2004, arXiv:astro-ph/0401553

21. Amelino-Camelia, G., M. Arzano, Y. J. Ng, **T. Piran,** and H. van Dam, Implications of spacetime quantization for the Bahcall Waxman neutrino bound, 2004, JCAP, 2, 9

22. Kol, B., E. Sorkin, and **T. Piran,** Caged black holes: Black holes in compactified spacetimes. I. Theory, 2004, PhRvD, 69, 064031

23. Sorkin, E., B. Kol, and **T. Piran,** Caged black holes: Black holes in compactified spacetimes. II. 5D numerical implementation, 2004, PhRvD, 69, 064032

24. Granot, J., P. Kumar, and **T. Piran,** The Jet Angular Profile and the Afterglow Light Curves, 2004, ASPC, 312, 373

25. **T. Piran,** E. Nakar, and J. Granot, Some Recent Peculiarities of the Early Afterglow, 2004, AIPC, 727, 181

26. Nakar, E. and **T. Piran,** Early afterglow emission from a reverse shock as a diagnostic tool for gamma-ray burst outflows, 2004, MNRAS, 353, 647

27. Oren, Y., E. Nakar, and **T. Piran,** The apparent size of gamma-ray burst afterglows as a test of the fireball model, 2004, MNRAS, 353, L35

28. **T. Piran,** Gamma-Ray Bursts as Probes for Quantum Gravity, 2005, LNP, 669, 351

29. Guetta, D., **T. Piran,** and E. Waxman, The Luminosity and Angular Distributions of Long-Duration Gamma-Ray Bursts, 2005, ApJ, 619, 412

30. **T. Piran,** The physics of gamma-ray bursts, 2005, RvMP, 76, 1143

31. Nakar, E. and **T. Piran,** GRB 990123 Revisited: Further Evidence of a Reverse Shock, 2005, ApJ, 619, L147

32. **T. Piran** and N. J. Shaviv, Origin of the Binary Pulsar J0737-3039B, 2005, PhRvL, 94, 051102

33. Nakar, E. and **T. Piran,** A Note on "Probing the existence of the E_{peak}-E_{iso} correlation in long Gamma Ray Bursts" by Ghirlanda et al. - astro-ph/0502186, 2005, arXiv:astro-ph/0503517

34. Guetta, D. and **T. Piran,** The luminosity and redshift distributions of short-duration GRBs, 2005, A&A, 435, 421

35. **T. Piran,** The beaming factor and other open issues in GRB Jets, 2005, NCimC, 28, 373

36. Nakar, E. and **T. Piran,** Early afterglow from a reverse shock as a tracer of the prompt gamma-ray light curve, 2005, NCimC, 28, 431

37. Nakar, E. and **T. Piran,** Outliers to the peak energy-isotropic energy relation in gamma-ray bursts, 2005, MNRAS, 360, L73

38. Kohri, K., R. Narayan, and **T. Piran,** Neutrino-dominated Accretion and Supernovae, 2005, ApJ, 629, 341

39. **T. Piran,** Magnetic Fields in Gamma-Ray Bursts: A Short Overview, 2005, AIPC, 784, 164

40. **T. Piran,** Accretion Power in GRBs, 2005, AIPC, 797, 123

41. Fox, D. B., D. A. Frail, P. A. Price, S. R. Kulkarni, E. Berger, **T. Piran,** M. Soderberg, S. B. Cenko, P. B. Cameron, A. Gal-Yam, M. M. Kasliwal, D.-S. Moon, F. A. Harrison, E. Nakar, B. P. Schmidt, B. Penprase, R. A. Chevalier, P. Kumar, K. Roth, D. Watson, B. L. Lee, S. Shectman, M. M. Phillips, M. Roth, P. J. McCarthy, M. Rauch, L. Cowie, B. A. Peterson, J. Rich, N. Kawai, K. Aoki, G. Kosugi, T. Totani, H.-S. Park, A. MacFadyen, and K. C. Hurley, The afterglow of GRB 050709 and the Nature of the short-hard gamma;-ray bursts, 2005, Nature, 437, 845

42. Nakar, E., **T. Piran,** and R. Sari, Pure and Loaded Fireballs in Soft Gamma-Ray Repeater Giant Flares, 2005, ApJ, 635, 516

43. Berger, E., P. A. Price, S. B. Cenko, A. Gal-Yam, A. M. Soderberg, M. Kasliwal, D. C. Leonard, P. B. Cameron, D. A. Frail, S. R. Kulkarni, D. C. Murphy, W. Krzeminski, **T. Piran,** B. L. Lee, K. C. Roth, D.-S. Moon, D. B. Fox, F. A. Harrison, S. E. Persson, B. P. Schmidt, B. E. Penprase, J. Rich, B. A. Peterson, and L. L. Cowie, The afterglow and elliptical host galaxy of the short gamma;-ray burst GRB 050724, 2005, Nature, 438, 988

44. **T. Piran,** D. Guetta, and M. Rodriguez-Martinez, Gamma-Ray Bursts and New Physics, 2006, PThPS, 163, 23

45. Rodriguez Martinez, M., **T. Piran,** and Y. Oren, GRB 051221A and Tests of Lorentz Symmetry, 2006, JCAP, 5, 17

46. Furlanetto, S. R. and **T. Piran,** The evidence of absence: galaxy voids in the excursion set formalism, 2006, MNRAS, 366, 467

47. McMahon, E., P. Kumar, and **T. Piran,** Reverse shock emission as a probe of gamma-ray burst ejecta, 2006, MNRAS, 366, 575

48. **T. Piran** and N. J. Shaviv, A remark on ``On the Formation and Progenitor of PSR J0737-3039: New Constraints on the Supernova Explosion Forming Pulsar B'' by Willems et al., astro-ph/0602024, 2006, arXiv:astro-ph/0603649

49. Nakar, E., A. Gal-Yam, **T. Piran,** and D. B. Fox, The Distances of Short-Hard Gamma-Ray Bursts and the Soft Gamma-Ray Repeater Connection, 2006, ApJ, 640, 849

50. Rodriguez Martinez, M. and **T. Piran,** Constraining Lorentz violations with gamma ray bursts, 2006, JCAP, 4, 6

51. **T. Piran** and D. Guetta, The rate and luminosity function of Short GRBs, 2006, AIPC, 836, 58

52. Jacob, U. and **T. Piran,** Embedding the Reissner Nordstrom spacetime in Euclidean and Minkowski spaces, 2006, CQGra, 23, 4035

53. Fan, Y. and **T. Piran,** Gamma-ray burst efficiency and possible physical processes shaping the early afterglow, 2006, MNRAS, 369, 197

54. Guetta, D. and **T. Piran,** The BATSE-Swift luminosity and redshift distributions of short-duration GRBs, 2006, A&A, 453, 823

55. Fan, Y. and **T. Piran,** Sub-GeV flashes in gamma;-ray burst afterglows as probes of underlying bright far-ultraviolet flares, 2006, MNRAS, 370, L24

56. Granot, J., A. Konigl, and **T. Piran,** Implications of the early X-ray afterglow light curves of Swift gamma-ray bursts, 2006, MNRAS, 370, 1946 25

57. Soderberg, A. M., S. R. Kulkarni, E. Nakar, E. Berger, P. B. Cameron, D. B. Fox, D. Frail, A. Gal-Yam, R. Sari, S. B. Cenko, M. Kasliwal, R. A. Chevalier, **T. Piran,** P. A. Price, B. P. Schmidt, G. Pooley, D.-S. Moon, B. E. Penprase, E. Ofek, A. Rau, N. Gehrels, J. A. Nousek, D. N. Burrows, S. E. Persson, and P. J. McCarthy, Relativistic ejecta from X-ray flash XRF 060218 and the rate of cosmic explosions, 2006, Nature, 442, 1014

58. Fan, Y.-Z., **T. Piran,** and D. Xu, The interpretation and implication of the afterglow of GRB 060218, 2006, JCAP, 9, 13

59. Cenko, S. B., M. Kasliwal, F. A. Harrison, V. Pal'shin, D. A. Frail, P. B. Cameron, E. Berger, D. B. Fox, A. Gal-Yam, S. R. Kulkarni, D.-S. Moon, E. Nakar, E. O. Ofek, B. E. Penprase, P. A. Price, R. Sari, B. P. Schmidt, A. M. Soderberg, R. Aptekar, D. Frederiks, S. Golenetskii, D. N. Burrows, R. Chevalier, N. Gehrels, P. J. McCarthy, J. A. Nousek, and **T. Piran,** Multiwavelength Observations of GRB 050820A: An Exceptionally Energetic Event Followed from Start to Finish, 2006, ApJ, 652, 490

60. Gal-Yam, A., D. B. Fox, P. A. Price, E. O. Ofek, M. R. Davis, D. C. Leonard, A. M. Soderberg, B. P. Schmidt, K. M. Lewis, B. A. Peterson, S. R. Kulkarni, E. Berger, S. B. Cenko, R. Sari, K. Sharon, D. Frail, D.-S. Moon, P. J. Brown, A. Cucchiara, F. Harrison, **T. Piran,** S. E. Persson, P. J. McCarthy, B. E. Penprase, R. A. Chevalier, and A. I. MacFadyen, A novel explosive process is required for the gamma;-ray burst GRB 060614, 2006, Nature, 444, 1053

61. Guetta, D. and **T. Piran,** Do long-duration GRBs follow star formation?, 2007, arXiv:astro-ph/0701194

62. Jacob, U. and **T. Piran,** Neutrinos from gamma-ray bursts as a tool to explore quantum-gravity-induced Lorentz violation, 2007, Nature Physics, 3, 87 1

63. Ofek, E. O., S. B. Cenko, A. Gal-Yam, D. B. Fox, E. Nakar, A. Rau, D. A. Frail, S. R. Kulkarni, P. A. Price, B. P. Schmidt, A. M. Soderberg, B. Peterson, E. Berger, K. Sharon, O. Shemmer, B. E. Penprase, R. A. Chevalier, P. J. Brown, D. N. Burrows, N. Gehrels, F. Harrison, S. T. Holland, V. Mangano, P. J. McCarthy, D. -. Moon, J. A. Nousek, S. E. Persson, **T. Piran,** and R. Sari, GRB 060505: A possible short-duration gamma-ray burst in a star forming region at redshift of 0.09, 2007, arXiv:astro-ph/0703192

Questembert-Balaban Nathalie

1. Lipshtat, A., Loinger, A., Balaban N.Q., and O. Biham, *Genetic toggle switch without cooperative binding.* Phys. Rev. Lett., 2006. **96**(18): p.188101.1 – 188101.4

2. Balaban, N.Q., *Szilard's dream.* Nat Methods, 2005. **2**(9): p. 648-9.

3. Lipshtat, A., H.B. Perets, N.Q. Balaban, and O. Biham, *Modeling of negative autoregulated genetic networks in single cells.* Gene, 2005. **347**: p. 265-271

4. Kussell, E.L., R. Kishony, N.Q. Balaban, and S. Leibler, *Bacterial Persistence: A Model of Survival in Changing Environments.* Genetics, 2005. **31**: p. 1807-1814.

5. Balaban, N.Q., U.S. Schwarz, and B. Geiger, *Measurement of cellular contractile forces using patterned elastomer.* in Cell Biology: A Laboratory Handbook 3ED Ed. Julio Celis, 2005. **II**: p.419-422.

6. Balaban, N.Q., J. Merrin, R. Chait, L. Kowalik, and S. Leibler, *Bacterial persistence as a phenotypic switch.* Science, 2004. **305**(5690): p. 1622-1625.

7. Schwarz, U.S., N.Q. Balaban, D. Riveline, L. Addadi, A. Bershadsky, S.A. Safran, and B. Geiger, *Measurement of cellular forces at focal adhesions using elastic micro-patterned substrates.* Materials Science & Engineering C-Biomimetic and Supramolecular Systems, 2003. **23**(3): p. 387-394.

8. Bershadsky, A.D., N.Q. Balaban, and B. Geiger, *Adhesion-dependent cell mechanosensitivity.* Annual Review of Cell and Developmental Biology, 2003. **19**: p. 677-695.

9. Schwarz, U.S., N.Q. Balaban, D. Riveline, A. Bershadsky, B. Geiger, and S.A. Safran, *Calculation of forces at focal adhesions from elastic substrate data: The effect of localized force and the need for regularization.* Biophysical Journal, 2002. **83**(3): p. 1380-1394.

Rabinovici Eliezer

1. **ON THE NATURE OF THE HAGEDORN TRANSITION IN NCOS SYSTEMS.** By J.L.F. Barbon (CERN), E. Rabinovici (Hebrew U.),. CERN-TH-2001-108, RI-2001-11, Apr 2001. 37pp. Published in **JHEP 0106:029,2001** e-Print Archive: **hep-th/0104169**

2. **D-BRANES IN THE BACKGROUND OF NS FIVEBRANES.** By S. Elitzur, A. Giveon, D. Kutasov, E. Rabinovici, G. Sarkisian (Hebrew U. & Chicago U., Astron. Astrophys. Ctr.),. 2001. Published in **Int.J.Mod.Phys.A16:880-890,2001**

3. **CLOSED STRING TACHYONS AND THE HAGEDORN TRANSITION IN ADS SPACE.** By J.L.F. Barbon (CERN), E. Rabinovici (Hebrew U.),. CERN-TH-2001-375, RI-01-12-05, Dec 2001. 25pp. Published in **JHEP 0203:057,2002** e-Print Archive: **hep-th/0112173**

4. **FROM BIG BANG TO BIG CRUNCH AND BEYOND.** By S. Elitzur, A. Giveon (Hebrew U.), D. Kutasov (Chicago U.), E. Rabinovici (Hebrew U.),. EFI-02-72, RI-04-02, Apr 2002. 36pp. Published in **JHEP 0206:017,2002** e-Print Archive: **hep-th/0204189**

5. **SUPERSYMMETRIC GAUGE THEORIES.** By D.S. Berman, E. Rabinovici (Hebrew U.),. Oct 2002. 111pp. Lectures given at Les Houches Summer School: Session 76: Euro Summer School on Unity of Fundamental Physics: Gravity, Gauge Theory and Strings, Les Houches, France, 30 Jul - 31 Aug 2001. Published in *Les Houches 2001, Gravity, gauge theories and strings* 137-240 e-Print Archive: **hep-th/0210044**

6. **REMARKS ON BLACK HOLE INSTABILITIES AND CLOSED STRING TACHYONS.** By J.L.F. Barbon (CERN), E. Rabinovici (Hebrew U.),. CERN-TH-2002-313, Oct 2002. 20pp. Contribution to Jacob Bekenstein's Festschrift. Published in **Found.Phys.33:145-165,2003** e-Print Archive: **hep-th/0211212**

7. **REMOVING SINGULARITIES.** By Shmuel Elitzur, Amit Giveon, Eliezer Rabinovici (Hebrew U.),. RI-05-02, Dec 2002. 21pp. Published in **JHEP 0301:017,2003** e-Print Archive: **hep-th/0212242**

8. **STRINGS IN SINGULAR TIME DEPENDENT BACKGROUNDS.** By Amit Giveon, Eliezer Rabinovici, Amit Sever (Hebrew U.),. RI-01-03, May 2003. 22pp. Germany, 26-30 Aug 2002. Published in **Fortsch.Phys.51:805-823,2003**

9. **VERY LONG TIME SCALES AND BLACK HOLE THERMAL EQUILIBRIUM.** By J.L.F. Barbon (CERN), E. Rabinovici (Hebrew U.),. CERN-TH-2003-167, RI-03-07-007, Aug 2003. 31pp. Published in **JHEP 0311:047,2003** e-Print Archive: **hep-th/0308063**

10. **ASPECTS OF STRING MOTION IN TIME-DEPENDENT BACKGROUNDS.** By E. Rabinovici (Hebrew U.),. Jun 2002. Prepared for NATO Advanced Study Institute and EC Summer School on Progress in String, Field and Particle Theory, Cargese, Corsica, France, 25 Jun - 11 Jul 2002. Published in **Annales Henri Poincare 4:S159-S173,2003** Also in *Cargese 2002, Progress in string, field and particle theory* 275-318

11. **PROGRESS IN STRING, FIELD AND PARTICLE THEORY. PROCEEDINGS, NATO ADVANCED STUDY INSTITUTE, EC SUMMER SCHOOL, CARGESE, FRANCE, JUNE 25-JULY 11, 2002.** By L. Baulieu, (ed.), E. Rabinovici, (ed.), J. Harvey, (ed.), B. Pioline, (ed.), P. Windey, (ed.) (Paris U., VI-VII & Hebrew U. & Chicago U., Astron. Astrophys. Ctr.),. 2003. 507pp. Prepared for NATO Advanced Study Institute and EC Summer School on Progress in String, Field and Particle Theory, Cargese, Corsica, France, 25 Jun - 11 Jul 2002. Published in Dordrecht, Netherlands: Kluwer Academic (2003) 507 p Also in (NATO science series II: Mathematics, physics and chemistry. 104)

12. **LONG TIME SCALES AND ETERNAL BLACK HOLES.** By J.L.F. Barbon (CERN), E. Rabinovici (Hebrew U.),. CERN-PH-TH-2004-059, Mar 2004. 10pp. Presented at 27th Johns Hopkins Workshop on Current Problems in Particle Theory: Symmetries and Mysteries of M-Theory, Goteborg, Sweden, 24-26 Aug 2003. Published in **Fortsch.Phys.52:642-649,2004** Also in *Goeteborg 2003, Symmetries and mysteries of M theory* jhw2003/004 e-Print Archive: **hep-th/0403268**

13. **ON THERMODYNAMICAL PROPERTIES OF SOME COSET CFT BACKGROUNDS.** By Amit Giveon, Anatoly Konechny, Eliezer Rabinovici, Amit Sever (Hebrew U.),. RI-04-04, Jun 2004. 40pp. Published in **JHEP 0407:076,2004** e-Print Archive: **hep-th/0406131**

14. **TOURING THE HAGEDORN RIDGE.** By J.L.F. Barbon (CERN), E. Rabinovici (Hebrew U.),. CERN-PH-TH-2004-141, Aug 2004. 29pp. In *Shifman, M. (ed.) et al.: From fields to strings, vol. 3* 1973-2008. e-Print Archive: **hep-th/0407236**

15. **STRING THEORY: CHALLENGES, SUCCESSES AND MAGIC.** By E. Rabinovici (Hebrew U.),. 2004. 6pp. Published in **Europhys.News 35:117-122,2004**

16. **PHASES OF QUANTUM GRAVITY IN ADS(3) AND LINEAR DILATON BACKGROUNDS.** By A. Giveon (Hebrew U.), D. Kutasov (Chicago U., EFI), E. Rabinovici, A. Sever (Hebrew U.),. Mar 2005. 38pp. Published in **Nucl.Phys.B719:3-34,2005** e-Print Archive: **hep-th/0503121**

17. **TOPOLOGY CHANGE AND UNITARITY IN QUANTUM BLACK HOLE DYNAMICS.** By J.L.F. Barbon (Madrid, Autonoma U.), E. Rabinovici (Hebrew U.),. IFT-UAM-CSIC-05-019, Mar 2005. 14pp. Talk given at 27th Spanish Relativity Meeting: Beyond General Relativity (ERE 2004), Madrid, Spain, 23-25 Sep 2004. e-Print Archive: **hep-th/0503144**

18. **MULTITRACE DEFORMATIONS OF VECTOR AND ADJOINT THEORIES AND THEIR HOLOGRAPHIC DUALS.** By S. Elitzur, A. Giveon (Hebrew U.), M. Porrati (New York U. & Pisa, Scuola Normale Superiore), E. Rabinovici (Hebrew U. & CERN),. CERN-PH-TH-2005-209, RI-57-05, Nov 2005. 19pp. e-Print Archive: **hep-th/0511061**

Sa'ar Amir

Journal Papers and Chapters in Books:

52. R. Chelly, Y. Cohen, **A. Sa'ar** and J. Shappir, "Pyramid-shaped Silicon photodetector with subwavelength aperture" **IEEE Trans. Electron. Devices 49**, 986-990 (2002).

53. E. Axelrod, A. Givant, J. Shappir, Y. Feldman and **A. Sa'ar**, " Dielectric relaxation and transport spectroscopy of porous silicon" **Phys. Rev. B 65**, 165429 (2002).

54. E. Axelrod, A. Givant, J. Shappir, Y. Feldman and **A. Sa'ar**, "Dielectric Relaxation and Porosity Determination of Porous Silicon" **J. Non-Crystalline Solids 305**, 235-242 (2002).

55. D. Krapf, A. Davidi, J. Shappir and A. Sa'ar, "Infrared photo-induced absorption spectroscopy of porous silicon, **Physica Status Solidi (a) 197**, 566-571 (2003).

56. M. R. Reshotko, A. Sa'ar and I. Balberg, "The electrical transport in luminescence porous silicon" **Physica Status Solidi (a) 197**, 113-116 (2003).

57. A. Karsenty, A. Sa'ar N. Ben-Yosef, and J. Shappir, "Enhanced electro-luminescence in silicon-on-insulator metal-oxide-semiconductor transistors with thin silicon Layer", **Appl. Phys. Lett.**. **82**, 4830 (2003).

58. D. Krapf, S. H. Kan, U. Banin, O. Millo and A. Sa'ar, , "Intersublevel optical transitions in InAs Nanocrystallites probed by photo-induced absorption spectroscopy: the Role of thermal activation", **Phys. Rev. B 69**, 073301 (2004).

59. S. Ben-Tabou de-Leon, R. Oren, M. E. Spira, S. Yitzchaik and A. Sa'ar, "Neurons culturing and bio-photonic sensing using Porous Silicon" **Appl. Phys. Lett**. **84**, 4361-4363 (2004).

60. M. Dovrat, Y. Oppenheim, J. Jedrzejewski, I. Balberg and A. Sa'ar, "Radiative versus nonradiative decay processes in silicon nanocrystals probed by time resolved photoluminescence spectroscopy", **Phys. Rev. B**. **69**, 155311 (2004).

61. S. Ben-Tabou de-Leon, R. Oren, M. E. Spira, S. Yitzchaik and A. Sa'ar, "Porous Silicon substrates for neurons culturing and bio-photonic sensing", **Physica Status Solidi (a) 202** 1456-1461(2005).

62. N. Cohen, G. Mizrachi, G. Sarusi and A. Sa'ar, "Integrated HBT/QWIP structure for dual color imaging", **Infrared Phys. Technol**. **47**, 43-52 (2005)

63. M. Dovrat, Y. Goshen, I. Popov, J. Jedrzejewski, I. Balberg and A. Sa'ar, "The role of radiative and nonradiative relaxation processes in the generation of light from silicon nanocrystals", **Physica Status Solidi (c) 2**, 3440-3444 (2005).

64. A. Sa'ar, Y. Reichman, M. Dovrat, D. Krapf, J. Jedrzejewski and I. Balberg, "Resonant Coupling between Surface Vibrations and Electronic States in Silicon Nanocrystals at the Strong Confinement Regime", **Nano Lett**. **5**, 2443-2447 (2005).

65. E. Axelrod, B. Urbach, A. Sa'ar and Y. Feldman, "Broadband dielectric spectroscopy of oxidized porous silicon" **J. Phys. D: Appl. Phys. 39**, 1-6 (2006).

66. A. Sa'ar, M. Dovrat, J. Jedrzejewski and I. Balberg, "Optical inter- and intra-band transitions in silicon nanocrystals: the role of surface vibrations", **Physica E**: **Low-Dimensional Systems and Nanostructures** 38, 122-127 (2007).

67. M. Dovrat, N. Arad, X.-H. Zhang, S.-T. Lee and A. Sa'ar, "Optical Properties of Silicon Nanowires: Cathodoluminescence Imaging and Time-Resolved Photoluminescence Spectroscopy", **Phys. Rev. B**. (accepted for publication, March 2007).

68. A. Sa'ar, M. Dovrat, J. Jedrzejewski, I. Popov and I. Balberg, "Silicon nanocrystals at the strong confinement regime: from quantum confinement to surface chemistry", **Physica Status Solidi (a)** (accepted for publication, November 2006).

69. B. Urbach, E. Axelrod and A. Sa'ar, "New transport phenomena probed by dielectric spectroscopy of oxidized and non-oxidized porous silicon" **Physica Status Solidi (a)** (accepted for publication, November 2006).

70. M. Dovrat, N, Arad, S. T. Lee and A. Sa'ar, "Cathodoluminesence and photoluminesence of individual silicon nanowires" **Physica Status Solidi (c)** (accepted for publication, November 2006).

71. B. Urbach, N. Korbakov, Y. Bar-David, S. Yitzchaik and A. Sa'ar, "Composite structures of porous silicon and polyaniline for optoelectronic applications" **Physica Status Solidi (a)** (accepted for publication, November 2006).

72. B. Urbach, E. Axelrod and A. Sa'ar, "Correlation between transport, dielectric and optical properties of oxidized and non-oxidized porous silicon" **Phys. Rev. B** (submitted for publication, February 2006).

73. A. Sa'ar, M. Dovrat, D. Krapf, J. Jedrzejewski and I. Balberg, "Photoinduced intersublevel optical transitions in silicon nanocrystals: the role of surface passivation", **Europhys. Lett.**. (submitted for publication, August 2006)

Patents
"Control of Optical signals by MOS (COSMOS) Devices" Patent # PCT/IL03/00212 by J. Shappir, A. Sa'ar and N. Ben-Yoseph (2003).

"Voltage Tunable Integrated Infrared Imager" Patent # PCT/IL2004/00337 (20-4-2004) by A. Sa'ar and J. Shappir.

Integrated active pixel sensor and method of its fabrication" PCT #01610856\20-01 by A. Sa'ar and J. Shappir (2005).

Sari Re'em

Papers in Refereed Journals

Submitted or in press:

1. H. Schlichting and R. Sari,"The Origin of Planetary Spins" Submitted.

2. H. Shen, T. J. Ahrens and R. Sari,"Giant-Impact Effects on Terrestrial Planet Atmospheres",Icarus, submitted.

3. Gal-Yam, D. Fox, P. Price, M. Davis, D. Leonard, A. Soderberg, E. Nakar, E. Ofek, B. Schmidt, K. Lewis, B. Peterson, S. Kulkarni, E. Berger, B. Cenko, R. Sari, K. Sharon, D. Frail, N. Gehrels, J. Nousek, D. Burrows, V. Mangano, S. Holland, P. Brown, D.-S. Moon, F. Harrison, T. Piran, P. McCarthy, B. Penprase and R. Chevalier, "The gamma-ray burst GRB060614 requires a novel explosive process", Submitted.

4. S. B. Cenko, M. Kasliwal, F. A. Harrison, V. Pal'shin, D. A. Frail, P. B. Cameron, E. Berger, D. B. Fox, A. Gal-Yam, S. R. Kulkarni, D.-S. Moon, E. Nakar, E. O. Ofek, B. E. Penprase, P. A. Price, R. Sari, B. P. Schmidt, A. M. Soderberg, R. Aptekar, D. Frederiks, S. Golenetskii, D. N. Burrows, R. A. Chevalier, N. Gehrels, P. J. McCarthy, J. A. Nousek, S. E. Persson and T. Piran "Multi-Wavelength Observations of GRB 050820A: An Exceptionally Energetic Event Followed from Start to Finish" ApJ in press.

Published 2001- Sept. 2006:

1. B. F. Collins and R. Sari, "Protoplanet Dynamics in a Shear-Dominated Disk", AJ, 2006, 132, 131.

2. A. M. Soderberg, S. R. Kulkarni, E. Nakar, E. Berger, D. B. Fox, D. A. Frail, A. Gal-Yam, R. Sari, S. B. Cenko, M. Kasliwal, P. B. Cameron, R. A. Chevalier, T. Piran, P. A. Price, B. P. Schmidt, G. Pooley, D.-S. Moon, B. E. Penprase, N. Gehrels, J. A. Nousek, D. N. Burrows, S. E. Perrson and P. J. McCarthy, "Relativistic ejecta from X-ray flash XRF and the rate of cosmic explosions", Nature, 2006, 442, 1014.

3. M. Pan and R. Sari,“Self-similar solutions for relativistic shocks emerging from stars with polytropic envelopes”,ApJ, 2006, 643, 416.

4. R. Sari and P. Goldreich,“Spherical Accretion”, ApJ Letters, 2006, 642, L65.

5. R. Sari, “First and second-type self-similar solutions of implosions and explosions containing ultra-relativistic shocks”, PoF, 2006, 18, 27106.

6. E. S. Rykoff, V. Mangano, S. A. Yost, R. Sari, F. Aharonian, C.W. Akerlof, M. C. B. Ashley, S. D. Barthelmy, D. N. Burrows, N. Gehrels, E. Ggs, T. Gver, D. Horns, Kiziloglu, H. A. Krimm, T. A. McKay, M. zel, A. Phillips, R. M. Quimby, G. Rowell, W. Rujopakarn, B. E. Schaefer, D. A. Smith, H. F. Swan, W. T. Vestrand, J. C. Wheeler, J. Wren, and F. Yuan, “The Anomalous Early Afterglow of GRB 050801” ApJ Letters, 2006, 638, L5.

7. E. Nakar, T. Piran and R. Sari, “Pure and Loaded Fireballs in Soft Gamma-Ray Repeater Giant Flares” ApJ, 2005, 635, 516.

8. E. Berger, S. R. Kulkarni, D. B. Fox, A. M. Soderberg, F. A. Harrison, E. Nakar, D. D. Kelson, M. D. Gladders, J. S. Mulchaey, A. Oemler, A. Dressler, S. B. Cenko, P. A. Price, B. P. Schmidt, D. A. Frail, N. Morrell, S. Gonzalez, W. Krzeminski, R. Sari, A. Gal-Yam, D.-S. Moon, B. E. Penprase, R. Jayawardhana, A. Scholz, J. Rich, B. A. Peterson, G. Anderson, R. McNaught, T. Minezaki, Y. Yoshii, L. L. Cowie, K. Pimbblet, “The Afterglows, Redshifts, and Properties of Swift Gamma-Ray Bursts” ApJ, 2005, 634, 501.

9. M. E. Brown, A. H. Bouchez, D. Rabinowitz, R. Sari, C. A. Trujillo, M. van Dam, R. Campbell, J. Chin, S. Hartman, E. Johansson, R. Lafon, D. Lemignant, P. Stomski, D. Summers and P. Wizinowichm, “Keck Observatory laser guide star adaptive optics discovery and characterization of a satellite to large Kuiper belt object 2003 EL61.” ApJ Letters, 2005, 632, L45.

10. E. Agol, J. Steffen, R. Sari and W. Clarkson “On detecting terrestrial planets with timing of giant planet transits”, MNRAS, 2005, 359, 567.

11. M. Pan and R. Sari, “Shaping the Kuiper belt size spectrum by shattering large but strengthless bodies” Icarus, 2005, 173, 342.

12. P. Goldreich, Y. Lithwick and R. Sari, “The Final Stages of Planet Formation”, ApJ, 2004, 614, 497.

13. P. Goldreich, Y. Lithwick and R. Sari, “Planet Formation by Coagulation: A Focus on Uranus and Neptune”, ARA&A, 2004, 42, 529.

14. M. Pan and R. Sari, “A generalization of the Lagrangian points: studies of resonance for highly eccentric orbits”, AJ, 2004, 128, 141.

15. R. Sari and P. Goldreich, “Planet - Disk Symbiosis” ApJ Letters, 2004, 606, L77.

16. J. Greiner, S. Klose,K. Reinsch,S. H. Martin,Hans, R. Sari D. H. Hartmann,C. Kouveliotou, A. Rau,E. Palazzi,C. Straubmeier,B. Stecklum,S. Zharikov, G. Tovmassian,O. Brnbantner, C. Ries,E. Jehin,A. Henden, A. A. Kaas, T. Grav, J. Hjorth, H. Pedersen, R. A. M. J. Wijers, A. Kaufer, H Park,G. Williams and O. Reimer,

"Evolution of the polarization of the optical afterglow of the -ray burst GRB030329", Nature, 2003, 426, 157.

17. E. Berger,S. R. Kulkarni, G. Pooley, D. A. Frail, V. McIntyre, R. M. Wark, R. Sari , A. M. Soderberg, D. W. Fox, S. Yost and P. A. Price, "A common origin for cosmic explosions inferred from calorimetry of GRB030329", Nature, 2003, 426, 154.

18. S. A. Yost, F. A. Harrison, R. Sari , D. A. Frail "A Study of the Afterglows of Four GRBs: Constraining the Explosion and Fireball Model" ApJ, 2003, 597, 459.

19. R. Perna, R. Sari and D. A. Frail, "Jets in GRBs: Tests and Predictions for the Structured Jet Model", ApJ, 2003, 594, 379.

20. P. A. Price, D. W. Fox, S. R. Kulkarni, B. A. Peterson, B. P. Schmidt, A. M. Soderberg, S. A. Yost, E. Berger, S. G. Djorgovski, D. A. Frail, F. A. Harrison, R. Sari, A. W. Blain, S. C. Chapman "The bright optical afterglow of the nearby -ray burst of 29 March 2003", Nature, 2003, 423, 844.

21. D. A. Frail, S. A. Yost, E. Berger, F. A. Harrison, R. Sari, S. R. Kulkarni, G. B. Taylor, J. S. Bloom, D. W. Fox, G. H. Moriarty-Schieven and P. A. Price "The Broadband Afterglow of GRB 980703", ApJ, 2003, 590, 992.

22. P. A. Price, S. R. Kulkarni, E. Berger, D. W. Fox, J. S. Bloom, S. G. Djorgovski, D. A. Frail, T. J. Galama, F. A. Harrison, P. McCarthy, D. E. Reichart, R. Sari, S. A. Yost, H. Jerjen, K. Flint, A. Phillips, B. E. Warren, T. S. Axelrod, R. A. Chevalier, J. P. Halpern, J. Holtzman, R. A. Kimble, B. P. Schmidt, J. C. Wheeler, F. Frontera, E. Costa, L. Piro, K. Hurley, T. Cline, C. Guidorzi, E. Montanari, E. Mazets, S. Golenetskii, I. Mitrofanov, D. Anfimov, A. Kozyrev, M. Litvak, A. Sanin, W. Boynton, C. Fellows, K. Harshman, C. Shinohara, A. Gal-Yam, E. Ofek and Y. Lipkin "Discovery of GRB 020405 and its Late Red Bump", ApJ, 2003, 589, 838.

23. T. J. Galama, D. Reichart, T. M. Brown, R. A. Kimble, P. A. Price, E. Berger, D. A. Frail, S. R. Kulkarni, S. A. Yost, A. Gal-Yam, J. S. Bloom, F. A. Harrison, R. Sari, D. Fox and S. G. Djorgovski, "Hubble Space Telescope and Ground-Based Optical and Ultraviolet Observations of GRB010222", ApJ, 2003, 587, 135.

24. P. A. Price, S. R. Kulkarni, B. P. Schmidt, T. J. Galama, J. S. Bloom, E. Berger, D. A. Frail, S. G. Djorgovski, D. W. Fox, A. A. Henden, S. Klose, F. A. Harrison, D. E. Reichart, R. Sari, S. A. Yost, T. S. Axelrod, P. McCarthy, J. Holtzman, J. P. Halpern, R. A. Kimble, J. C. Wheeler, R. A. Chevalier, K. Hurley, G. R. Ricker, E. Costa, F. Frontera and L. Piro "GRB 010921: Strong Limits on an Underlying Supernova from HST", ApJ, 2003, 584, 931.

25. D. W. Fox, S. Yost, S. R. Kulkarni, K. Torii, T. Kato, H. Yamaoka, M. Sako, F. A. Harrison, R. Sari, P. A. Price, E. Berger, A. M. Soderberg, S. G. Djorgovski, A. J. Barth, S. H. Pravdo, D. A. Frail, A. Gal-Yam, Y. Lipkin, T. Mauch, C. Harrison and H. Buttery. "Early optical emission from the -ray burst of 4 October 2002", Nature, 2003, 422, 284.

26. D. W. Fox, P. A. Price, A. M. Soderberg, E. Berger, S. R. Kulkarni, R. Sari, D. A. Frail, F. A. Harrison, S. A. Yost, K. Matthews, B. A. Peterson, I. Tanaka, J. Christiansen and G. H. Moriarty-Schieven "Discovery of Early Optical Emission from GRB 021211", ApJ Letters, 2003, 586, L5.

27. P. Goldreich and R. Sari, “Eccentricity Evolution for Planets in Gaseous Disks”, ApJ, 2003, 585, 1024.

28. T. J. Galama, D. A. Frail, R. Sari, E. Berger, G. B. Taylor, and S. R. Kulkarni, “Continued Radio Monitoring of the Gamma Ray Burst 991208”, ApJ, 2003, 585, 899.

29. A. J. Barth, R. Sari, M. H. Cohen, R. W. Goodrich, P. A. Price, D. W. Fox, J. S. Bloom, A. M. Soderberg, and S. R. Kulkarni “Optical Spectropolarimetry of the GRB 020813 Afterglow”, ApJ Letters, 2003, 584, L47.

30. E. Berger, S. R. Kulkarni, J. S. Bloom, P. A. Price, D. W. Fox, D. A. Frail, T. S. Axelrod, R. A. Chevalier, E. Colbert, E. Costa, S. G. Djorgovski, F. Frontera, T. J. Galama, J. P. Halpern, F. A. Harrison, J. Holtzman, K. Hurley, R. A. Kimble, P. J. McCarthy, L. Piro, D. Reichart, G. R. Ricker, R. Sari, B. P. Schmidt, J. C. Wheeler, R. vanderspek and S. A. Yost “The Faint Optical Afterglow and Host Galaxy of GRB 020124: Implications for the Nature of Dark Gamma-Ray Bursts”, ApJ, 2002, 581, 981.

31. P. Goldreich, Y. Lithwick and R. Sari, “Formation of Kuiper-belt binaries by dynamical friction and three-body encounters”, Nature, 2002, 420, 643.

32. S. A. Yost, D. A. Frail, F. A. Harrison, R. Sari, D. Reichart, J. S. Bloom, S. R. Kulkarni, G. H. Moriarty-Schieven, S. G. Djorgovski, P. A. Price, R. W. Goodrich, J. E. Larkin, F. Walter, D. S. Shepherd, D. W. Fox, G. B. Taylor, E. Berger and T. J. Galama,,“The Broadband Afterglow of GRB980329”, ApJ, 2002, 577, 155.

33. P. A. Price, E. Berger, S. R. Kulkarni, S. G. Djorgovski, D. W. Fox, A. Mahabal, K. Hurley, J. S. Bloom, D. A. Frail, T. J. Galama, F. A. Harrison, G. Morrison, D. E. Reichart, S. A. Yost, R. Sari, T. S. Axelrod, T. Cline, S. Golenetskii, E. Mazets, B. P. Schmidt and J. Trombka “The Unusually Long Duration Gamma-ray Burst GRB 000911”, ApJ, 2002, 573, 85.

34. P. A. Price, E. Berger, D. E. Reichart, S. R. Kulkarni, S. A. Yost, R. Subrahmanyan, R. M. Wark, M. H. Wieringa, D. A. Frail, J. Bailey, B. Boyle, E. Corbett, K. Gunn, S. D. Ryder, N. Seymour, K. Koviak, P. McCarthy, M. Phillips, T. S. Axelrod, J. S. Bloom, S. G. Djorgovski, D. W. Fox, T. J. Galama, F. A. Harrison, K. Hurley, R. Sari, B. P. Schmidt, B. P. M. J. I. Brown, T. Cline, F. Frontera, F., C. Guidorzi and E. Montanari “GRB 011121: A Massive Star Progenitor”, ApJ Letters, 2002, 572, L51.

35. J. S. Bloom, S. R. Kulkarni, P. A. Price, D. Reichart, T. J. Galama, B. P. Schmidt, D. A. Frail, E. Berger, P. J. McCarthy, R. A. Chevalier, J. C. Wheeler, J. P. Halpern, D. W. Fox, S. G. Djorgovski, F. A. Harrison, R. Sari, T. S. Axelrod, R. A. Kimble, J. Holtzman, K. Hurley, F. Frontera, L. Piro and E. Costa “Detection of a Supernova Signature Associated with GRB 011121”, ApJ Letters, 2002, 572, L45

36. J. Granot and R. Sari “The Shape of Spectral Breaks in GRB Afterglows”, ApJ, 2002, 568, 820.

37. D. A. Frail, F. Bertoldi, G. H.Moriarty-Schieven, E. Berger, P. A. Price, J. S. Bloom, R. Sari, S. R. Kulkarni, C. L. Gerardy, D. E. Reichart, S. G. Djorgovski, T. J. Galama, F. A. Harrison, F.Walter, D. S. Shepherd, J. Halpern, A. B. Peck, K. M. Menten, S. A. Yost and D. W. Fox “GRB 010222: A Burst Within a Starburst”, ApJ, 2002, 565, 829.

38. D. A. Frail, S. R. Kulkarni, R. Sari, S. G. Djorgovski, J. S. Bloom, T. J. Galama, D. E. Reichart, E. Berger, F. A. Harrison, P. A. Price, S. A. Yost, A. Diercks, R. W. Goodrich

and F. Chaffee “Beaming in Gamma-Ray Bursts: Evidence for a Standard Energy Reservoir”, ApJ Letters, 2001, 562, L55.

39. F. A. Harrison, S. A. Yost, R. Sari, E. Berger, T. J. Galama, J. Holtzmann, T. Axelrod, J. S. Bloom, R. Chevalier, E. Costa, A. Diercks, S. G. Djorgovski, D. A. Frail, F. Frontera, K. Hurley, S. R. Kulkarni, P. McCarthy, L. Piro, G. G. Pooley, P. A. Price, D. Reichart, G. R. Ricker D. Shepard, B. Schmidt, F. Walter and C. Wheeler “BroadbandObservations of the Afterglow of GRB 000926: Observing the Effect of Inverse Compton Scattering and Evidence for a High-Density Environment”, ApJ, 2001, 559, 123.

40. E. Berger, A. Diercks, D. A. Frail, S. R. Kulkarni, J. S. Bloom, R. Sari, J. Halpern, N. Mirabal, G. B. Taylor, K. Hurley, G. Pooley, K. M. Becker, R. M. Wagner, D. M. Terndrup, T. Statler, E. Mazets and T. Cline “GRB 000418: A Hidden Jet Revealed?”, ApJ, 2001, 556, 556.

41. Y. Lithwick and R. Sari “Lower Limits on Lorentz Factors in Gamma-Ray Bursts”, ApJ, 2001, 555, 540.

42. S. Kobayashi and R. Sari “Ultra Efficient Internal Shocks”, ApJ, 2001, 551, 934.

43. J. S. Bloom, D. A. Frail and R. Sari “The prompt energy release of gamma-ray bursts using a cosmological k-correction”, AJ, 2001, 121, 2879.

44. P. A. Price, F. A. Harrison, T. J. Galama, D. E. Reichart, T. S. Axelrod, E. Berger, J. S. Bloom, J. Busche, T. Cline, A. Diercks, S. G. Djorgovski, D. A. Frail, A. Gal-Yam, J. Halpern, J. A. Holtzman, M. Hunt, K. Hurley, B. Jacoby, R. Kimble, S. R. Kulkarni, N. Mirabal, G. Morrison, E. Ofek, O. Pevunova, R. Sari, B. P. Schmidt, D. Turnshek, and S. Yost “Multicolor Observations of the GRB 000926 Afterglow”, ApJ Letters, 2001, 549, L7.

Chapters in Books:

1. K. Hurley, R. Sari, S. G. Djorgovski “Cosmic Gamma-Ray Bursts, Their Afterglows, and Their Host Galaxies” in ”Compact Stellar X-Ray Sources”, Editors W. Lewin and M. van der Klis, Cambridge University Press 2003.

Schiller Avraham

1. O. Agam and A. Schiller, "Projecting the Kondo Effect: Theory of the Quantum Mirage," *Physical Review Letters* **86**, 484-487 (2001).

2. A. Schiller, "Tunneling Through a Quantum Dot: The Out-of-Equilibrium Kondo Effect," in *Kondo Effect and Dephasing in Low-Dimensional Metallic Systems*, Vol. 50 of NATO Science Series, Series II. Mathematics, Physics and Chemistry, edited by V. Chandrasekhar, C. Van Haesendonck and A. Zawadowski (Kluwer, Dorbrect, 2001), p. 143-152.

3. E. Lebanon, A. Schiller and V. Zevin, "Noncrossing Approximation for the Anisotropic Kondo Model: Charge Fluctuations in a Quantum Box," *Physical Review* B **64**, 245338/1-20 (2001).

4. E. Lebanon and A. Schiller, "Measuring the Out-of-Equilibrium Splitting of the Kondo Resonance," *Physical Review* B **65**, 035308/1-4 (2002).

5. O. Entin-Wohlman, A. Aharony, Y. Imry, Y. Levinson and A. Schiller, "Broken Unitarity and Phase Measurements in Aharonov-Bohm Interferometers," *Physical Review Letters* **88**, 166801/1-4 (2002).

6. A. Buxboim and A. Schiller, "Current Characteristics of the Single-Electron Transistor at the Degeneracy Point", *Physical Review* B **67**, 165320/1-17 (2003).

7. E. Lebanon, A. Schiller and F. B. Anders, "The Coulomb Blockade in Quantum Boxes," *Physical Review* B **68** (Rapid Comm.), 041311/1-4 (2003).

8. E. Lebanon, A. Schiller and F. B. Anders, "Enhancement of the Two-channel Kondo Effect in Single-Electron Boxes," *Physical Review* B **68**, 155301/1-20 (2003).

9. Y. Imry, Z. Ovadyahu and A. Schiller, "Decoherence in Disordered Conductors at Low Temperatures, the Effect of Soft Local Excitations," *Proceedings of the Euresco Conference on Fundamental Problems of Mesoscopic Physics*, Granada 2003 (Kluwer Press), p.49-64.

10. F. B. Anders, E. Lebanon and A. Schiller, "Coulomb Blockade and Non-Fermi-Liquid Behavior in Quantum Dots," *Physical Review* B **70** (Rapid Comm.), 201306/1-4 (2004).

11. F. B. Anders, E. Lebanon and A. Schiller, "Coulomb blockade and Quantum Critical Points in Quantum Dots," *Physica B: Condensed Matter* **359-361**, 1381-1383 (2005).

12. F. B. Anders and A. Schiller, "Real-Time Dynamics in Quantum-Impurity Systems: A Time-Dependent Numerical Renormalization-Group Approach," *Physical Review Letters* **95**, 196801/1-4 (2005).

13. F. B. Anders and A. Schiller, "Spin Precession and Real-Time Dynamics in the Kondo Model: Time-Dependent Numerical Renormalization-Group Study," *Physical Review* B **74**, 245113/1-22 (2006).

14. A. Schiller, "From Dilute Magnetic Alloys to Confined Nanostructures: Evolution of the Kondo Effect," *Proceedings of the International Workshop on The Physics of Zero and One Dimensional Nanoscopic Systems*, Kolkata 2006 (Springer-Verlag press), in press.

15. V. Kashcheyevs, A. Schiller, A. Aharony and O. Entin-Wohlman, "Unified description of phase lapses, population inversion and correlation-induced resonances in double quantum dots," *Physical Review* B, in press.

16. A. Schiller and Lorenzo De Leo, "Phase diagram of the anisotropic multichannel Kondo Hamiltonian revisited," submitted for publication in *Physical Review* B.

Sharon Eran

1. E. Sharon, G. Cohen and J. Fineberg "Propagating solitary waves along a rapidly moving crack front", *Nature*, **410**, 68, (2001).

2. E. Sharon, G. Cohen and J. Fineberg, "Crack Front Waves and the dynamics of a rapidly moving crack", *Physical Review Letters*, **88** (2002).

3. J. Fineberg, E. Sharon and G. Cohen, "Crack Front Waves in Brittle Fracture", Proceedings of the 10th international conference on fracture (Hawaii 2001).

4. E. Sharon, B. Roman, M. Marder, G. Shin and H. Swinney "Buckling Cascade in Free Sheets", *Nature*, **419**, 579, (2002).

5. M. Marder, E. Sharon, B. Roman and S. Smith, " Theory for edges of leaves", *Euro, Phys. Lett*, **62,** 498, (2003).

6. J. Fineberg , E. Sharon, G. Cohen, " Crack Front Waves in Dynamic Fracture", *Int. Jour. Fract.* **119,** 247, (2003).

7. E. Sharon, M. Moore, W. D. McCormick and H. L. Swinney, "Coarsening of Fractal Viscous Fingering Patterns", *Phys. Rev. Lett*. **91,** (2003).

8. E. Sharon, M. Marder and H. L. Swinney " Leaves, Flowers and Gabade Bags: Making Waves", *American Scientist* ,**92,** 254, (2004).

9. B. Audoly, A. Boudaoud, B. Roman and E. Sharon "The self-similar rippling of leaf edges and torn plastic sheets", *EuroPhys. News*,. **35,** (2004).

10. E. Sharon, G. Cohen and J. Fineberg, Comment on "Interaction of shear waves and propagating cracks" *Phys. Rev. Lett.* **93**, 099601 (2004).

11. J. E. Ruppert-Felsot, O. Praud, E. Sharon and H. L. Swinney "Extraction of Coherent Structures in Rotating Turbulent Flow Experiment", Phys. Rev. E, 72, 016311, (2005).

12. E. Sharon, B. Roman and H. Swinney, "Geometrically Driven Wrinkling Observed in Free Plastic Sheets and Leaves", Accepted to *Phys. Rev. **E.*** (2007).

13. Y. Klein, E. Efrati and E. Sharon, "Shaping of Elastic Sheets by prescription of Non-Euclidean Metrics", Accepted to *Science*, (2007).

14. M. Marder, R. Deegan, and E. Sharon, "Bending Rules: Wrinkling wrappers and ripping rubber", *Physics Today,* Feb (2007).

15. E. Efrati, Y. Klein, H. Aharoni and E. Sharon, "Spontaneous Buckling of Elastic Sheets with a Prescribed Non-Euclidean Metric" Accepted to *Phys. **D***, (2007).

Shaviv Nir J.

1. N. J. Shaviv, "The Nature of Instabilities in Radiatively supported Thomson Atmospheres", The Astrophysical Journal, 549, 1093, 2001.

2. N. J. Shaviv, "The Theory of Steady State Super Eddington Winds and its Application to Novae", Mon. Not. of the Roy. Ast. Soc., 326, 126, 2001.

3. N. J. Shaviv, “Cosmic Ray Diffusion from the Galactic Spiral Arms, Iron Meteorites and a possible Climatic Connection”, Physical Review Letters, 89, 051102, 2002.

4. N. J. Shaviv, “The Spiral Structure of the Milky Way, Cosmic-Rays and Ice-Age Epochs on Earth” New Astronomy, 8, 39, 2003.

5. N. J. Shaviv & J. Veizer, “Celestial Driver of Phanerozoic Climate?”, GSA Today, 13, July, 4-10, 2003.

6. N. J. Shaviv, “Toward a Solution to the Faint Sun Paradox – A Lower Cosmic Ray flux from a Stronger Solar Wind”, J. Geophys. Res.–Space Phys., 108 (A12), 1437, doi:10.1029 / 2003JA009997, 2003.

7. S. P. Owocki, K. G. Gayley, N. J. Shaviv, “A Power Law Porosity Formalism for Continuum-Driven Mass Loss from Stars above the Eddington Limit”, The Astrophys. Journal, 616, 525, 2004.

8. T. Piran, N. J. Shaviv, “The Low Mass Progenitor of the Binary Pulsar J0737-3039B – Evidence for a New Type of Stellar Collapse”, Phys. Rev. Lett., 94, 051102, 2005.

9. N. J. Shaviv, “On Climate Response to Changes in the Cosmic Ray Flux and Radiative Budget”, J. Geophys. Res.–Space Phys., 110 (A8), A08105, doi:10.1029 / 2004JA010866, 2005.

10. Schrerer, K. et al. "Interstellar-Terrestrial Relations: Variable Cosmic Environments, the Dynamic Heliosphere, and Their Imprints on Terrestrial Archives and Climate", to appear in Space Science Reviews.

11. S. Naoz & N. J. Shaviv, “Open Cluster Birth Analysis and Multiple Spiral Arm Sets in the Milky Way”, to appear in New Astronomy.

Solomon Sorin

1. Volatility driven markets in a generalized Lotka Voltera formalism Louzoun. Y. Solomon. S. (2001). *Physica A* 302 220-233

2 Adaptation of Autocatalytic Fluctuations to Diffusive Noise N. M. Shnerb, E. Bettelheim, Y. Louzoun, O. Agam, S. Solomon *Phys Rev E* Vol 63, No 2, 2001

3 HIV time hierarchy: winning the war while, loosing all the battles Uri Hershberg, Yoram Louzoun, Henri Atlan and Sorin Solomon Physica A: 289 (1-2) (2001) pp.178-190

4 The Emergence of Spatial Complexity in the immune System. Louzoun, Y, Solomon. S., Atlan. H., Cohen.I.R. (2001) *Physica A*, 297 (1-2) pp. 242-252

.

5 Modeling complexity in biology, Yoram Louzoun, Sorin Solomon, Henri Atlan and Irun. R. Cohen Physica A , 297 (1-2) (2001) pp. 242-252

6 Power, Levy, exponential and Gaussian-like regimes in autocatalytic financial systems Z.F. Huang and S. Solomon *The European Physical Journal B* 20, April 2001 Pages: 601 – 607

7 Finite market size as a source of extreme wealth inequality and market instability, Zhi-Feng Huang and Sorin Solomon Physica A , 294 (3-4) (2001) pp. 503-513

8 Long-time fluctuations in a dynamical model of stock market indices , Ofer Biham, Zhi-Feng Huang, Ofer Malcai, and Sorin Solomon, *Phys. Rev. E* 64, (026101) 2001

9 Stability of Pareto-Zipf law in non-stationary economies, S. Solomon and P. Richmond in: *Economics with heterogeneous interacting agents,* d. by A.Kirman and J.B. Zimmermann, *Lecture Notes in Economics and Mathematical Systems,* Springer, Berlin- Heidelberg 2001 page 141

10 Power Laws of Wealth, Market Order Volumes and Market Returns Sorin Solomon, Peter Richmond Physica AVol. 299 (1-2) (2001) pp. 188-197

11 Power Laws are Boltzmann Laws in Disguise PETER RICHMOND , SORIN SOLOMON International Journal of Modern Physics C, Vol. 12, No. 3 (2001) 333-343

12 Structures of the Mind and Universal Music Jacob Goldenberg, David Mazursky, and Sorin Solomon *Science* 2001 June 29; 292: 2433

13 Social Percolators and Self-Organized Criticality Gerard Weisbuch , Sorin Solomon and Dietrich Stauffer in: *Economics with heterogeneous interacting agents,* ed. by A.Kirman and J.B. Zimmermann, *Lecture Notes in Economics and Mathematical Systems,* Springer, Berlin- Heidelberg 2001 page 43.

14 Self-Organization and Non-Self-Averaging Effects in Systems of Discrete Auto-Catalytic Elements, S. Solomon, pp 351-360 in *Multiscale Computational Methods in Chemistry and Physics* eds. A. Brandt, J. Bernholc and K. Binder, IOS Press 2001; NATO Science Series III: computer and Systems Sciences Vol. 177

15 Stable power laws in variable economies; Lotka-Volterra implies Pareto-Zipf S. Solomon and P. Richmond *Eur. Phys. J. B* 27, 257-261 (2002)

17 Stochastic Multiplicative Processes for Financial Markets Zhi-Feng Huang, Sorin Solomon Physica A 306 (2002) 412-422

18 Theoretical analysis and simulations of the generalized Lotka-Volterra model Ofer Malcai,1 Ofer Biham,1 Peter Richmond,2 and Sorin Solomon Phys. Rev. E 66, 031102 (2002)

19 Social Percolators and Self Organized Criticality. G Weisbuch and S Solomon in Handbook of Graphs and Networks: *From the Genome to the Internet,* pp.113-132 eds. S. Bornholdt and H. G. Schuster, Wiley-VCH, Berlin, 2002.

20 What is the basis of the immune system's specificity?, Hershberg U., Solomon S. and Cohen, IR. (2003) *Mathematical Modelling & Computing in Biology and Medicine*, (V.Capasso Ed.), pp. 377-384 The MIRIAM Project Series, Progetto Leonardo, ESCULAPIO Pub. Co., Bologna, Italy..

21 The risk of being unfair, the unstable fate of globalization. Louzoun. Y. Mazurski. D., Goldberg. J. Solomon. S. (2003) *Artificial Life* 4(9) 357 - 370

22 Innovations Refuse to Die:-The Unforeseen Longevity of Society Fundamental Ideas. Mazurski. D., Goldberg. J. Barak.L. Louzoun. Y. Solomon. S. (2003) *Technological forecasting and Social Change*

23 Proliferation and competition in discrete biological systems. Louzoun, Y., Atlan, H., Solomon. S., Cohen, I.R (2003) *Bulletin of mathematical biology* 65(3) 375-396

24 Reactive Glass and vegetation patterns, N.M. Shnerb, P. Sarah, H. Lavee and S. Solomon, *Phys. Rev. Lett*. 90 0381011 (2003)

25 Solving Traffic Jams: Human Intervention or Self-Organization?
E. Mar Or, E. Shir and S. Solomon, International Journal of Modern Physics, Vol. 14, No. 8

26 The Interacting Gaps Model: Reconciling Theoretical and Numerical Approaches to Limit-Order Models. L. Muchnik, F. Slanina, and S. Solomon. Physica A 330 (2003) 232.

27 Statistical Mechanics of Conventional Traders May Lead to Non-Conventional Market Behavior, Lev Muchnik and Sorin Solomon Physica Scripta. Vol. T106, 41–47, 2003

28 Pioneers on a new continent: on physics and economics
Sorin Solomon and Moshe Levy *Quantitative Finance* (IoP) Volume 3, Number 1, C12

29 Co-Evolutionist Stochastic Dynamics: Emergence of Power-LawsPower-laws in stochastic Lotka-Volterra-Eigen-Schuster Systems S. Solomon, P. Richmond, O. Biham and O. Malcai, in: *"Towards Cognitive Economics"*, Eds: P. Bourgine and J.-P. Nadal, Springer (2003).

30 Complexity a Science at 30, S. Solomon and E. Shir, *Europhysics News* Feb-March 2003 p54

31 Testing the Turing Test - Do men pass it? Adam, R., Hershberg, U., Schul, Y. & Solomon, S.,(2004 *International Journal of Modern Physics C* Vol.15 No.8.pp 1041-1047

32Artificial Intelligence and the Natural Selection; Decision Trees and the Network Forest S. Solomon, E Shir, S Kirkpatrik; pages 3-12 in *Proceedings of AISB03 Adaptive Agents and Multi-Agent Systems,* eds Dimitar Kazakov, Eduardo Alonso and Daniel Kudenko, Published by the Society for the Study of Artificial Intelligence and the Simulation of Behaviour ISBN 1 902956 31 5 UW Aberystwyth (2004)

33 Antigen-Receptor degeneracy and immunological paradigms, Cohen, IR., Hershberg U. and Solomon S. (2004) *Molecular Immunology* Vol. 40 issue 14/15 pp. 993-996

34 An updated Review of the LLS Stock Market Model: Complex Market Ecology, Power Laws in Wealth Distribution and Market Returns, Sorin Siolomon and Moshe Levy, p69, in *New Directions in Statistical Physics*, ed. Luc Wille, Springer-Verlag 2004

35 Statistical economics on multi layered variables Tom Erez, Martin Hohnisch and Sorin Solomon, , in "Economics: complex windows", Eds. M. Salzano and A. Kirman, (Springer, 2005), p. 201

36 Postext - a Mind for Society, Shalit, A., Erez, T., Deters, A., Hershberg, U., Shir, E., & Solomon, S. (2005 pp. 24-40 in Lecture Notes in Computer Science Springer-Verlag GmbH ISSN: 0302-9743 Volume 3394 / 2005 Adaptive Agents and Multi-Agent Systems III: Adaptation and Multi-Agent Learning Editors: Daniel Kudenko, Dimitar Kazakov, Eduardo Alonso ISBN: 3-540-25260-6

37 Socioeconomic interaction and swings in business confidence indicators, Martin Hohnisch, Sabine Pittnauer, Sorin Solomon and Dietrich Stauffer, *Physica A*,Volume 345, Issues 3-4, Pages 646-656 (2005)

38 Distributive immunization of networks against viruses using the 'honey-pot' architecture Goldenberg J., Shavitt Y., Shir E.& Solomon S. *Nature (/Phy*sics) 1. 184 - 188 (2005).

39 Non-equilibrium and irreversible simulation of competition among languages; D. Stauffer,_, C. Schulze, F.W.S. Lima, S. Wichmann, S. Solomon; *Physica A 371 (2006) 719–724*

40 Traders imprint themselves by adaptively updating their own avatar, Gilles Daniel, Lev Muchnik and Sorin Solomon, Lecture Notes in Economics and Mathematical Systems; pp 27-38 Volume 564 *Artificial Economics,* Agent-Based Methods in Finance, Game Theory and Their Applications; (2006) Springer Berlin Heidelberg ;

41 Social Percolation and Negative Word of Mouth", Tom Erez, Sarit Moldovan and Sorin Solomon, in *"Handbook of Research on Nature Inspired Computing for Economy and Management"* by Jean-Philippe Rennard, 2007 Idea Group Reference (an imprint of Idea Group Inc.)

42 Copying nodes versus editing links: the source of the difference between genetic regulatory networks and the WWW, Yoram. Louzoun, Lev Muchnick and Sorin Solomon *Bioinformatics* (Oxford University Press 2006) *22(5):581-588;*

43 Agent Based Simulation Design Principles ; Applications to Stock Market, Lev Muchnik, Yoram Louzoun, Sorin Solomon, pp 183-188 in: *"Practical Fruits of Econophysics",* ed Hideki Takayasu 2006 Springer Tokyo ,

44 Markov Nets and the NatLab platform; Application to Continuous Double Auction L. Muchnik and S. Solomon To appear in Proc. Vol. to be published by Springer in its series *"New Economic Windows*".

45 The Forbes 400 and the Pareto wealth distribution Oren S. Klass, Ofer Biham, Moshe Levy, Ofer Malcai and Sorin Solomon, *Economics Letters* Volume 90, Issue 2, February 2006, Pages 290-295

46 The Forbes 400, the Pareto power-law and efficient markets
O.S. Klass, O. Biham, M. Levy, O. Malcai, and S. Solomon;
Eur. Phys. J. B 55, 143–147 (2007)

47 Microscopic noise, adaptation and survival in hostile environments
Yoram Louzoun, Nadav M. Shnerb,Sorin Solomon
Eur. Phys. J. B 56, 141–148 (2007)

48 Self-Emergence of Knowledge Trees: Extraction of the Wikipedia Hidden Hierarchies ;
Lev Muchnik, Royi Itzhak, Sorin Solomon, and Yoram Louzoun;
To appear in PRE

Books:

Microscopic Simulation of Financial Markets, with M. Levy and H. Levy, Academic Press, New York, 2000.

Anatomy of Successful Products, with Goldenberg J., Mazursky D. (1999) (in Hebrew), Edison: Tel-Aviv.
Creativity Templates in Advertising – Cambridge University Press, 2007 (in press)

Sompolinsky Haim

1. Guetig R, and Sompolinsky H, The Tempotron: A Neuron that Learns Spike Timing-Based Decisions. *Nature Neuroscience* Mar; 9(3):420-8, (2006).

2. Shamir M, Sompolinsky H. *Implications of Neuronal Diversity on Population Coding*. Neural Computation. 18 (8): 1951-1986 (2006).

3. Leowenstein Y, Mahon S, Chadderton P, Kitamura K, Sompolinsky H, Yarom Y and Häusser M. Bistability of Cerebellar Purkinje Cells Modulated by Sensory Stimulation*.* *Nature Neuroscience* 8(2):202-11 (2005).

4. Borst A, Flanagin VL, and Sompolinsky H. Adaptation without Parameter Change: Dynamic Gain Control in Motion Detection. *Proceedings of the National Academy of Science (USA)*, 102(17):6172-6 (2005).

5. Goldberg JA, Rokni U, and Sompolinsky H. Patterns of Ongoing Activity and the Functional Architecture of the Primary Visual Cortex. *Neuron*, 42: 489–500 (2004).

6. Shamir M. and Sompolinsky H. *Nonlinear population codes.* Neural Computation 16: 1105-1136. (2004)

7. White O, Lee D and Sompolinsky H. Short-Term Memory in Orthogonal Neural Networks. *Physical Review Letters*, 9:148102 (2004).

8. Kang K., Shapely R., and Sompolinsky H. *Information tuning of populations of neurons in primary visual cortex.* Journal of Neuroscience, 24 (15):3726-3735. (2004)

9. Loewenstein Y and Sompolinsky H. Temporal Integration by Calcium Dynamics in a Model Neuron. *Nature Neuroscience,* 6(9):961-967 (2003).

10. Rokni U., Steinberg O., Vaadia E., and Sompolinsky H. *Cortical representation of bimanual movements.* Journal of Neuroscience, 23 (37):11577-11586. (2003).

11. Shriki O., Hansel D. and Sompolinsky H. *Rate models for conductance-based cortical neuronal networks.* Neural Computation, 15(8):1809-1841. (2003).

12. Loewenstein Y, and Sompolinsky H, *Temporal integration by calcium dynamics in a model neuron.* Nature Neuroscience, 6(9): 961-967.(2003).

13. Gütig R, Aharonov R, Rotter S, and Sompolinsky H *Learning Input Correlations through Nonlinear Temporally Asymmetric Hebbian Plasticity*. Journal of Neuroscience, 23(9):3697-3714.(2003).

14. Litvak V, Sompolinsky H, Segev I, and Abeles M *On the Transmission of Rate Code in Long Feedforward Networks with Excitatory-Inhibitory Balance*. Journal of Neuroscience, 23(7):3006-3015.(2003).

15. Kang K, Shelley M and Sompolinsky H. Mexican Hats and Pinwheels in Visual Cortex. *Proceedings of the National Academy of Sciences USA*, 100: 2848-2853 (2003).

16. Loewenstein Y, Yarom Y, and Sompolinsky H. The Generation of Oscillations in Networks of Electrically Coupled Cells. *Proceedings of National Academy of Science USA*, 98(14):8095-8100 (2002).

17. Shamir M and Sompolinsky H.*Correlation Codes in Neuronal Networks*. In Advances in Neural Information Processing Systems 14.(2001).

18. Rubin J, Lee D, and Sompolinsky H. The Equilibrium Properties of Temporally Asymmetric Hebbian Plasticity. *Physical Review Letters*, 86:364-367 (2001).

19. Sompolinsky H, Yoon H, Kang K, and Shamir M. *Population Coding in Neuronal Systems with Correlated Noise*. Physical Review E, 64:051904. (2001).

20. Shriki O Sompolinsky H and Lee D.D, (2001) *An Information Maximization Approach to Overcomplete and Recurrent Representations*. In Advances in Neural Information Processing Systems 13, Leen T.K, Dietterich T.G, and Tresp V, Eds. 13:612-618

21. Ahronov-Barki R, Gutig R, Rotter S, Aertsen A, and Sompolinsky H. *The Generalized Synaptic Updating in Temporally Asymmetric Hebbian Learning*. CNS (2001)

22. Kang K and Sompolinsky H. Mutual Information of Population Codes and Distance Measures in Probability Space. *Physical Review Letters*, 86: 4958-4961 (2001).

Vaknin Ady

1. Vaknin, A. & Berg, H. C. Osmotic stress mechanically perturbs chemoreceptors in Escherichia coli. Proc. Natl. Acad. Sci. USA 103, 592101 596 (2006).

2. Vaknin, A. & Berg, H. C. Single-cell FRET imaging of phosphatase activity in the Escherichia coli chemotaxis system. Proc. Natl. Acad. Sci. 10 4 USA 101, 17072-17077 (2004).

3. Vaknin, A., Ovadyahu, Z. & Pollak, M. Nonequilibrium field effect and memory in the electron glass. Phys. Rev. B65 (2002).

4. Vaknin, A., Ovadyahu, Z. & Pollak, M. Heuristic model for slow relaxation of excess conductance in electron glasses. Phys. Rev. B61, 3 13 6692-6695 (2000).

5. Vaknin, A., Ovadyahu, Z. & Pollak, M. Aging effects in an Anderson insulator. Phys. Rev. Letters 84, 3402-3405 (2000).

6. Vaknin, A., Frydman, A. & Ovadyahu, Z. Excess conductance in normal-metal/Anderson insulator/superconductor junctions. Phys. Rev. B61, 13037-13044 (2000).

7. Vaknin, A. & Ovadyahu, Z. Microwaves-induced oscillations in Andreev tunneling. Europhys. Letters 47, 615-620 (1999).

8. Vaknin, A., Ovadyahu, Z. & Pollak, M. Temperature dependence of non-equilibrium effects in a Fermi glass. Europhys. Letters 42, 307-311 2 9 (1998).

9. Vaknin, A., Ovadyahu, Z. & Pollak, M. Evidence for interactions in nonergodic electronic transport. Phys. Rev. Letters 81, 669-672 (1998).

10. Vaknin, A. & Ovadyahu, Z. The above-gap structure in normal-metal-superconductor junctions. J. Phys. C: Solid-State 9, L303-L306 (1997). 2 3 11. Vaknin, A., Frydman, A., Ovadyahu, Z. & Pollak, M. High-field magnetoconductance in Anderson insulators. Phys. Rev. B54, 13604-3 10 13610 (1996).

Conference papers:

1. Orlyanchik, V., Vaknin, A. & Z.Ovadyahu. Transport in the electron-glass under energy pumping. Phys. Stat. Solidi B 230, 67-72 (2002).

2. Orlyanchik, V., Vaknin, A., Ovadyahu, Z. & Pollak, M. Impairing the memory of an electron-glass by IR excitation. Phys. Stat. Solidi B 230, 61-66 (2002).

Manuscripts in preparation:

1. Vaknin, A. & Berg, H. C. Mechanics of chemoreceptor signaling in *Escherichia coli*.

Zigler Arie

1. Palchan T, Kaganovich D, Sasorov P, et al.
Electron density in low density capillary plasma channel
APPLIED PHYSICS LETTERS 90 (6): Art. No. 061501 FEB 5 2007

2. Palchan T, Pecker S, Henis Z, et al.
Efficient coupling of high intensity short laser pulses into snow clusters
APPLIED PHYSICS LETTERS 90 (4): Art. No. 041501 JAN 22 2007

3. Levin M, Pukhov A, **Zigler A**, et al.
Long plasma channels in segmented capillary discharges
PHYSICS OF PLASMAS 13 (8): Art. No. 083108 AUG 2006

4. Gordon DF, Ting A, Alexeev I, et al.
Tunable, high peak power terahertz radiation from optical rectification of a short modulated laser pulse OPTICS EXPRESS 14 (15): 6813-6822 JUL 24 2006

5. Fibich G, Sivan Y, Ehrlich Y, et al.
Control of the collapse distance in atmospheric propagation
OPTICS EXPRESS 14 (12): 4946-4957 JUN 12 2006

6. Palchan T, Eisenmann S, **Zigler A**, et al.
All optical electron injector using an intense ultrashort pulse laser and a solid wire target
APPLIED PHYSICS B-LASERS AND OPTICS 83 (2): 219-223 MAY 2006

7. Marcus G, **Zigler A**, Friedland L
Molecular vibrational ladder climbing using a sub-nanosecond chirped laser pulse
EUROPHYSICS LETTERS 74 (1): 43-48 APR 2006

8. Levin M, Pukhov A, Hubbard RF, et al.
Longitudinal profiles of plasma parameters in a laser-ignited capillary discharge and implications for laser wakefield accelerator applications
APPLIED PHYSICS LETTERS 87 (26): Art. No. 261501 DEC 26 2005

9. Louzon E, Henis Z, Pecker S, et al.
Reduction of damage threshold in dielectric materials induced by negatively chirped laser pulses APPLIED PHYSICS LETTERS 87 (24): Art. No. 241903 DEC 12 2005

10. Kaganovich D, Ting A, Gordon DF, et al.
First demonstration of a staged all-optical laser wakefield acceleration
PHYSICS OF PLASMAS 12 (10): Art. No. 100702 OCT 2005

11. Penano JR, Sprangle P, Hafizi B, et al.
Transmission of intense femtosecond laser pulses into dielectrics
PHYSICAL REVIEW E 72 (3): Art. No. 036412 Part 2 SEP 2005

12. Marcus G, Friedland L, **Zigler A**
Autoresonant excitation and control of molecular degrees of freedom in three dimensions PHYSICAL REVIEW A 72 (3): Art. No. 033404 SEP 2005

13. Fibich G, Eisenmann S, Ilan B, et al.
Self-focusing distance of very high power laser pulses
OPTICS EXPRESS 13 (15): 5897-5903 JUL 25 2005

14. Janulewicz KA, Schnurer M, Tummler J, et al.
Enhancement of a 24.77-nm line emitted by the plasma of a boron nitride capillary discharge irradiated by a high-intensity ultrashort laser pulse
OPTICS LETTERS 30 (12): 1572-1574 JUN 15 2005

15. Kaganovich D, Ting AC, Gordon DF, et al.
Generation of high-energy electrons in a double gas jet and laser wakefield acceleration IEEE TRANSACTIONS ON PLASMA SCIENCE 33 (2): 735-738 Part 2 APR 2005

16. Marcus G, **Zigler A**, Eger D, et al.
Generation of a high-energy ultrawideband chirped source in periodically poled LiTaO3
JOURNAL OF THE OPTICAL SOCIETY OF AMERICA B-OPTICAL PHYSICS 22 (3): 620-622 MAR 2005

17. Fibich G, Eisenmann S, Ilan B, et al.
Control of multiple filamentation in air
OPTICS LETTERS 29 (15): 1772-1774 AUG 1 2004

18. Marcus G, Friedland L, **Zigler A**
From quantum ladder climbing to classical autoresonance
PHYSICAL REVIEW A 69 (1): Art. No. 013407 JAN 2004

19. Pogorelsky IV, Pavlishin IV, Ben-Zvi I, et al.
Transmission of high-power CO2 laser pulses through a plasma channel
APPLIED PHYSICS LETTERS 83 (17): 3459-3461 OCT 27 2003

20. Greenberg B, Levin M, Pukhov A, et al.
Low jitter capillary discharge channels
APPLIED PHYSICS LETTERS 83 (14): 2961-2963 OCT 6 2003

21. Duncan M, Grossman J, **Zigler A**, et al.
Hyperspectral imaging (HSI): A new approach to identifying mucosal irregularities
GASTROINTESTINAL ENDOSCOPY 57 (5): AB178-AB178 Suppl. 1 APR 2003

22. Yakimenko V, Pogorelsky IV, Pavlishin IV, et al.
Cohesive acceleration and focusing of relativistic electrons in overdense plasma
PHYSICAL REVIEW LETTERS 91 (1): Art. No. 014802 JUL 4 2003

23. Hafizi B, Gordon DF, **Zigler A**, et al.
Electron trajectories in the magnetic field of capillary discharge: Application to laser wakefield accelerators in plasma channel PHYSICS OF PLASMAS 10 (6): 2545-2551 JUN 2003

24. Marcus G, **Zigler A**, Englander A, et al.
Generation of ultrawide-band chirped sources in the infrared through parametric interactions in periodically poled crystals
APPLIED PHYSICS LETTERS 82 (2): 164-166 JAN 13 2003

25. Levin M, Marcus G, Pukhov A, et al.
High-current capillary discharge with prepulse ablative plasma

26. **Zigler A**, Hashimshony D, Papadopoulos K
Tunable, bandwidth controllable source of THz radiation
IEE PROCEEDINGS-OPTOELECTRONICS 149 (3): 93-97 JUN 2002

27. Geltner I, Hashimshony D, **Zigler A**
Detection and electrical characterization of hidden layers using time-domain analysis of terahertz reflections JOURNAL OF APPLIED PHYSICS 92 (1): 203-206 JUL 1 2002

28. Sprangle P, Penano JR, Hafizi B, et al. GeV acceleration in tapered plasma channels
PHYSICS OF PLASMAS 9 (5): 2364-2370 Part 2 MAY 2002

29. Hubbard RF, Hafizi B, Ting A, et al.
High intensity focusing of laser pulses using a short plasma channel lens
PHYSICS OF PLASMAS 9 (4): 1431-1442 APR 2002

30. Pikuz TA, Faenov AY, Fraenkel M, et al.
Shadow monochromatic backlighting: Large-field high resolution X-ray shadowgraphy with improved spectral tunability
LASER AND PARTICLE BEAMS 19 (2): 285-293 JUN 2001

31. Hashimshony D, Geltner I, Cohen G, et al.
Characterization of the electrical properties and thickness of thin epitaxial semiconductor layers by THz reflection spectroscopy
JOURNAL OF APPLIED PHYSICS 90 (11): 5778-5781 DEC 1 2001

32. Goltsov A, Morozov A, Ping Y, et al.
Lasing to ground state of ions in discharge created plasma in microcapillary
JOURNAL DE PHYSIQUE IV 11 (PR2): 165-173 JUL 2001

33. Sprangle P, Hafizi B, Penano JR, et al.
Wakefield generation and GeV acceleration in tapered plasma channels
PHYSICAL REVIEW E 63 (5): Art. No. 056405 Part 2 MAY 2001

34. Kaganovich D, **Zigler A**, Hubbard RF, et al.
Velocity control and staging in laser wakefield accelerators using segmented capillary discharges APPLIED PHYSICS LETTERS 78 (21): 3175-3177 MAY 21 2001

35. Hashimshony D, **Zigler A**, Papadopoulos K
Conversion of electrostatic to electromagnetic waves by superluminous ionization fronts
PHYSICAL REVIEW LETTERS 86 (13): 2806-2809 MAR 26 2001.

36. Hubbard RF, Kaganovich D, Hafizi B, et al.
Simulation and design of stable channel-guided laser wakefield accelerators
PHYSICAL REVIEW E 63 (3): Art. No. 036502 Part 2 MAR 2001

37. Doron R, Behar E, Fraenkel M, et al.
X-ray spectrum emitted by a laser-produced cerium plasma in the 7.5 to 12 angstrom wavelength range PHYSICA SCRIPTA 63 (1): 22-28 JAN 2001

5. Physics Studies

There are three study programs in the physics department:

A. Three-year program for undergraduate studies (B.Sc.).

B. Two-year master's degree studies (M.Sc.).

C. Doctorate studies (Ph.D.). The recommended study time is 4-5 years.

Undergraduate study Tracks:

I. Full or reduced program in physics as a single track.

II. Dual Major: Physics (full or reduced program) and mathematics (full or reduced program).

III. Dual Major: Physics with an additional department in the Faculty of Natural Sciences or an additional department in some other faculty within the University.

IV. A cluster of courses ("Hativa") in physics and "special" students.

The physics students mentioned above include a number of students who have been accepted to the prestigious "Amirim" program. This program is devised to provide a platform to allow highly selected students to be exposed to a broader range of studies than is generally possible. These students receive a stipend, are allowed an unlimited number of course hours, and are required to complete an independent study project by the end of their BSc.

The physics department is also responsible for training: (1) Talpiot students for an undergraduate degree in track II, (2) Students registered in the "Exact Sciences" program and (3) engineering students. The Talpiot program was initiated by Prof. (Emeritus) Felix Dotan of the Racah Institute. The program is financed and directed by the Defence Ministry, meants for a carefully selected group of students, who combine their military service with undergraduate studies at the Hebrew University. These students are, generally, at the highest academic level and number approximately 50 per year. The Exact Sciences program is a relatively new interdisciplinary track in which highly selected (approximately 25 in number per year) students undergo training in both physics and chemistry. This studies program, which awards the students an MSc degree, is specially tailored to include necessary basic courses in both fields. The engineering students, who number approximately 40-50 per year are taught the same basic courses as physics students. "Special" students are students whose pre-conditions to be accepted either as undergraduate or graduate students have not been completely filled. These students will be accepted to either of these programs, if/when these conditions are fulfilled.

Number of Students and Demographics of Students

Table 5.1. The number of students in each study program. These numbers do **not** include the Talpiot, Exact Sciences or Engineering programs.

Year	Physics (Group I)	Physics and Mathematics (Group II)	Physics and Additional Department (Group III)	Minor (Group IV) + special	MSc Students	PhD Students	Total
2001	228 (groups I+II+III)			10 +10	33	52	333
2002	126	148 (groups II+III)		15+ 15	45	41	390
2003	104	200 (groups II+III)		12+12	56	36	420

2004	156	96	43	17+17	53	49	431
2005	153	60	56	15+15	45	53	397
2006	183	67	46	27	56	55	434

Table 5.2. The numbers of admitted and accepted students in both B.Sc. (groups I+II+III) and M. Sc. programs from admission data over the last five years. For reference, the bottom rows provide a comparison between the two types of admission criteria; according to the psychometric exams prior to admission, and according to an average of the students' matriculation grades. Over the past 3-4 years, the admission criteria differed from one year to the next.

Year		**2002**	**2003**	**2004**	**2005**	**2006**
BSc.	Accepted	262	237	232	239	237
	Admitted	126	104	102	97	114
MSc.	Accepted	24	30	21	18	26
	Admitted	18	22	14	10	19
Admission data	Crude psychometric	678.3	671.6.	677.5	660.6	684.0
	Average matriculation	10.16	10.06	10.25	10.23	10.39

Table 5.3. Distribution of B.Sc. (groups I+II+III) students, (in %) according to demographic data (gender, age and geographic distribution)

		2001	**2002**	**2003**	**2004**	**2005**
Gender	% Male	78.9	77.4	80.6	79.9	81.4
	% Female	21.2	22.6	19.4	20.1	18.6
Age	18-20	7.0	6.9	7.9	8.5	10.8
	21-22	9.6	13.1	9.5	12.9	11.2
	23-24	34.6	35.4	26.3	23.8	21.6
	25-26	29.8	30.3	34.5	36.1	32.3
	27-28	12.7	9.9	14.5	12.6	15.2
	29-30	2.6	2.6	4.3	3.7	4.8
	31-40	3.5	1.8	2.3	2.0	4.1
	41-60			0.7	0.3	
Geographic distribution	Jerusalem	40.4	40.1	42.8	40.8	42.4
	Tel-Aviv	11.0	12.4	10.9	9.9	8.9
	Haifa	5.7	8.0	7.9	8.2	6.7
	Center	21.9	20.1	17.8	18.0	17.8
	North	8.3	8.8	9.2	8.8	8.6
	South	4.8	4.4	5.3	6.5	7.4
	The rest	7.8	6.3	6.2	7.8	8.2

Table 5.4 Number of students who graduated in each study program. These numbers do not include either the Talpiot, Exact Sciences, Engineering programs and "Hativa" students.

Year	B.Sc. (Groups I-IV)	M. Sc.	Ph.D.	Total
2001	77	8	10	95
2002	79	10	14	103
2003	87	8	6	101
2004	90	11	7	108
2005	111	13	11	135

Organizational Structure of the department of Physics Studies

The chairperson of the department is a senior faculty member who is elected by the Institute's members for a three year term. The chairperson appoints four counselors: three for each of the three years of undergraduate studies and one for M.Sc. students. Their functions are: (1) To assist students in choosing curricula, (2) to approve changes in the students' curricula and (3) to offer advice regarding any study-related problems that arises.

In addition, the chairperson represents the Physics department in the Faculty Studies committee headed by the Vice Dean for Studies. All major decisions of the two internal committees listed below, are discussed and subject to approval by the Faculty Studies committee. The internal organization of the physics department is very similar to that of all the other departments in the Faculty of Natural Sciences. The chairperson is also present ex-officio in all of the committees within the Institute that deal with recruiting, advancement and development. This enables his/her input with regard to departmental teaching requirements.

Two committees headed by the chairperson exist within the department.
These are:
A. The Studies committee. This committee is appointed by the chairperson and its members are: the Head of the Institute and five or six senior faculty members who form a representative cross-section of the various research groups within the Institute. This committee meets several times a year. Its functions are:

- Examining and approving changes in the curriculum of each of the tracks.
- Approval of new courses offered by members of the department.
- Discussions of all studies and/or teaching matters in the department.
- Appointment of assistants from among the Ph.D. students.

The studies committee examines and approves the syllabus of the existing courses and of the new ones. Its function is also to decide on changes in the number of course hours (weekly hours) in the various courses. The decisions are distributed to all members of the physics department and presented at the official meetings of the physics department staff members. Significant issues are ratified by an open vote of the department's staff. Upon their approval the chairman presents the syllabus to the Faculty Studies committee for approval. The new syllabus is then published in the Faculty's yearbook ("Shnaton"), which presents a description of the courses offered by each department

B. The teachers-students committee. This committee consists of the four counselors and 1-2 representatives from each of the three years of undergraduate physics and M.Sc. students. These are chosen by the students. The committee meets at least twice a year. Its functions are to discuss and to solve problem raised by the student representatives.

Interrelation of the Physics Studies with studies in the Faculty of Sciences

The Faculty of Mathematics and Natural Sciences has overall responsibility for all of the study programs within the Sciences. In this sense the Physics department is not an independent unit. The overall educational policy and standards are dictated by the Faculty. The Dean of Mathematics and Natural Sciences is the titular head of the overall educational framework. In practice, most of the educational activity is directed by the Vice Dean for Teaching, who is elected for this post by the Faculty Council upon the Dean's recommendation. The Vice Dean is advised by the Faculty Studies committee, which is composed of the chair-persons of each of the departments together with faculty and student representatives. The Vice Dean is assisted by an administrative staff consisting of seven people. The Faculty receives the funds for all teaching activities from the University Management and distributes them to each department. This funding includes salaries of junior academic staff and equipment for both frontal (lecture presentation) and laboratory teaching needs. Specific allocations within this budget are delegated to each institute. These are subject to approval by the Faculty. The funding distribution is based on criteria that are determined by the University, based mainly on the number of students and characteristics of the subject matter (laboratories, field excursions, etc.)

The content and scope of the individual courses offered by the department are solely determined by the department itself, with the constraint that the total number of credit hours for each specific track is set by the Faculty. Major changes in either the scope or content of the courses, as well as initiation of new courses, are subject to approval by the Faculty. The Faculty determines the scheduling of courses and time and duration of examinations, since many courses are integrated across different departments. The allocation of classrooms and time distribution are also done by faculty staff, as there are no classrooms solely dedicated to the teaching of Physics. The design, development and maintenance of laboratories are the responsibility of the Physics Department.

On the positive side, this framework allows the students optimal flexibility in choosing their schedules by ensuring that there is minimal overlap between compulsory courses in different departments and tracks. This allows us the possibility of introducing both dual major/minor tracks as well as interdisciplinary programs (e.g. the Physics-Chemistry program). The budget flexibility is another advantage in that the department can choose its own priorities. This framework also has the advantage that a single standardized policy is in effect for evaluating student achievements.

On the negative side, the constraint of a set number of course hours prevents the department from expanding an existing course or adding additional courses, unless this expansion is at the expense of another course. There is, at present, a minimal number of optional courses. For example, students enrolled in a full track in Physics (track I) have absolutely no freedom in choosing optional courses, since the compulsory courses take up their entire course hour allotment.

Rationale, Aims and Goals

In contrast to the terms that we generally strive to define in the sciences, the term "quality" is highly subjective, and not easily subject to a quantitative measure. Physics, as a discipline, is continuously adapting. A successful physicist will develop new ideas and concepts that were certainly not envisioned when he/she was a student. Our mission is to provide our students with a broad and balanced selection of fundamental concepts and tools that will enable them to both follow and initiate new advances in the field. These basic concepts do not rapidly evolve, but serve as the building blocks for future developments. A physicist with a "quality" education will have sufficient tools to arrive at a deep understanding of a paper and/or book in a new or unfamiliar field. In addition, a quality education will provide our students with the tools to formulate the "right" questions that, in and of themselves, will lead to innovation and discovery. The only way to "quantify" the quality of an education that a student receives is by evaluating students' post-graduate accomplishments and beyond.

Physics is the most basic natural science and deals with the fundamental laws of nature, starting from the microscopic components of the atomic nucleus, up to the structure of the entire universe.
The goals for undergraduate studies in all tracks are:

- To impart an extensive and basic background in physics at the highest level in all major topics with which physics deals.
- To expose the students to current scientific research activity.

Studies for the graduate (MSc. and Ph.D.) degrees are made up of compulsory and optional courses and from comprehensive research activity that includes writing a thesis (for each degree). These students are the backbone of all the research activity in the Institute. The best of them serve as the junior teaching staff of the department, as the junior teaching staff is selected according to excellence. Our goals are:

- To educate our graduate students so that they will be capable of continuing an academic career in a research institution and/or to be integrated into the wide range of industries in the country.
- To significantly deepen their knowledge in a much wider range of fields than a researcher, in general, experiences within his/her specific thesis work.

Detailed Description of the Study Program – Contents, Structure and Scope

Undergraduate physics studies

Undergraduate studies are concentrated in only three years. In special cases, approval is given to "split" a year and thereby extend studies by an additional year This, by now traditional structure is kept, as in the other universities in Israel on the assumption that most of the students are post-military service and are much more mature (in both age and conceptions) than parallel undergraduate students abroad. Over this period of time, all of the course material is packed into compulsory courses. This leaves very little time, if any, for optional courses.

In the first year studies, basic classical physics are taught: mechanics, electricity and magnetism and the theory of relativity. The teaching laboratory put these laws into practice. The physics studies are accompanied by four fundamental courses in mathematics, which are essential to understanding high-level basic physics.

In the second year, thermodynamics and the phenomena of electromagnetic waves and optics are studied as well as an introduction to quantum mechanics. In addition, the knowledge acquired in the first year's courses is strengthened by the study of analytical mechanics and

electro-dynamics courses. In this year the students also take two advanced courses in mathematics.
The third year is devoted to widening the students' knowledge in quantum and statistical physics. In fact, in this year, the students become acquainted with modern physics by means of the optional courses in various modern physics topics, together with laboratory experiments. The students are also exposed to the research activity within the Racah institute either by the "Research in the Institute" (77532) course in which senior faculty members lecture on their science activities and achievements, or via Laboratory 3 (77604), as described above.

The ratio between physics and mathematics courses is 3:1, whereas the ratio between the three laboratories' credit points to those of the frontal physics courses is about 1:4 and 1:5 for both full and reduced physics tracks respectively. The laboratory hours are systematically increased with the year of study.

Undergraduate studies in the physics department are performed by four different types of teaching methods: frontal lectures, exercise sessions, seminars and laboratory courses. In graduate studies, the latter is not relevant. This format works well in both presentation of the material (e.g. frontal lectures), deepening the students' understanding of the material (exercise sessions), and providing hands-on understanding of the material in the laboratory courses, where student/instructor ratios are small.

A. Frontal lectures. Each compulsory or optional course for both undergraduate and graduate degrees is given frontally by one of the departmental teachers. The number of frontal hours for each course is approved (as mentioned above), by the department's studies committee. In general, the number of students in the compulsory courses in the second and third year will not exceed 120-140. In the compulsory courses (77101 and 77102 mechanics and electricity for Physics students) within the first year, there are more than 230 students (students of physics in all tracks, the Exact Sciences program, Talpiot, Engineering etc.) and therefore these courses are split into two sessions where two different teachers are obliged to teach the same material in parallel. The weekly exercise sessions are identical, as are the final examinations. The four service courses, teaching mechanics and electricity for life science and medicine students, are also split, each between two lecturers, because of the large number of students (approximately 300) attending each course.

B. Exercise sessions: All compulsory courses include exercise sessions given mostly by the department's junior faculty (assistants). The scope of these sessions is determined by the department's studies committee and the number of such lessons per course is determined by the total number of students registered in each course. We set the maximal number of students in each exercise group to be 40. This is, in our view, the maximal number of students without causing serious detriment to the level of teaching. The assistants meet once a week with the course lecturer(s) who decides on the material to be studied during the session. In the same meeting the assistant generally provides feedback to the course lecturer on both the class's overall understanding of the course material and specific problem areas that arise. In each weekly exercise session the students are presented "homework" questions to be solved for the next week. The exercises are compulsory. The exercises that are returned to the assistant are checked by examiners, who are usually M.Sc. students. Because of budgetary constraints, some of the exercises are only partially checked. For example, if the question-page has 4-5 questions, only 2-3 are checked. A grade is given to each exercise checked. In some courses, the teacher includes the weighed grade of the exercises as part of the overall course grade (around 10-15%). In other courses the exercises are pre-conditions for entry to the final examination.

C. Seminars: Each third-year physics student is required to participate in a seminar consisting of 2 course hours, under the supervision of a faculty member. Within the seminar framework, the student is required to give a comprehensive lecture of at least an hour's duration, on a given scientific topic in the supervisor's field of scientific specialization.

D. Teaching laboratories: All physics students in both full or reduced tracks are obligated to take three compulsory laboratory courses – in each of the three years of their studies. The first and second year labs (77103, 77302) are headed by an academic staff member (an experimentalist in the institute). The first year laboratory course is designed so that each week the students conduct a defined experiment. The students are only allowed to proceed with their experiment after compulsory preparations and pre-laboratory work. In the second year laboratory the experiments are of 3-4 weeks in duration. Students are allowed to proceed with an experiment only after a successful interview with laboratory instructors. After performing the experiment the students must submit summary laboratory reports which include a description and analysis of the results obtained. The instructors in both the 1st and 2nd year laboratories are generally Ph. D. students.

The 3rd year laboratory is designed so that each student has to conduct five experiments of his/her choice over the academic year. Each experiment lasts about 1 month. The instructors in this laboratory are experimentalists whose research field is generally close to the experiments that they instruct. The laboratory is greatly assisted by retired faculty members who teach on a voluntary basis.

As an alternative to the regular laboratory courses, there are two advanced physics laboratories in the first and second years. Eligible are outstanding students who are accepted after a strict screening process. 15-20% of the students in the full physics track are enrolled the 1st year advanced laboratory course. The percentage is less in the 2nd year.

In the advanced laboratories, each student conducts 5-6 experiments a year. The students receive a physics topic and they must independently design and perform the experiment. The instructor's role is to guide them and ensure that the experiment is doable in the allotted framework and time. Prior to each experiment, the students meet with the instructor. The experiments are summarized in 1st year labs by giving a 30 minutes comprehensive talk (similar to the presentation in a scientific conference) in which the student lectures on the theoretical background of the experiment and on his achievements. In the second year laboratory these lectures are performed at the end of each semester, and a comprehensive laboratory report is presented for each experiment.

Outstanding undergraduate students can, within the framework of our 3rd year laboratory take part in experimental research performed in the Racah Institute's research laboratories. The student's research is conducted under the guidance of the researcher and covers 100-120 hours. This research replaces the second semester 3rd year laboratory. Generally, only 5-7 students conduct such research activity each year. In addition, the "Amirim" program for exceptional students requires participants to perform an independent research project, together with a faculty adviser. These projects are at least 200-300 hours in duration, and frequently require much more than this. In addition, many undergraduate students work in the research groups (either voluntarily or are paid at student rates). These are not supervised departmental programs, but are carried on an independent basis. Students are encouraged to pursue this, if they have the time, as this considerably broadens their education.

Below is the list of compulsory undergraduate courses (including their serial numbers, semesters and weekly hours) for students participating in either the single major full Physics program (I) or in the Physics and Mathematics track (II). Note that: (a) each course hour is equivalent to one credit point, (b) all courses numbered as 77*** are instructed by the physics department's staff members.

List of compulsory undergraduate courses

1st year			
77101	Mechanics and relativity	1st semester	7 course hours
77102	Electricity and magnetism	2nd semester	6 course hours
*77103	Physics laboratory 1	All year	3 course hours
2nd Year			
77152	Thermal physics	1st semester	4 course hours
* 77302	Physics laboratory 2	All year	3 course hours
77303	Analytical mechanics	1st semester	5 course hours
77305	Waves and optics	1st semester	5 course hours
77313	Equations of mathematical physics	2nd semester	6 course hours
77318	Quantum theory 1	2nd semester	5 course hours
77401	Electrodynamics	2nd semester	5 course hours
3rd Year			
77307	Introduction to statistical physics	1st semester	4 course hours
77532	Research in the Institute	1st semester	1 course hours
77604	Physics laboratory 3	All year	6 course hours
77605	Quantum theory 2	1st semester	7 course hours
77***	Seminar (a number of seminars are offered)	1st or 2nd semester	2 course hours
	Four out of the following **six** courses are required **		
77501	Astrophysics and cosmology	1st semester	3 course hours
77542	Quantum theory 3	1st semester	3 course hours
77602	Solid state physics	2nd semester	4 course hours
77603	Nuclear physics	2nd semester	3 course hours
77606	The physics of continuous media	1st semester	3 course hours
77609	Introduction to elementary particles	2nd semester	3 course hours
Advanced laboratory courses (1st and 2nd year)			
77111	Advanced laboratory 1	All year	5 course hours
77322	Advanced laboratory 2	All year	5 course hours

* Outstanding students may choose the advanced laboratories in place of the compulsory laboratory courses.

** Students of the full physics and mathematics track are only required to take the course 77542.

Compulsory Mathematics courses for physics students in both full and reduced tracks

1st year

80114	Applied mathematics for physicists 1	1st semester	6 course hours
80131	Calculus (1)	1st semester	7 course hours
80152	Linear algebra for physicists	2nd semester	6 course hours
80157	Applied mathematics for physicists 2	2nd semester	6 course hours

2st year

80312	Probability theory and applications	1st semester	3 course hours
80314	Complex variables and their applications	2nd semester	3 course hours

Compulsory Chemistry and Programming courses

69322	General chemistry for physics students	1st semester (2nd year)	4 course hours
76641*	Fortran and C^{++} programming	Yearly	2 course

The course 76641 can be studied either in the 1st or 2nd years.

Below is a similar list of compulsory undergraduate courses for physics students participating in the reduced program in either single track (I) or the Physics and Mathematics track (II).

1st year			
77101	Mechanics and relativity	1st semester	7 course hours
77102	Electricity and magnetism	2nd semester	6 course hours
77159	Partial physics laboratory 1	1st semester	3 course hours
2nd Year			
77152	Thermal physics	1st semester	4 course hours
77302	Physics laboratory 2	All year	3 course hours
77303	Analytical mechanics	1st semester	5 course hours
77305	Waves and optics	1st semester	5 course hours
77318	Quantum theory 1	2nd semester	5 course hours
3rd Year			
77532	Research in the Institute	1st semester	1 course hours
77508	Partial Physics laboratory 3	1st semester	6 course hours
77***	Seminar (a choice of a number of different seminars is offered)	Either 1st or 2nd semester	2 course hours

The compulsory undergraduate courses for Physics students having an additional major (dual major) are similar to program (B) except for course 77532.

The compulsory undergraduate courses for the cluster of courses ("Hativa") students are as follows: 77101, 77102, 77152, 77159, 77302, 77305 and 77318.

Course hour requirements for undergraduate studies in the different tracks

	Full Physics	**Reduced Physics**	**Full Physics + Mathematics**	**Reduced Physics + Mathematics**	**Physics as a Dual Major**	**Physics as a minor**
Physics studies	93	71	84	60	65	37
Mathematics studies	37	27	74	74	24	
Programming studies	4	4	4	4		
Complementary studies	10	32				
Total	**144**	**134**	**162**	**138**	**89**	**37**

Comments:

- In most tracks the ratio between physics and mathematics is about 3:1, indicating the importance of mathematics for a deep understanding of physics.
- The courses 77101, 77102, and 77305 are given, in parallel, by two different lecturers. This is due to the large number (>250) of enrolled students in these courses.

Description of Teaching Laboratory Courses:

Physics is essentially an experimental science. Therefore the students in both full/reduced tracks are required to participate in the teaching laboratories during each of their three years of study.

In laboratory 1 (77103), the experiments are conducted on different topics (some of them are on subjects not studied frontally). These includes: mechanics, electricity, magnetism, electronics, radioactivity, geometric optics etc. The experiments are determined in advance and performed by pairs of students working together. Prior to each experiment, the students are required to write a short report which includes the theoretical background and the planned activity of the experiment. At the end of each experiment, each student is required to summarize the experiment in a final report.

As mentioned above, outstanding students may take the advanced laboratory 1. In this laboratory (77111) for each subject studied, the students are given the equipment, and plan the experimental research by themselves. Instead of a final report, the students present a short lecture (around 30 min.) summarizing their research achievements.

The laboratory 2 structure (77302) and the advanced laboratory (77322) are similar to that of first year's ones. In the laboratory 2 studies, students are required to complete 6 different laboratory experiments, 3 of which are compulsory. The material covered in the experiments both relates to the courses studied in the 2nd year (waves, optics, optical instruments, nuclear physics, introduction to quantum phenomena, the Compton effect, transistors and diodes, micro-wave physics, acoustics etc) and extends much of the basic material beyond the course level. The students are required to present a laboratory report for each experiment in the style of a short scientific paper. In addition, seminars on a chosen experiment are presented at the end of each semester. In this laboratory, there is much more independence than in the first year

laboratory. Students, for example are encouraged to extend experiments and come up with novel ways to analyze the data.

The 2nd year advanced laboratory is only for outstanding students. Here, as in the 1st year advanced laboratory, students choose their own research direction, then (with guidance from their instructors) design and analyze the experiments. Four different experiments are required per year. As specialty equipment is many times necessary for the advanced laboratories, both 1st and 2nd year advanced laboratories are assisted by the machine and electronic shops, which are attached to the Racah Institute.

In the 3rd year laboratory (77604) the students perform small research projects, which extend over 4-5 weeks. The experiments are summarized in final reports. Several experiments (such as STM microscopy and Biophysics, etc.) are performed by the students in different experimental research laboratories within the Institute. Students encounter a wide variety of subjects for which they have had little preparation in their courses. They are expected to learn these subjects independently, and in depth, before beginning the actual experiments. Outstanding students have the option, as part of their laboratory 3 duties, to carry out an experimental research project, which lasts 120-150 course hours. These projects are performed in the Institute's experimental laboratories under the supervision of a member of the Institute faculty. These students are thus more highly exposed to the advanced research activities at the Racah Institute.

In addition, all physics students are required to take a chemistry course as part of their physics studies. Students participating in the reduced physics track are required to have 32 credit points in complementary studies. These studies include courses in their chosen cluster of courses ("Hativa") and can be in any academic topic.

In order to complete the credit point requirements listed in Table 3, the students are requested to study several optional courses. The list of those courses is given in following sections.

The physics department is responsible for teaching physics as "service courses" to the first year of undergraduate students from other departments in the Faculty of Natural Sciences and to students in the Faculty of Medicine. Service courses are given to students of Life Sciences, Chemistry, Earth sciences, Pharmacy and Medicine. All service courses in the first semester deal with mechanics and those in the second semester cover electricity, magnetism and waves.

List of service courses

77130	Mechanics for chemistry students	6 course hours	1st semester
77131	Waves and electricity for chemistry students	6 course hours	2nd semester
77148	Mechanics for Life science students	6 course hours	1st semester
77309	Electricity and optics for Life science students	4 course hours	2nd semester
77132	Electricity and waves for Medical school students	6 course hours	2nd semester
77189	Mechanics for Medical school students	6 course hours	1st semester
77116	General physics for Pharmacology students (1)	7 course hours	1st semester
77104	General physics for Pharmacology students (2)	5 course hours	2nd semester

M.Sc. Physics Studies

Students who have completed undergraduate studies in the full physics track with a weighted grade average of at least 85 are automatically accepted for M. Sc. studies. Students who have completed the reduced physics track and students from other academic institutes are accepted only after undertaking additional requirements to comply with the requirements of the full physics track. Students with a grade average of 80-85 may be accepted only by the recommendation of the "studies committee". The studies toward M.Sc. degrees normally last 2 years, but in special cases can be extended for up to 6 semesters.

Studies for this degree are composed of compulsory courses (12 course hours), "primary" Optional Courses (13 course hours) and optional courses (10 course hours). The compulsory studies for a master's degree aim to extend the fundamental knowledge of the students in quantum mechanics and in statistical physics, and to impart basic up-to-date knowledge in various fields (optional courses) according to the research topic chosen by the student
In the second year comprehensive research is performed under the supervision of one of the department's faculty members. This work is summarized in a written M. Sc. thesis.

List of the compulsory courses:

77800	Advanced quantum theory 1	1st semester	4 course hours
77801	Advanced quantum theory 2	2nd semester	4 course hours
77802	Statistical mechanics	1st semester	4 course hours

List of the primary optional courses:*

Group A	77712	Advanced astrophysics	1st semester	5 course hours
	77909	Relativity and gravitation	2nd semester	5 course hours
Group B	77856	Elementary particles	2nd semester	5 course hours
	77915	Field Theory 1	1st semester	4 course hours
Group C	77963	Plasma physics 1	2nd semester	3 course hours
	77962	Plasma physics 2	2nd semester	3 course hours
	77728	Nonlinear dynamics of continuous media	1st semester	3 course hours
Group D	77980	Introduction to group theory	1st semester	4 course hours
Group E	77960	Condensed matter physics 1	2nd semester	5 course hours

*Each student must choose courses from at least three of the above groups

List of additional optional courses:

Course No.	Course Name	Course hours	Semester
67596	Introduction to quantum computation	4	1st semester
69706	Selected topics in nano-science and nano-technology	3	1st semester
77853	Materials physics – structure, properties and kinetics	3	1st semester
87842	The transformation of physical sciences in the 20th century	3	2nd semester
77971	Many body theory of atomic nuclear processes	2	1st semester
77916	Field theory 2	4	2nd semester

77903	Introduction to quantum electro-optics	3	2nd semester
77734	Statistical differential processes	3	1st semester
76908	Theory of neural networks 1	4	2nd semester
76909	Theory of neural networks 2	4	1st semester
77320	Introduction to electronics 1 – analog	4	1st semester
77619	New ideas and experiments in quantum theory	3	2nd semester
77695	Nuclear astrophysics: synthesis of the elements	2	2nd semester
77897	Interaction of high power lasers with matter	2	2nd semester
77732	Computational physics of complex systems	3	2nd semester
77887	Quantum theory – conceptual foundations	2	1st semester
77750	Interdisciplinary Physics seminar 1	2	1st semester
77751	Interdisciplinary Physics seminar 2	2	2nd semester
77829	Quantum transport in nano-structures	3	1st semester
77837	Super-symmetric field theories	4	1st semester
77842	Magnetic properties of solids	4	1st semester
77729	Mathematical methods in quantum physics	3	2nd semester

Distribution of M.Sc. students (in %) according to demographic data

		2001	2002	2003	2004	2005
Gender	Male	87.9	75.6	76.8	77.4	73.3
	Female	12.1	24.4	23.2	22.6	26.7
Age	21-22	6.1	2.2	1.8	1.9	
	23-24	9.1	11.1	5.4	7.5	15.6
	25-26	21.2	26.7	21.4	24.5	15.6
	27-28	33.3	22.2	37.5	30.2	33.3
	29-30	18.2	24.4	19.6	20.8	22.2
	31-40	12.1	13.3	14.3	15.1	13.3
Geographic distribution	Jerusalem	45.5	40.0	44.6	45.3	35.6
	Tel-Aviv	12.1	13.3	7.1	3.8	8.9
	Haifa	6.1	6.7	8.9	7.5	13.3
	Center	15.2	13.3	14.3	20.8	28.9
	North	12.1	11.1	12.5	7.5	
	South	3.0	2.2	1.8	3.8	4.4
	The rest	6.0	13.3	10.8	11.4	8.8

Distribution of M.Sc. students among the years over 2001-5

Year	**2001**	**2002**	**2003**	**2004**	**2005**
1	13	23	25	15	14
2	8	13	19	21	19
3	7	6	6	15	8
4	3	1	5	2	4
5	2	2	1		
Total	33	45	56	53	45

Doctoral Physics (Ph.D.) Studies

A candidate for a Ph.D degree must meet the following conditions: (a) He/she has studied at a recognized university and holds a Master Degree with a thesis and a final grade (which includes the thesis and final examination) of at least 85. (b) The authority of Research students finds him/her adequately prepared to pursue research in their field choice that can be carried out at the Racah Institute of Physics. (c) Prior to acceptance, he/she must find a supervisor for his/her dissertation. Students from other universities must hold a diploma which is equivalent to a M. Sc. degree from the Racah Institute. Each Ph.D. student is required to take 18 credit points (at least) from the primary optional and additional optional courses listed above, according to his/her specialization. A "thesis advisory committee" is appointed by the Authority of Research Students for each Ph.D. student. Its task is to follow the progress of the student's research work and to advise the student, should the need arise. The student has to complete his/her scientific research work and to present a Ph. D. dissertation within 5 academic years.

Distribution of Ph.D. students (in %) according to demographic data

		2001	2002	2003	2004	2005
Gender	Male	88.5	90.2	97.5	93.9	90.6
	Female	11.5	9.8	2.8	6.1	9.4
Age	21-22	1.9				
	23-24		2.4			
	25-26	3.8	2.4		2.0	5.7
	27-28	17.3	19.5	11.1	8.2	7.5
	29-30	28.8	31.7	19.4	26.5	20.8
	31-40	44.2	41.5	61.1	57.1	56.6
	41-60	3.8	2.4	2.8	4.0	9.4
Geographic distribution	Jerusalem	50.0	58.5	58.3	46.9	54.7
	Tel-Aviv				4.1	3.8
	Haifa	5.8	4.9	8.3	8.2	11.3
	Center	17.3	9.8	5.6	2. 8	7.5
	North	3.8	7.3	11.1	14.3	15.1
	South	13.5	12.2	11.1	10.2	3.8
	The rest	9.6	7.3	5.6	8.1	3.8

.

Evaluation of Study Program– Strengths and Weaknesses

The strengths – Our courses expose the students to a wide range of fields in physics, from the structure of atomic nuclii to the structure of the universe as a whole. The three physics laboratories expose the students to how and why quantitative experiments are both performed and necessary. These force the student to analyze the results and even to design and conduct limited independent research projects in many physical areas of study. We believe that this program is, as a whole, successful. Graduates of the department are to be found in every branch of research, teaching and industry in Israel and throughout the world. Their quality and high level education both testify that the department's objectives have, in general, been achieved. Graduates of our physics department are the backbone of the research infrastructure in all of the academic institutes of higher education in Israel. These scientists occupy key positions in all research and development which takes place in research institutes and industries in both Israel

and the entire world. For example, one of the winners of the 2004 Nobel Prize in Physics is a graduate of our physics department. Our graduate students have no trouble attaining post-doctoral positions in the most prestigious universities in the world.

The Weaknesses- Over the past few years our department has had increasing difficulty in maintaining these high standards. Part of the problem is, as always, funding. Some of the fundamental problems that we are experiencing are the following:

- The low level of feedback that exists in the system. At present we have little knowledge of how the syllabus of each course is fulfilled, in practice. This problem is being rectified in this academic year by imposing sanctions on faculty members who do not supply this feedback.
- The constraints imposed by the University/Faculty of Sciences in the total number of course hours. This causes a total lack of flexibility in optional courses, especially for students enrolled in a full track B.Sc. degree in Physics. These students have no optional courses, since the compulsory courses take up virtually all of their course hours. The only remedy for this is to increase the requirement of course hours. Both BSc and M.Sc. students effectively have to pay additional tuition for all courses beyond the compulsory requirements. These limitations prevent students from widening their horizons.
- The academic level of the students arriving at the University in recent years has been noticeably lower than that of previous years. This is, presumably, due to a lower level of achievement in high school in Mathematics and Science across the country. This lower initial level is reflected in both of the above points. We have more of a problem in teaching the entire syllabus, since we have to teach supplementary material that should have been covered in high school. On the other hand we do not want to lower our standards. We therefore need to add more course hours, in particular in basic (first year) courses. An ad-hoc solution that we have implemented in recent years is to provide junior staff for 4-5 hours each day to help in tutoring students having problems in these courses. This has helped the problem, but also has increased the financial burdens on our department. This program has been nearly curtailed over this past academic year, due to new budget cuts implemented by the University. Ideally, we need to add course hours to our basic courses to bridge this gap. However, both course hour and financial constraints prevent us from doing this.
- Over the past few years there has been a tremendous increase in students registering for physics, and related tracks (e.g. the engineering). As a result, we have had to split basic courses, thus doubling the necessary teaching staff. We have also had to increase the number of junior staff in the laboratories and exercise classes to provide the same student/instructor ratio as in previous years. In parallel to this tremendous increase in students, a large decrease in the department budget was imposed by the university. To accomplish our academic aims, we therefore had to severely reduce non-academic staff, cease all upgrading of student laboratory equipment, and cease nearly all maintenance of the department's infrastructure. Given present financial constrains it is not possible to improve the student/faculty ratio and to upgrade the laboratory equipment at the same time. This can be suffered over a limited time, but will exact a large (sometimes disproportionate) cost in the future. The only real remedy for this that we can suggest is to add faculty. This, however, is not a decision that can be carried out on the departmental level.
- Drastic budget cuts imposed upon the universities have weakened the study program in the following sense. Excersize sessions are becoming increasingly larger in size. In addition, we have virtually no funds to pay for graduate students to *grade* excersizes, and only part of the exercises is even graded.This creates two problems. The first is that the students receive little feedback and therefore have less incentive to both prepare and submit their excersizes. This will significantly degrade their level of acheivement – as the struggle to solve difficult problem sets is the *only* way to develop expertise in Physics. A

second issue is that, traditionally, grading excersizes has been a method to support and encourage our best MSc students. This lack of funds will therefore, in the long run, hurt our research program – as we may lose the best MSc students to other institutions.

- Due to lack of funds we cannot afford to hire enough junior staff and faculty to man our most advanced teaching laboratories. Currently these are staffed by retired faculty, who are volunteering their time. This is a temporary situation that can not go on for much longer.
- The level of the equipment in our teaching laboratories is, with some exceptions, both obsolete and/or in a critical state of disrepair. Physics is an empirical science. Well-equipped teaching laboratories are essential in elucidating this to our students as well as in developing necessary skills in data acquisition and analysis that cannot be learned in verbal courses. These laboratory courses also serve to deepen the knowledge acquired in course-work. This goal is quite difficult to achieve if the laboratory equipment is both outdated and in a continual state of disrepair.

Future Development of Study Program

The future development plans are limited, mainly because of the decrease in the number of the staff members over the last few years. If manpower can be found, we plan to develop, in conjunction with other departments in the Faculty of Mathematic and Natural Sciences inter-disciplinary study tracks that follow the example of the highly successful Exact Sciences track that was recently developed. One specific new possible direction is that of bio-physics. This may be developed in parallel to our efforts in building a bio-physics research direction in the Institute. Such new study directions are authorized by our studies committee, but are generally initiated and pushed forward by interested members of our faculty.

Teaching Staff

The academic staff consists of the following groups of lecturers.

A. Faculty members of the Racah Institute of Physics who have a tenured or tenure track position.

B. Senior researchers, who are funded by external sources and contracts. This staff, whose main activity is in advanced fundamental or applied research, participates in the teaching duties.

C. External lecturers holding a Ph.D. In 2005 we hired 2 such lecturers for service courses. Due to budgetary constraints, their contracts were not renewed for the present academic year.

D. Graduate students. Outstanding Ph. D. students, who are performing research at the Racah Institute, are employed as junior academic staff. In addition, a number of outstanding M. Sc. students are employed as teaching assistants (TA).

E. Retired academic faculty and non-academic staff. These lecturers volunteer their time in both professional courses (e.g. electronics for Physicists), and 3rd year student laboratories.

The lecturers in groups A, B teach the department's compulsory and optional courses. The teaching staff in group C provides assistance in service courses. Junior academic staff (D) serves as instructors in compulsory exercise courses, and/or as laboratory instructors in our teaching laboratories. Outstanding TA are sometimes employed as either laboratory instructors or instructors in exercises of service courses. Several TA are employed in either grading exercises, or as tutoring B. Sc. students.

Due to the limited number of senior faculty, there is very little flexibility in course assignments at their level. At times, we are required to utilize exceptional Ph. D students as lecturers in

service courses. In the teaching laboratories there is negligible flexibility in that we must partially rely on the goodwill of our retired faculty to man the required teaching positions.

Strengths and Weaknesses of Teaching Staff

The strengths of our teaching staff are that both the senior and junior staffs are involved in research at the cutting edges of their fields. Thus, their level of knowledge is very high and updated. The extensive experience of the faculty in many different fields of research ensures that the students receive an in-depth level of instruction that comes from "hands-on" experience in the instructors' respective fields. One weakness of the program is that the acceptance of new faculty to the department is on the basis of excellence in research, while information on the candidate's teaching abilities is evaluated only when it is available. Thus, most of our faculty has no formal qualifications for teaching. We are, of course, aware of this and make efforts to ensure that faculty who are having difficulties in successfully teaching are given individual help. In addition, in the rare cases when a faculty member is unable to improve his/her teaching to an acceptable level, they are removed from frontal teaching and are given either optional (graduate) courses or seminars to teach, where the small groups inherent in these courses are more conducive to successful teaching. Attempts are made to adapt faculty teaching obligations to the student feedback. Student feedback, however, is not the only criterion for changing teaching assignments. This is because, in many cases, student feedback is highly influenced by the course level required by the instructor. Thus, changes in teaching assignments are only performed when the department chairman is convinced that the problems in a given course are the result of "poor" teaching.

Senior Academic Staff Employed in Teaching 2006-2007

Name of Teacher			Area of Specialization	Course Number	Weekly Hours	Additional Tasks in Institute	No. of Graduate Students	
First	**Family**	**Title**					2nd Degree	3rd Degree
Oded	Agam	Prof.	Condensed matter Physics	77305	3	Coordinator of colloquium		3
				77961	4			
Yinon	Ashkenazy	Dr.	General Physics	77853	3		2	
				77561	2			
Shimon	Azida	Dr.	Astrophysics	77315	3			
Nathalie	Balaban	Dr.	Biophysics	77604	6		2	2
				77304	4			
Isaac	Balberg	Prof.	Condensed Matter Expt	77532	1		1	1
				77563	2			
				Sabbatical (2)				
Shmuel	Balberg	Dr.	Astrophysics	77152	3		1	
Nir	Barnea	Dr.	Nuclear Physics	77990	4.		3	1
Jacob	Bekenstein	Prof.	Astrophysics	77800	3			1
				77801	3			
Ofer	Biham	Prof.	Interdisciplinary Physics	77802	3	M.Sc. examiner	4	3
				77732	3			
Dan	Davidov	Prof.	Condensed Matter Expt.	77116	5		4	5
				77104	3			
Avishai	Dekel	Prof.	Astrophysics	77112	4	*Head of the Authority of the community and Youth		4
				77153	2			

Name of Teacher			Area of Specialization	Course Number	Weekly Hours	Additional Tasks in Institute	No. of Graduate Students	
First	**Family**	**Title**					2nd Degree	3rd Degree
				77659	2			
Hagai	Eisenberg	Dr.	Non linear	Free from teaching duty			2	1
Shmuel	Elitzur	Prof.	High energy physics	77564	2	M.Sc. Advaiser M.Sc. examiner		1
				77609	3			
				77869	4			
Israel	Felner	Prof.	Condensed Matter Expt.	Sabbatical			1	1
				77103	6			
				77642	2			
Jay	Fineberg	Prof.	Nonlinear physics	77322	4.5	Head of Racah institute		4
				77983	2			
				77302	3			
Lazar	Friedland	Prof.	Nonlinear Physics	77303	3	Adviser 2nd year	1	
				sabbatical				
Eliahu	Friedman	Prof.	Nuclear Physics	sabbatical				
				sabbatical				
Avraham	Gal	Prof.	Nuclear Physics	sabbatical				
				77500	2			
				77318	4			
Omri	Gat	Dr.	Non Linear Theory	83880	4		1	2
Amit	Giveon	Prof.	High energy Physics	77915	4		1	2
				77844	3			
				77636	2			
William	Glaberson	Prof.	General Physics	77566	2	Chairman of physics studies		1
				77604(1,2)	6			
Ami	Glasner	Prof.	Astrophysics	77102	4			
Isser	Goldberg	Prof.	Atomic Physics	77307	3			
Yehuda	Hoffman	Prof.	Astrophysics	77501	3		1	1
				77645	2			
Barak	Kol	Dr.	High energy	77101	6		1	4
				77632	4			
Ami	Leviatan	Prof.	Nuclear Physics	Sabbatical				
Itamar	Lichtenstat	Dr.	Astrophysics	77131	4			
Eli	Livne	Prof.	Astrophysics	77148	4			
Victor	Mendelzweig	Prof.	General Physics	Sabbatical (1,2)				
Oded	Millo	Prof.	Condensed matter Expt.	77604	6	*Head of exact science	1	5
				77304	4			
				77661	2			
Baruch	Meerson	Prof.	Nonlinear Physics	77728	3	M.Sc. examiner		1
				77313	4			
Dror	Orgad	Dr.	Condensed Matter	77148	4	Head of committee prizes		1
				77602	3			
Zvi	Ovadyahu	Prof.	Condensed matter Expt.	77322 (1,2)	9			
Tsvi	Piran	Prof.	Astrophysics	77909	3	*Dean of school of Business Administration		2
Michael	Paul	Prof.	Nuclear Physics	77604 (1,2)	6	*M.Sc. examiner Vise dean for studies affairs		3
				77603	3			

Name of Teacher			Area of Specialization	Course Number	Weekly Hours	Additional Tasks in Institute	No. of Graduate Students	
First	**Family**	**Title**					2nd Degree	3rd Degree
Reoven	Perel	Dr.	Reactors Physics	77188	4			
Eliezer	Rabinovici	Prof.	High energy physics	77856	4	*Head of advance studies institute		2
Amir	Sa'ar	Prof.	Applied Physics	77903	3		9	4
				77102	4			
Avraham	Schiller	Prof.	Condensed matter	77605	5	Adviser 3nd year		2
				77542	2			
Eran	Sharon	Dr.	Nonlinear Physics	77302	6		2	3
				77112	4			
				77562	2			
Nir	Shaviv	Dr.	Astrophysics	77101	6		1	2
				77412	2			
				77606	2			
Sorin	Solomon	Prof.	Interdisciplinary Physics	77734	3		1	1
				77750	2			
				77751	2			
				77574	2			
Haimi	Sompolinsky	Prof.	Neural dynamics	Sabbatical			4	
				77401	4			
				77640	2			
Yoel	Tikochinsky	Prof.	Nuclear Physics	77619	3			
Yitzhak	Tuchman	Prof.	Astrophysics	77101	6			
				77102	4			
Amri	Vandel	Dr.	Astrophysics	77210	3			
Jehudah	Wagschal	Prof.	Reactors Physics	77130	4			
Arie	Zigler	Prof.	Nonlinear Physics	77111(1,2)	5		1	4
				77897	2			
				77103	3			

Demographic tables

Postdoctoral researchers

Postdoctoral researchers, immigrant researchers, and senior visitors within the Racah Institute. Although there are various categories of immigrant researchers, these adjunct scientists are coupled to specific research groups. The salaries of these scientists are divided up between the absorption ministry and the research groups.

Year	Postdocs		Immigrant Researchers	Senior Visitors	
	Number	Research group	Number	Number	Research Group
10/2002-9/2003	8	3 - High Energy	1	5	2 - High Energy
		3 - Astrophysics			1 - Astrophysics
		1 - Solid State	6		2 - Solid State
		1 - Nuclear			
		Nonlinear	2		
10/2003 - 09/2004	10	5 - High Energy	1	3	1 - High Energy
		2 - Astrophysics			1 - Non Linear
		3 - Solid State	6		1 - Solid State
		Nonlinear	2		
10/2004 - 09/2005	9	3 - High Energy	1	1	1 - Solid State
		4 - Astrophysics			
		1 - Solid State	6		
		1 - Non Linear	2		
10/2005 - 09/2006	9	2 - High Energy	1	4	1 - Nuclear
		5 - Astrophysics			1 - Astrophysics
		1 - Solid State	6		2 - Solid State
		1 - Non Linear	2		
10/2006 - 09/2007	10	2 - High Energy	1	2	2 - Solid State
		4 - Astrophysics			
		2 - Solid State	6		
		2 - Non Linear	2		

Ph. D. Students

PhD students of the Racah Institute from 2003-present

The table below lists (by student reference number – student names can be provided by request) the PhD students attending our institute, their advisor and fields of research. Listed are the the last year ("Year" field) in which the student attended, the year of study in that year, and the student's research field. In addition the source of each student's financial support is specified, according to the following key: "1" supported as a teaching assistant, "2" received an external fellowship, "3" was supported entirely by his/her advisor's research grants. Salaries of teaching assistance are generally supplemented by their advisors from research funds. **A comprehensive table of PhD students together with their thesis titles is found in Appendix 1**

Student Reference Number	Year	Year of Study	PhD Advisor	Research Field	Financial Support
1	2003	3	Prof. Agranat	Applied Physics	1
2	2003	3	Prof. Bekenstein	Astrophys.	3
3	2006	3	Prof. Piran	Astrophys.	1
4	2006	6	Prof. Dekel	Astrophys.	4
5	2006	2	Prof. Hoffman	Astrophys.	1
6	2006	1	Dr. Shaviv	Astrophys.	1
7	2006	9	Prof. Barkat	Astrophys.	3
8	2006	1	Prof. Dekel	Astrophys.	1
9	2006	3	Prof. Dekel	Astrophys.	3
10	2004	4	Prof. Piran	Astrophys.	1,2
11	2005	5	Prof. Piran	Astrophys.	3
12	2005	8	Prof. Piran	Astrophys.	3
13	2006	1	Prof. Bekenstein	Astrophys.	3
14	2006	2	Dr. Questembert-Balaban	Biophysics	1
15	2006	3	Dr. Questembert-Balaban	Biophysics	3
16	2004	1	Prof. Kozlov	Chemistry	1
17	2006	4	Prof. Saar	CM Expt	1, 2,3
18	2006	5	Prof. Ovadyahu	CM Expt	1,3
19	2006	5	Prof. Balberg Prof. Millo	CM Expt	1,3
20	2006	2	Prof. Millo	CM Expt	1
21	2004	4	Prof. Agam	CM Expt	1,2
22	2006	1	Prof. Saar	CM Expt	1
23	2006	7	Prof. Felner	CM Expt	3
24	2006	3	Prof. Saar	CM Expt	1
25	2006	2	Prof. Millo Prof. Balberg	CM Expt	1,3
26	2006	1	Prof. Millo	CM Expt	1
27	2004	5	Prof. Millo	CM Expt	1
28	2006	6	Prof. Davidov	CM Expt	1
29	2006	3	Prof. Davidov	CM Expt	3
30	2003	3	Prof. Yacoby	CM Expt	1,2
31	2006	5	Prof. Davidov	CM Expt	1 sem a
32	2006	5	Prof. Davidov	CM Expt	1
33	2006	5	Prof. Davidov	CM Expt	1
34	2004	5	Prof. Kaplan	CM Expt	1,2
35	2006	6	Prof. Davidov	CM Expt	3
36	2003	3	Prof. Saar	CM Expt	1
37	2004	2	Prof. Saar	CM Expt	3
38	2006	2	Prof. Millo	CM Expt	1
39	2005	5	Prof. Millo	CM Expt	1
40	2003	4	Prof. Davidov	CM Th.	1
41	2006	2	Prof. Schiller	CM Th.	1
42	2006	2	Dr.Orgad	CM Th.	1
43	2003	1	Prof. Schiller	CM Th.	1

44	2006	2	Prof. Agam	CM Th.	1 sem a
45	2006	1	Prof. Agam	CM Th.	1
46	2006	3	Prof. Agam	CM Th.	1
47	2006	3	Dr. Kol /Prof. Giveon	High Energy	1
48	2006	6	Prof. Elitzur	High Energy	3
49	2006	4	Dr. Kol/Prof. Rabinovici	High Energy	1 sem a
50	2006	8	Prof. Rabinovici	High Energy	3
51	2006	1	Prof. Rabinovici	High Energy	3
52	2006	2	Dr. Kol/ Prof. Giveon	High Energy	1
53	2006	5	Prof. Elitzur	High Energy	סיים
54	2006	1	Profs. Elitzur/Rabinovici	High Energy	3
55	2004	5	Prof. Giveon	High Energy	2
56	2005	1	Prof. Sorin	Interdiscip	1
57	2004	6	Prof. Sompolinsky	Brain Sci.	2
58	2005	7	Prof. Sompolinsky	Brain Sci.	2,3
59	2006	1	Prof. Biham	Interdiscip	1
60	2005	5	Prof. Biham	CM Th.	1
61	2005	8	Prof. Biham	Interdiscip	3
62	2003	6	Prof. Biham	CM Th.	3
63	2006	3	Prof. Biham	CM Th.	1
64	2003	3	Prof. Biham	Interdiscip	1
65	2006	1	Dr. Sharon	NL Expt	1,3
66	2006	4	Prof. Fineberg	NL Expt	1
67	2006	1	Prof. Fineberg	NL Expt	1
68	2006	3	Dr. Sharon	NL Expt	1
69	2006	1	Prof. Zigler	Plasma Expt	Soreq
70	2006	1	Prof. Zigler	Plasma Expt	3
71	2006	5	Prof. Zigler	Plasma Expt	1
72	2006	4	Prof. Fineberg	NL Expt	1
73	2006	6	Prof. Fineberg	NL Expt	3
74	2006	8	Prof. Zigler	Plasma Expt	3
75	2006	4	Prof. Zigler	Plasma Expt	1
76	2006	3	Prof. Schwob	Plasma Expt	Soreq
77	2006	2	Prof. Fineberg	NL Expt	1
78	2006	2	Prof. Meerson	NL Theory	1
79	2005	5	Prof. Meerson	NL Theory	3
80	2006	1	Prof. Friedland	NL Theory	Soreq
81	2006	3	Dr. Barnea	Nuclear	1
82	2006	1	Prof. Paul	Nucl. Expt	soreq
83	2006	4	Prof. Paul	Nucl. Expt	3
84	2006	1	Prof. Paul	Nucl. Expt	soreq

M. Sc. Students

Average final grades of our M. Sc. students over the last three years

Year	Final grade
2003	88.32
2004	89.42
2005	90.68

These grades are, as in our course work, too high on average. Optimally, the grade average for an M. Sc. degree should be around 85.

MSc students of the Racah Institute from 2003-present

The table below lists (by student reference number – student names can be provided by request) the MSc students that have attended our institute, their advisor and fields of research. Listed are the the last year ("Year" field) in which the student attended, the year of study in that year, and the student's research field.

Student Number	Year	Year of Study	MSc final grade	MSc Thesis grade	MSc exam grade	MSc Advisor	Research Field
1	2006	1				Dr . Shaviv Dr. Erlich	Astrophys.
2	2004	2	89.17	91	91	Dr. Balberg	Astrophys.
3	2005	2	91.15	92.5	91	Prof. Dekel	Astrophys.
4	2006	2				Prof. Piran	Astrophys.
5	2005	2	86.23	93.5	86	Dr. Shaviv	Astrophys.
6	2004	2				Prof. Dekel	Astrophys.
7	2004	2	95.48	95	94	Dr. Shaviv	Astrophys.
8	2006	3				Dr. Glasner	Astrophys.
9	2006	3				Dr. Balberg	Astrophys.
10	2005	3	91.52	91	92	Dr. Balberg	Astrophys.
11	2006	3	89.39	90	85	Prof. Hoffman	Astrophys.
12	2004	3	86.9	86	87	Dr. Shaviv	Astrophys.
13	2003	4	93.76	95.5	95	Prof. Piran	Astrophys.
14	2005	4	89.56	94	88	Dr. Shaviv	Astrophys.
15	2005	4	91.11	93.5	91	Prof. Dekel	Astrophys.
16	2005	4	90.08	92.5	88	Prof. Piran	Astrophys.
17	2006	4	90.11	93	88	Dr. Shaviv	Astrophys.
18	2006	4	93.02	89	90	Prof. Dekel	Astrophys.
19	2004	4	95.13	94.5	97	Dr. G lasner	Astrophys.
20	2004	3	90.19	91.5	91	Prof. Kozlov	Chemistry
21	2006	1				Prof. Davidov	CM Expt
22	2006	1				Prof. Davidov	CM Expt
23	2006	1				Prof. Saar	CM Expt
24	2005	2				Prof. Saar	CM Expt
25	2003	2			dropped out	Prof. Millo	CM Expt
26	2006	2				Prof. Saar	CM Expt
27	2006	2			dropped out	Prof.Felner	CM Expt
28	2006	2				Prof. Davidov	CM Expt
29	2005	2				Prof. Saar	CM Expt

30	2006	2				Prof. Saar	CM Expt
31	2006	2	90.64	93	89	Prof. Millo	CM Expt
32	2003	2				Prof. Saar	CM Expt
33	2006	2				Prof. Saar	CM Expt
34	2005	2	91.86	94	90	Prof. Davidov	CM Expt
35	2004	2			Direct PhD	Prof. Millo	CM Expt
36	2005	2			Direct PhD	Prof. Millo	CM Expt
37	2006	2				Prof. Saar	CM Expt
38	2004	3	88.82	94	90	Prof. Millo	CM Expt
39	2004	3	88.1	93.5	83	Prof. Ovadyahu	CM Expt
40	2004	3	89.78	90	89	Prof. Balberg	CM Expt
41	2005	3	79.77	86	80	Prof.Felner	CM Expt
42	2003	4	73.15	70.5	70	Prof.Felner	CM Expt
43	2003	4	91.18	89.5	88	Prof. Balberg	CM Expt
44	2003	4	88.03	93.5	87	Prof. Davidov	CM Expt
45	2003	5	86.57	95.5	86	Prof. Davidov	CM Expt
46	2004	2			Direct PhD	Prof. Schiller	CM Theory
47	2005	2	95.25	96	95	Prof. Agam	CM Theory
48	2004	3	92.14	91.5	90	Dr. Orgad	CM Theory
49	2003	3			Direct PhD	Prof. Schiller	CM Theory
50	2005	3	91.85	91.5	90	Dr. Orgad	CM Theory
51	2003	3	92.49	93.5	91	Prof. Agam	CM Theory
52	2006	1				Prof. Giveon	High Energy
53	2004	4	90.3	90	88	Prof. Sompolinsky	Neural computation
54	2006	1				Dr. Ashkenazy	General Physics
55	2004	2	86.43	85	87	Prof. Kashdan	Math
56	2004	2	93.07	92.5	92	Prof. Biham	Interdisciplinary
57	2003	2	88.97	93.5	88	Prof. Biham	Interdisciplinary
58	2006	1				Prof. Biham	Interdisciplinary
59	2006	1				Prof. Sorin	Interdisciplinary
60	2006	1				Prof. Biham	Interdisciplinary
61	2006	2				Prof. Biham	Interdisciplinary
62	2006	2	96.41	95	96	Prof. Biham	Interdisciplinary
63	2006	2				Prof. Biham	Interdisciplinary
64	2003	2	92.16	95	89	Prof. Biham	Interdisciplinary
65	2003	3	88.08	91.5	86	Prof. Sorin	Interdisciplinary
66	2004	3	85.73	90	85	Prof. Biham	Interdisciplinary
67	2003	1			Direct PhD	Prof.Fineberg	NL Expt
68	2006	1				Dr. Eisenberg	Quantum Optics
69	2005	1	90.08	90	89	Prof. Zigler	Plasma Expt
70	2003	1			Direct PhD	Prof.Fineberg	NL Expt
71	2006	1				Dr. Eisenberg	Quantum Optics
72	2003	1	89.39	93	86	Prof. Zigler	Plasma Expt
73	2006	1	90.99	93	96	Dr. Sharon	NL Expt
74	2006	1				Dr. Sharon	NL Expt
75	2005	2	95.09	97	95	Prof.Fineberg	NL Expt
76	2004	2			Direct PhD	Prof.Fineberg	NL Expt
77	2005	3	89.28	93	91	Prof. Zigler	Plasma Expt
78	2004	3	95.47	93	97	Prof. Zigler	Plasma Expt
79	2005	4	81.32	89	80	Prof. Zigler	Plasma Expt

80	2003	4	89.41	91.5	90	Prof.Fineberg	NL Expt
81	2006	1				Prof. Friedland	NL Theory
82	2004	2	95.3	96.5	94	Prof. Meerson	NL Theory
83	2005	2	92.32	94	93	Prof. Meerson	NL Theory
84	2005	2	94.43	96	90	Prof. Friedland	NL Theory
85	2003	2	93.54	96	90	Prof. Friedland	NL Theory
86	2006	3				Prof.Friedland	NL Theory
87	2003	3			Direct PhD	Dr. Barnea	Nuclear
88	2004	3	90.49	92	88	Prof. Friedman	Nuclear
89	2006	3				Dr. Barnea	Nuclear
90	2005	3	91.89	94.5	89	Dr. Barnea	Nuclear
91	2004	1			Dropped out		
92	2006	1					
93	2006	1					
94	2006	1					
95	2006	1					
96	2006	1					
97	2006	1					
98	2006	1					
99	2006	1					
100	2005	1					
101	2003	1			Dropped out		
102	2005	1			Dropped out		
103	2003	1			Dropped out		
104	2006	1					
105	2005	2			Dropped out		
106	2006	2			Dropped out		
107	2006	2			Dropped out		
108	2005	2					
109	2003	3			Dropped out		
110	2004	3					
111	2006	3			Dropped out		
112	2006	3			Dropped out		
113	2005	3					

BSc Student Statistics

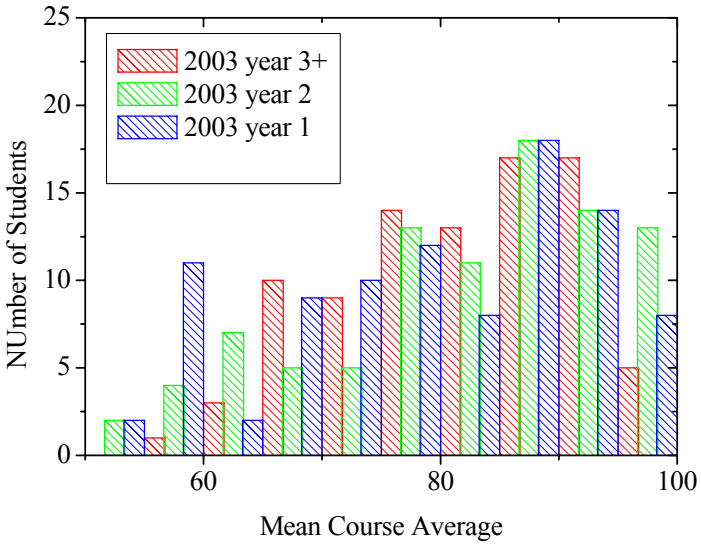
Average grades of B. Sc. graduates for each of the last three years

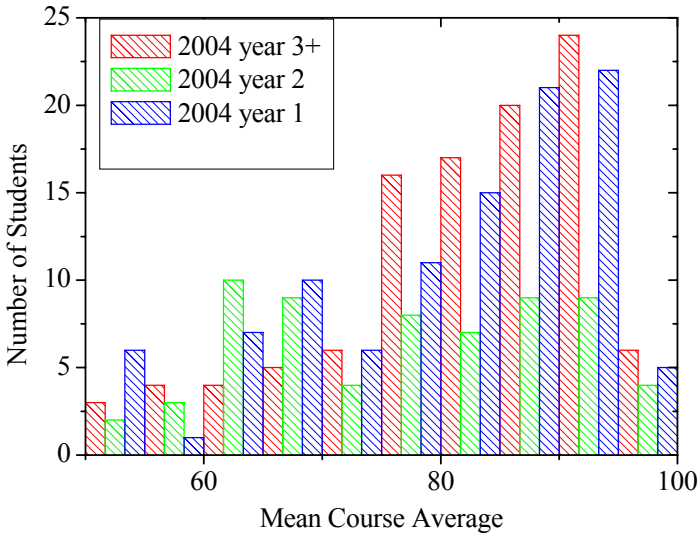
Year	Average Course Grade
2003	87.5
2004	86.7
2005	88.0

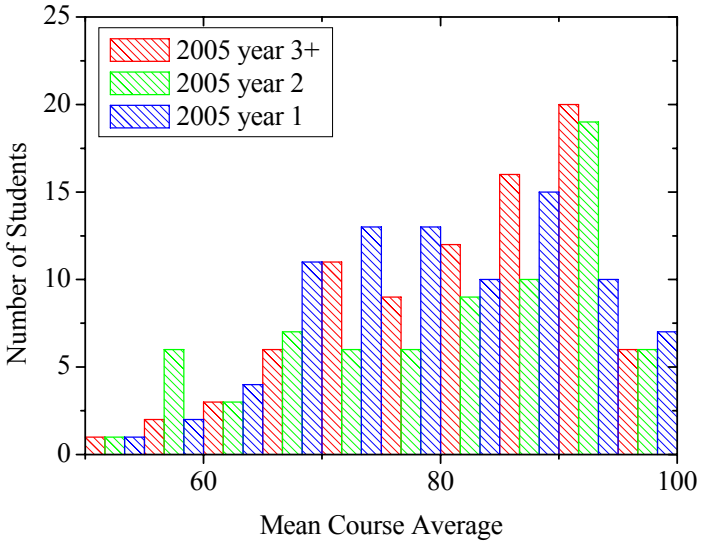
These grades only reflect the final averages of the students who have completed their B. Sc. degree. Optimally, we would prefer that the grade averages in courses be between 83-85. Over the past 3-4 years we have made a concerted effort to reduce these averages, but without tangible success. This is a real problem. One way to rectify it is to include the class standing of each student within his/her B.Sc. diploma. This idea is currently under consideration by the University's authorities. The grades of students who have had to drop out are not accounted for here, and as such the true grade average for the **courses** is significantly lower than those displayed above. The **course** grade averages range from 78-80.

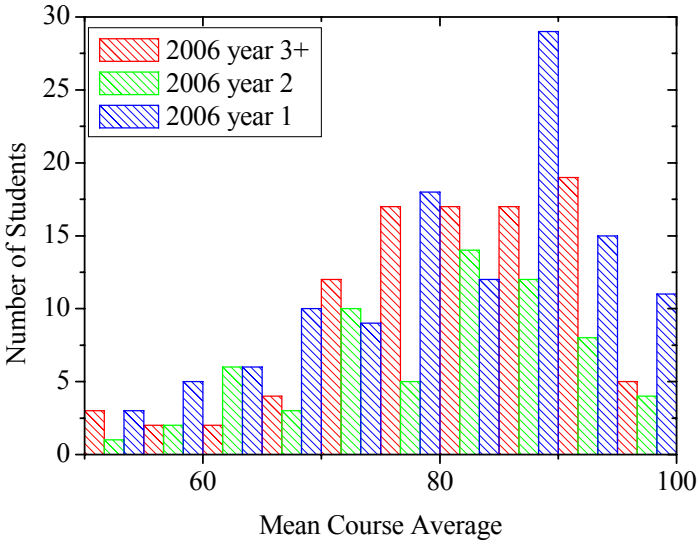
BSc student statistics: For the years 2003-2006 we present the course average for each year of study, weighted by the number of credit hours that each student took. Also presented (4^{th} and 5^{th} columns) is the mean graduation grade and standard deviation of these grades of the students of that year, who completed their studies. As apparent from the table, the course grades were significantly influenced by the students who dropped out of their studies. In addition, the mean graduation grade is influenced by grades obtained in other subjects (e.g. The grade average of students who are studying Physics and Chemistry is composed of their course average from both subjects.) **A comprehensive list of students/student grades from 2001-2006 can be found in Appendix 2.**

Year	Year of study	Weighted Grade	Weighted STD	Mean Grade of Graduates	Std Dev. Graduates
2003	1	78	15	87	6
2003	2	81	13	87.5	6.5
2003	3	80	12	84	7
2004	1	76	14	87	7
2004	2	77	14	87.5	6
2004	3	80	10	86	7
2005	1	79	11	83	8
2005	2	83	12	87	7
2005	3	81	13	85	7
2006	1	80	13	NA	NA
2006	2	81	11	NA	NA
2006	3	81	12	85	7









Histograms of student grades from 2003-2006. In each figure, the histograms are shown for each year of study, where the "year 3+" histograms include students who have completed years 3-5 (i.e. students who have split up either one or two years of study). As noted in section 3.4.3, the student numbers drop by approximately 30% from year 1 to year 2, although the grade histrograms do no change significantly. The mean grades are presented in Table 3.3.

Drop out Rates

The drop-out rate (in %) of B.Sc. and of M.Sc. students. (1-2) and (2-3) are defined, respectively, as the number of drop-outs from first year to second year and from second year to third year. Note, most of the dropouts that occur in the first year occur during the first semester. This relatively high dropout rate is natural. Not every student who wishes to learn Physics is capable of doing so, and most of these students realize this during the first semester of the first year.

Degree	**Year**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
BSc	1-2	29.8	25.0	18.0	35.9	30.9	33
	2-3	6.0	3.0	3.0	7.3	NA	NA
MSc	1-2	0	0	17	16	NA	NA

.

6. Summary and Conclusions

For the first time in years, the evaluation process provided us with a comprehensive picture of all aspects of both our studies and research programs. Most of the work was carried out by the department chairman together with the Head of the Institute. The self-evaluation, in itself, provided us with a valuable overview of both positive and negative aspects of both programs. The evaluation has enabled us to focus on specific questions which may well have "slipped through the cracks" otherwise. In the process of writing this report, we have already begun to implement a number of improvements to the studies program. For example, we have obligated our faculty to submit reports on whether each course completed the required syllabus, and whether the instructor had any specific suggestions for improving (modernizing) the syllabus. A number of such suggestions have already been discussed within our studies committee.

Regarding recruiting and research, we hope that the detailed report on the Institute's demographic profile, which highlights our increasingly acute shortages of experimentalists, will influence the University (or higher authorities) to supply the necessary funding in order to both recruit sorely needed experimentalists and to modernize our teaching laboratories. In addition, we believe that the overview of the different research groups presented in the self-evaluation highlights the directions which should be strengthened in order to both retain and enhance the already high level of research that is evident in the report.

In our study program, we need both more class hours – in order to both compensate for the current level of education supplied by our high schools, and to allow students to choose optional courses in addition to the single course currently allowed by course-hour constraints. Additional junior staff is sorely needed to increase the effective level of teaching by reducing the size of exercise groups, allowing us to expand our advanced teaching laboratories, effectively grade excersize sets and re-initiate our tutoring programs. This is, of course, contingent on the necessary financial support by the University. The self-evaluation process also pointed to the need to improve the feedback mechanisms within our study program.

In our research program, the self-evaluation process has highlighted the need for a sustained effort to recruit additional experimental physicists. Once again, the successful recruiting of experimentalists is wholly contingent on the availability of financial resources to both equip them and, importantly, to supply them with needed technical support. As our experimental faculty has shrunk considerably in past years, large numbers of technical positions have been either eliminated (by retirement) or used to replace critical technical staff in our teaching laboratories. New experimental recruits will need such personnel, and currently the Institute does not have the financial resources to hire them. In contrast to experimental work overseas, the level of research grants available in Israel (e.g. ISF, GIF, BSF) does not provide sufficient funds for such support. An additional problem is that, due to financial cuts that have been imposed on the universities, it is nearly impossible for *established* researchers to either purchase or upgrade existing expensive equipment. This can be (and has been) postponed for a short period of time, but we are now approaching the point where the situation is becoming critical – and may seriously affect the level of experimental research. This is true not only in Physics, but in all of the other departments within the Faculty of Sciences.

On the positive side, there has been a considerable investment in infrastructure for nano-sciences within the university. This includes the formation of the nano-center which currently supplies cross-faculty facilities for characterization of materials and will, in the future, provide facilities for nano-fabrication.

Appendices

Appendix 1: Curriculum Vitae – Faculty Members and Senior Research Scientists

Agam Oded

Date of Birth: February 10, 1963

Department: The Racah Institute of Physics, the Hebrew University.

Homepage: http://cond-mat.phys.huji.ac.il/agam/

Academic Degrees (date and place received):

B.Sc -- Electrical engineering, Tel-Aviv University, 1988
M.Sc. -- Physics, Technion, 1992.
Ph.D. -- Physics, Technion, 1995.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

NEC Research Institute, Princeton, USA, 1995-1997

Appointments at the Hebrew University (rank and year granted):

Senior Lecturer, 1998
Associate Prof. 2001

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

The Rothchild Fellowship 1995-1996
Alon Fellowship 1998-2001
Visiting Scientist, University of Washington (2005-2006).

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

The Olshwing prize of The Israeli Academy (2000)
The Bergman award (BSF) 1998
The special Guthwirth Fellowship 1994-1995
Guthwirth Fellowship 1991-1993

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. Eldad Bettelheim, PhD, "Field Theory Analysis of Laplacian Growth Models" (2004)
2. Roy Ceder, MSc, "Quantum Corrections to Conductivity at Non-equilibrium Resulting from High Voltage Bias" (2003)
3. Raphael Matthews, MSc, "The Contact Resistance of Superconductor- Luttinger Liquid Junction" (2005).

Ashkenazy Yinon

Date of Birth: 10 March 1971

Department: The Racah Institute of Physics

Homepage: www.phys.huji.ac.il/~yinona

Academic Degrees (date and place received):

B.Sc. in Physics and astronomy (1992, Tel Aviv University)

M.Sc. in Physics and astronomy (1994, Tel Aviv University)

Ph.D. in Physics and astronomy (2000, Tel Aviv University)

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Post Doctoral research associate, Material research laboratory, University of Illinois at Urbana Champaign (2000).

Appointments at the Hebrew University (rank and year granted):

Senior research associate (2003)

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

M.Sc. Students:

[2005-2007] Shani Ashkenazi *"Heat Capacity of supercooled liquids".*
[2005-2007] Lior Metzker *"Vibrational defects in amorphous materials".*

Invited Lectures

1. 2006: "Kinetics of crystallization at extreme undercoolings: a window into the structure of liquids", MRS Fall meeting, Boston, Nov 2006.

2. 2006: "The kinetics of crystallization: Role of point defects" Annual TMS meeting, San Antonio, March 2006.

3. 2006: "Simulating kinetic pathways to crystallization", Israel physical society Meeting , Jerusalem, Dec 2006.

4. 2007: "Size effects on the thermodynamics of melting", Workshop on Computations in Nanotechnology, Technion, May 2007

Balberg Isaac

Date of Birth: 27.11.1940

Department: Racah Institute of Physics

Homepage: http://www./cond-mat.phys.huji.ac.il/balberg/

Academic Degrees:

1963 M.Sc. physics and mathematics, The Hebrew University
1968 Ph.D. physics, The Hebrew University

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1968-1969, Bristol University, 1969-1970, Yeshiva University, 1970-1972, RCA Laboratories, Princeton.

Appointments at the Hebrew University (rank and year granted):

Senior Lecturer, 1972
Associate Professor, 1978
Professor, 1987

Honors

Enrique Berman Chair of Solar Energy.

Visiting positions:

Institute of Advanced Studies Mexico, 1974, 1975,
1976, 1977, The Technical University, Vienna.
1977, 1979, 1980, 1981, RCA laboratories, Princeton.
1982, The Max Planck Institute, Stuttgart
1983, 1984 RCA laboratories, Princeton.
1987, 1988, Chronar Corp. Princeton
1989, Solarex Corp. Newtown Penn. USA

Visiting positions:

1990, 1991, NREL Laboratories, Golden Col. USA
1998, NEC Laboratories, Princeton.
1998, Raychem Corp. Manlo park, CA, USA
2005, EPFL, Lausanne Switzerland

Main Academic Positions: (short list)

Within the Hebrew University:

1981-1984, Chairman of Physics Studies.
1983-1985, Academic Head, Math. and Science Studies, School for Overseas Students.
1986-1989, Member of the Board, Center of External Studies.
2001-2004, Head, The Racah Institute of Physics.
2006-2008, Member of the Advisory Board of Directors of the Farkas Minerva Center.

Outside Hebrew University: (short list)

1986-1989, Secretary of the Israel Physical Society
1991-1992, Associate Editor, Materials Research Bulletin, Pergamon Press
2003, 2004, Member of ISF reviewing Committees.
2005, Member of the Scientific Advisory Committee of the 1st International Workshop on Nano Semiconductors (Budapest).
2006, Member of the Scientific Advisory Committee of the International Workshop on Nano Materials (Antalya).

2006-, Member of the Editorial Board of Optoelectronics and Advanced Materials.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1 Roman Naidis (PhD), Phototransport Spectroscopy of Disordered Semiconductors

2 Doron Azulay (MSc and PhD), Local-probing of electrical transport of composite systems (With Prof. Millo).

3 Dana Toker (MSc and (PhD), Transport and percolation in granular and nanocrystalline materials (With Prof. Millo).

4 Yaniv Dover (MSc), Determination of the Density of States in Disordered Semiconductors.

5 Yuval Goshen (MSc) Photoluminescence in Nanocrystalline Silicon. (With Prof. Sa'ar).

6 Yona Reichman (MSc) Correlation Between the Photoluminescence and the IR absorption in Nanocrystlline Silicon. (With Prof. Sa'ar).

7 Liat Dovrat (MSc), Tunneling and nonuniversality in continuum-percolation systems (With Prof. Millo).

8 Hadar Levi (M.Sc.), C-AFM studies of transport and phototransport in nanocrystalline silicon (With Prof. Millo).

Barnea Nir

Date of Birth: 15 March 1967

Department: The Racah Institute of Physics

Homepage:

Academic Degrees (date and place received):

[1985-1988] B.Sc. in Physics and Mathematics (cum laude).
The Hebrew University of Jerusalem, Jerusalem, Israel.
[1989-1993] M.Sc. in Physics. Supervisor, Professor Victor Mandelzweig.
The Hebrew University of Jerusalem, Jerusalem, Israel.
[1994-1997] Ph.D. in Physics. Supervisor, Professor Victor Mandelzweig.
The Hebrew University of Jerusalem, Jerusalem, Israel.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

[1997-1999] Postdoctoral fellow at the ECT*, European Center for Theoretical nuclear physics and related areas, Trento, Italy.

Appointments at the Hebrew University (rank and year granted):

[1999-2001] Research associate, The Racah Institute of Physics.
[2001-2005] Senior Lecturer, The Racah Institute of Physics.
[2005-] Associate Professor, The Racah Institute of Physics.

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

[2007] Member of the Talpiot project evaluation commeittee

Outside the Hebrew University:

[2004-2006] Member in the steering committee of "Talpiot", the IDF elite academic project.
[2005] Head of subcommittee for evaluation and restructuring of the candidates selection process for the "Talpiot" project.

Honors and prizes:

M.Sc. Students:

[2000-2001] Sonia Bacca, in collaboration with Prof. Winfried Leidemann of the Trento university (Italy), *Photodisintegration of 6-body nuclei.*
[2002-2003] Oded Mintkevich, *A wave function for an effective Hamiltonian.*
[2004-2005] Yael Ronen, *The ^{16}O Low energy Spectrum And The $^{16}O(\gamma,\alpha)^{12}C$ cross section, whithin an α cluster model.*
[2004-] Nir Nevo.
[2005-2007] Effy Weismann, *Are there bound CCnn tetra-quark states?*
[2005-] Sergei Weintraub, *The β decay of ^{6}He.*

Ph.D. Students:

[2002-2007] Doron Gazit, *Electroweak interactions with light nuclei.*

Bekenstein Jacob D.

Date of Birth: May 1, 1947

Department: Physics

Homepage: HYPERLINK http://www.phys.huji.ac.il/~bekenste/

Academic Degrees (date and place received):

B.S and M.S. (1969) Polytechnic Institute of Brooklyn; Ph. D. (1972) Princeton University.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Postdoctoral fellow Physics Dept., University of Texas atAustin (1972); Senior Lecturer (1974), Associate Professor (1976), Full Professor (1978), Arnow Professor of Astrophysics (1983) (last three at Ben Gurion University, Beersheva).

Appointments at the Hebrew University (rank and year granted):

Full Professor, 1990-

Polak Professor of theoretical physics 1993-

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Member 2005- , Einstein Center, Hebrew University; 2005 Visiting Professor, KIPAC-SLAC and Physics Dept., Stanford University; 2004 Visiting Scholar, Jefferson Physical Laboratory, Harvard University; 1998 Visiting Professor, Institute de Hautes Etudes Scientifiques, Bures-sur-Yvette; 1995&1996; Visiting Professor, Swiss Federal Polytechnic Institute, Zurich. 1992-93 Visiting Professor, University of California at Santa Barbara; 1989 Visiting Astronomer, Kapteyn Institute, University of Groningen, Holland; 1988 Visiting Scholar, Institute of Astronomy, Cambridge, UK; 1986-87: Visiting Professor, Canadian Institute for Theoretical Astrophysics, Toronto; 1986 Visiting Scholar, Center for Theoretical Physics, Univ. of Texas, Austin; 1985 Visiting Scientist, Center for Astrophysics, Harvard University; 1980 Visiting Research Astrophysicist, Princeton University Observatory; 1980 Visiting Professor, University of Wisconsin at Milwaukee; 1980 Visiting Scientist, Institute for Theoretical Physics, Santa Barbara.

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and University level committees, etc.):

Coordinator, Center for Microphysics and Cosmology (1991-92).

Outside the Hebrew University:

Member: srael Academy of Sciences Committee on Astrophysics 1989-1990; Council of the Basic Research Foundation (later renamed ISF), Israel; 1989-92; Rothschild Scholarships Committee, Israel 1990-92; Rothschild prizes committee 1993-97; Physics Wolf prize committee 1994-97; Israel Academy of Sciences Visiting Committee on Astronomy, 2002; Council of Israel Space Agency 2001- ; International Committee on General Relativity and Gravitation 1983-1992 and 1997-2007.

Honors and prizes:

Laureate, E. D. Bergmann prize (1977); election to International Astronomical Union (1979), Laureate, Landau Prize (Israel, 1981); Gravity Foundation first prize (US, 1981); Laureate, Rothschild prize (Israel 1988); Outstanding Alumnus, Polytechnic University of New York

(1996); elected to Israel Academy of Sciences (1997); elected to World Jewish Academy of Sciences (2003); series of three issues in the journal *Foundations of Physics* (Dec, 2002, Jan, Feb. 2003) in Bekenstein's honor; Laureate, Israel Prize (2005); Sackler Lecturer 2006, Bohr Institute, Copenhagen; Racah Memorial Lecturer, Hebrew University 2006.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students):

Gilad Gour, Ph. D. 2002 "Thermodynamics and Quantum Mechanics of Black Holes"

Asaf Oron, Ph. D. 2004 "New Conservation Laws in Magnetohydrodynamics "

Eva Sagi, present doctoral student 2006- , " Causality and Stability in TeVeS, the Relativistic Implementation of the Modified Newtonian Dynamics Paradigm.

Invited Lectures

1. 2004: “Modified Gravity vs Dark Matter”, at 28th Johns Hopkins workshop *Hyperspace, Superspace, Theory Space and Outer Space*, Johns Hopkins University, June 5-8.

2. 2004: “Entropy/Information Bounds and Gravitation", lecture at *School on Quantum Entanglement, Decoherence, Information, and Geometrical Phases in Complex Systems*, Center for Theoretical Physics, Trieste, November 1-12.
3. 2005: “The Limits of Information" at international symposium "Albert Einstein's Legacy - A One Hundred Years Perspective", Israel Academy of Sciences, April 11-13.

4. 2005: “A Relativistic Theory for MOND", at International Solvay Workshop *Dark Matters*, Free University of Brussels, May 18-20.

5. 2005: “Dark Matter or New Gravity”, plenary lecture at Israel Physical Society Meeting, Dec. 29.

Biham Ofer

Date of Birth: April 27, 1960

Department: Racah Institute of Physics, The Hebrew University

Homepage: www.phys.huji.ac.il/~biham

Academic Degrees (date and place received):

B.Sc Mathematics, Tel Aviv University (1979)
Ph.D Physics, The Weizmann Institute (1988)

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Postdoc, Ohio State University, 1989-1990
Assistant Professor, Syracuse University, 1990-1993

Appointments at the Hebrew University (rank and year granted):

1994-2001: Senior Lecturer
2001-present: Associate Professor

Other appointments: N/A

Main academic positions:

Within the Hebrew University:

Until June 2006: In charge of the computing and communications committee at the Racah Inst. A member of computing committee of the Faculty.

Starting in 2006: Member of the examination board that conducts the final oral exams of M.Sc students at the Racah Institute.

Served as the Chair of the scientific organizing committee of the Annual Meeting of the Israel Physical Society, which took place at the Hebrew University on Dec. 17, 2006.

Co-organizer of the Nonlinear Physics Seminar at the Racah Institute.

Currently serves as a member of the advising committees (nominated by the Authority for Research Students) of seven Ph.D students in physics, chemistry, computer science and mathematics (in addition to my Ph.D students).

Outside the Hebrew University:

Member of the Israel Physical Society and of the American Physical Society.

Completed two years of service on a proposal review committee of the Israel Science Foundation (within the past five years).

Currently serve as a member of the scientific board of the Center for Complexity Science, established by the Horowitz Association (headed by Prof. Eitan Galun from HU medical school). The center awards research grants and fellowships for research on complexity in a broad range of scientific disciplines.

I regularly serve as a referee for scientific journals, including Phys. Rev. Lett., Phys. Rev. A, B and E, European Physical Journal, Astrophysical Journal, Monthly Notices of the Royal Astronomical Society and Astronomy and Astrophysics. I usually review about 15-20 manuscripts a year.

I regularly review research proposals for the Israel Science Foundation, The US-Israel Binational Science Foundation, The German-Israel Fouccation and for the US NationalScience Foundation.

Honors and prizes: Appeared both in 2005 and 2006 on the list of the best teachers in the HU Science Faculty, according to the teaching evaluations filled out by the students.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

M. Sc. Students who graduated in the past five years:

1. Yishai Shimoni, Characterization of entanglement in pure quantum states (August 2003).
2. Yehiel Shilo, Sandpile models and random walkers on finite lattices (Nov. 2003).
3. Oren Klass, The emergence of power-law distributions in random multiplicative processes (Sept. 2004).
4. Hagai Perets, Molecular hydrogen formation on ice under interstellar conditions (Sept. 2004).
5. Baruch Barzel, Efficient simulations of interstellar gas-grain chemistry using moment equations (July 2005).
6. Adiel Loinger, Deterministic and stochastic analysis of simple genetic networks in single cells (August 2006).

Current M.Sc students:

1. Kobi Horn: Temperature fluctuations in interstellar dust grains.
2. Adina Lederhendler: Simulations of reaction networks on interstellar grains.
3. Guy Hetzroni: Analysis of feed-forward loops and other genetic-network modules.
4. Dan Mendels: Quantum information processing in optical systems.

Ph.D. Students who graduated in the past five years:

1. Ofer Malcai, graduated June 2003. Thesis topic: Generic mechanisms for the emergence of power-laws and fractal structures.
2. Daniel Shapira, graduated Feb. 2004. Thesis topic: Dynamical analysis of quantum computations.
3. Azi Lipshtat, graduated August 2005. Thesis topic: Gas-grain interactions in the interstellar medium.

Current Ph.D students

1. Yishai Shimoni: Quantum entanglement of multipartite systems.
2. Baruch Barzel: Stochastic simulations of reaction networks with fluctuations.
3. Adiel Loinger: Stochastic simulations of genetic networks in cells.

Davidov Dan

Date of Birth: 27/12/39

Department: Racah Institute of Physics

Homepage: davidov@vms.huji.ac.il

Academic Degrees (date and place received):

Professor, 1980, HU, Jerusalem.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Physics Department, UCLA, 1970-1973; Bell telephone laboratories,1973.

Appointments at the Hebrew University:

1973- Senior lecturer, 1976- Associate professor, 1980- Professor

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

MIT 1976, UCSB, 1982, MPI Stuttgart 1980, 1981, ENS, Paris, ESPCI Paris , 2003, University of Stuttgart, 2004, 2005.

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Professor

Outside the Hebrew University:

Honors and prizes:

Chair professor at the Hebrew University, Humboldt Awards-1996, Best teacher of the Faculty of Science-1983, Paris Science Award, 2003, the Key innovation Award, 2001.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Anan Copty**, PhD thesis: "The effect of localized low-power microwave irradiation on soft matter and biological media using a near-field microwave applicator"-March 2006.
2. **Roy Ziblat**, MSc thesis: "Surface Plasmon Resonance in Infra-red and in visible light: monitoring dynamic processes in Live cells"-January 2005.
3. **Noach Salman**, PhD thesis: "Development of Advanced design and fabrication of non-conventional optical components, in parallel with the development of a tool for nano-lithography"-August 2002.
4. **Musa Abu-Teir**, PhD thesis: "Development of Near-Field scanning microwave Microscopy for spatially-resolved studies of Conductors, Semiconductors, Superconductors and magnetic materials"- October 2003.
5. **Frieda Kopnov**, MSc thesis: "Optical and structural properties of colloidal photonic crystals: preparation and investigation"- November 2002.
6. **Yair Neve-Oz**, MSc thesis: "Tunable Metallodielectric Photonic Crystals for the MM-wave range"- June 2003.
7. **Fadi Sakran**, PhD thesis: "Study of Magnetization, Spin Waves, by the Microwave Near-Field Microscopy" and development of detector array for mm-wave of- September 2007.
8. **Yuval Saado**, MSc thesis: PhD thesis: "Negative refraction and focusing of microwaves using 2D dielectric rods photonic crystals super-lattices"- to be submitted September 2007.

9. **Vladislav Lirtsman**, PhD thesis: “Surface Plasmon Resonance in the Infrared: studies of organic films and life cells”- to be submitted October 2007.
10. **Yair Neve-Oz**, PhD thesis: “Negative refraction in photonic crystals and development of detector arrays for mm-wave camera”
11. **Itay Barak**, MSc student: “The effect of low-power microwave irradiation on the fluorescence oroperties of the fluorescent proteins GFP and RFP”.
12. **Oleg Popov**, PhD student: “Enhancement of Random Lasing by surface Plasmon Resonance of metallic Nano-perticles and the development of new lasers in the blue”.
13. **Alexander Zilbershtein**, MSc student: “Experimental and theoretical studies of random lasing enhancement by surface plasmons of Au and Ag nano-particles”
14. **Amichai Ron**, MSc student: “MM-wave and THz camera”.
15. **Victor Yashunsky**, MSc student: “Studies of dynamic effects in life cells using the FTIR - Surface Plasmon Resonance technique”
16. **Simcha Shimron**, MSc student (together with Dr Benny Aroeti): “Dynamic processes in life cells”.

Patents:

2 US patents in the last 5 years, 1 European Patent, pending.

Dekel Avishai

Date of Birth: 13.1.1951

Department: Physics

Homepage: www.phys.huji.ac.il/~dekel

Academic Degrees:

PhD 1980 HU, BSc 1975 HU

Appointments previous to the HU:

1980-82 Research Fellow, Caltech; 1982-85 Assistant Professor, Yale University; 1985-1986 Senior Researcher, Weizmann Institute of Science

Appointments at the HU:

1986-91 Associate Professor; 1991- Professor

Other appointments (recent only):

Summer 2005, 2006 KIPAC/SLAC Stanford; 2004-2005 Blaise Pascal International Chair of Research, Ecole Normale Superieur, Paris; 2004 Miller Visiting Professor, UC Berkeley; Summers 1985-06 Visiting Physicist, UC Santa Cruz; 1984, 00, 04: Kavli Institute for Theoretical Physics, UC Santa Barbara; Numerous other visiting positions during 1985-06

Main academic positions:

Within the Hebrew University:

2005- Head of The Authority for the Community and Youth; 2001-03 The Executive Committee of the Board of Governers; 1997-01 Head of the Racah Institute of Physics; 1987-89 Chair of the University Computer Committee.

Outside the Hebrew University:

2008- President elect of the Israel Physical Society; 2005-2007: Vise President of the Israel Physical Society; 1996-05: The Israel National Committee for High Performance Computing; 1993-96: Consultant for the BSF; 1992-94: Consultant for the ISF; 1987-88: The PGC National Advisory Committee on Supercomputing; 1985-00:& Founder and Organizer of the Monthly National Astrophysics Seminar

Honors and prizes:
2004: Blaise Pascal International Chair of Research, Ecole Normale Superieur, Paris; 2004: Miller Visiting Professorship, Miller Institute, UC Berkeley**.**
Andre Aisenstadt Chair of Theoretical Physics (2007-)
Elected President of the Israel Physical Society (2008-)

Postdocs (last 5 years):

C. Porciani (1999-2001)

A. Maller (1999-2001)

A. Eldar (2000-2005) cosmic flows;

I. Arad (2001-2003, 2005) phase-space density of gravitation systems;

A. Cattaneo (2004-2005) semi-analytic modeling of galaxy formation;

F. Stoehr (2005) dynamics of ellitical galaxies;

V. Desjacques (2005-2007) large-scale structure;

N. Libeskind (2006-2008) simulations of elliptical galaxy formation.

PhD Students (last 5 years):

1. **Y. Birnboim** (HU, 2001-2007) Shock heating in galaxy formation;
2. **E. Neistein** (HU, 2003-) Semi-analytic modeling of galaxy formation;
3. **E. Zinger** (HU, 2006-) Formation of disk galaxies;
4. **J. Woo** (HU, 2006-) Star formation histories of galaxies at high redshift.

M.Sc. Students (last 5 years):

1. **J. Devor** (HU, 2002, senior thesis) Formation of cusps in galactic dark halos;
2. **G. Hetzroni** (HU, 2004, Amirim senior thesis) Simulating cusps in galactic dark halos;
3. **E. Zinger** (HU, 2005) The angular momentum problem in galaxies;
4. **J. Woo** (HU, 2006) Formation of dwarf galaxies;
5. **P. Seleson** (HU, 2006) Filamentary structure in the Universe.

Eisenberg Hagai

Date of Birth: 8/10/1970

Department: Physics

Homepage:

Academic Degrees (date and place received):
B.Sc. Technion- Israel Institute of Technology, Physics (Suma cum Laude), 1994
M.Sc. Weizmann Institute of Science, Dep. of Physics of Complex Systems, 1997
Ph.D. Weizmann Institute of Science, Dep. of Physics of Complex Systems, 2003

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

2003-2005 Post-Doctoral Fellowship, University of California, Santa-Barbara

Appointments at the Hebrew University (rank and year granted):

2005 - Senior Lecturer, The Hebrew University, Jerusalem, Israel

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

1. Eshkol Fellowship, 1998, 1999, 2000
2. The 'Daniel Brener' Ph.D. Student prize of the Feinberg Graduate School, 2000
3. Vatat Fellowship, 2000, 2001
4. Rothschild Fellowship, 2002
5. The J.F. Kennedy Ph.D. prize of the Feinberg Graduate School, 2002
6. Alon Fellowship, 2005

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1.	M.Sc.	**Eli Megidish**	Entanglement source from quasi phase-matching
2.	M.Sc.	**Assaf Halevi**	Entangled photons from BiBo crystals
3.	M.Sc.	**Michael Bakstein**	Photon number distinguishing detector
4.	Ph.D.	**Liat Dovrat**	Generating high photon number path-entangled states

Elitzur Shmuel

Date of Birth: September 27 1944

Department: Physics

Homepage:

Academic Degrees (date and place received):

1968 BSc in Physics and Mathematics, Hebrew University
1971 MSc in Physics, Hebrew University
1977 PhD in Physics, Tel Aviv University

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1978-79 Post Doctoral Fellowship, Institute for advanced study Princeton

Appointments at the Hebrew University (rank and year granted):

1980-82 Lecturer
1982-85 Senior Lecturer
1986-90 Associated Professor
1990- Professor

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

IAS Princeton, visiting member, 1984, fall of 1999.
SISSA, Trieste, visiting member, spring 1999
Fermilab, visitor, summer 1984
CERN, visiting scientist: summer 1980, summer 1982, summer 1986, summer 1988, summer 1990, summer 1992, summer 1994, summer 1996, summer 1998, summer 2000, summer 2002, summer 2005.

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

Felner Israel

Date of Birth: 09.09.1941

Department: Racah Institute of Physics

Homepage: http://www.phys.huji.ac.il/~israela/

Academic Degrees:

1968 M.Sc. in Chemistry, The Hebrew University Jerusalem
1973 Ph.D. in Chemistry, The Hebrew University Jerusalem

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1978 Post doc. position in UCSD, San-Diego, California,

Appointments at the Hebrew University (rank and year granted):

1973. Investigator at the Racah Institute of Physics
1984. Senior Investigator at the Racah Institute of Physics
1989. Associate Professor
1995. Full Professor

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

1989-1990 (Summers) Visiting Scientist- Physics Department, Freie University, Berlin
1990 Visiting Scientist-Department of Physics, KTH, Stockholm, Sweden
1991 Visiting Scientist- UCSD, San-Diego, California
1992-1993 Visiting Scientist- kfk, Karlsruhe, Germany.
1993 Visiting professor ISMARA lab. Crismat, Caen, France.
2002-2003 Visiting professor, University of Houston, Houston, Texas and University of Toronto, Toronto, Canada
2006 Visiting professor, California State University Los-Angeles, California

Main academic positions:

Within the Hebrew University:

2003-2006, Chairman of the physics studies at the Racah Institute of Physics,

Outside the Hebrew University: N/A

Honors and prizes: N/A

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1) MSc student: **Muhamad Abu Juhar** :

"Superconductivity and Magnetism in $Eu_{1.5}Ce_{0,5}(Ta_{1-x}Ru_x)Sr_2Cu_2O_{10}$"

2) MSc student: **Omer Ashkenazy**:

"The Comparison Between Magnetic and Magneto+ Superconductors ruthenates"

3) MSc student: **Gregory Kopnov**
"Anisotropic magnetization of $RuSr_2Eu_{1.5}Ce_{0.5}Cu_2O_{10}$ (Ru-1222) thin films,

4) PhD. Student: **Eduard Glastyan**:

"Coexistence of Superconductivity and Magnetic order in the Rutheno-and Molybdeno-Cuprates"

Fineberg Jay

Date of Birth: 28/05/1956

Department: Physics

Homepage: www.fiz.huji.ac.il/~jay/

Academic Degrees (date and place received):

B.Sc. (mathematics, physics) *cum laude* Hebrew University, Jerusalem, 1981
M.Sc. (physics), Weizmann Institute of Science, Rehovot, Israel 1983
Ph.D. (physics), Weizmann Institute of Science 1988

Post-Doctoral Fellowships :

The Center for Nonlinear Dynamics, The University of Texas, Austin (1988-1992)

Appointments at the Hebrew University (rank and year granted):

Senior Lecturer, The Racah Institute of Physics (October 1992 -1997)
Associate Professor, The Racah Institute of Physics (October 1997-2001)
Full Professor, The Racah Institute of Physics (October 2001-)

Other appointments:

Visiting professor - The University of Maryland (1998-99)
Visiting professor – Kavli Institute for Theoretical Physics (KITP) (8/05-1/06)
Institute for Complex Adaptive Matter (ICAM) Scholar (1/06 – 2/06), UC Irvine

Main academic positions:

Within the Hebrew University:
Chair of the Physics Department (2004-2007)
Elected member of University Senate (2004-5, 2006-8)
Member of the central advisory committee to the Dean of Sciences (2000-2005)
Head of the Faculty of Sciences committee for prizes and scholarships (2000-2003)
Member of University Postdoctoral Fellowship Committee (2000-2003)

Outside the Hebrew University:

Chair: Fluid Mechanics Committee (Israel Science Foundation) 2003 – 2005
Member: Fluid Mechanics Committee (Israel Science Foundation) 1998, 2000, 2002

Honors and prizes:

IBM Fellowship 1990-91
Alon Fellowship 1992
Israeli Ministry of Science Prize for Innovative Research, 1997
ICAM Scholar, UC Irvine, 2006

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years
(including both those who have graduated over this period as well as current students)

MSc. Students

1. **Gadi Sarid** (The mechanical characteristics of DNA, 2001-2003)
2. **Meni Shay** (The onset of frictional motion, 2000-2002)
3. **Oded Ben-David** (Parametric Autoresonance of the Faraday Instability, 2003-2005)
4. **Tami Goldman** (Slow fracture dynamics, 2007-)

Ph.D Students

1. **Oleg Lioubashevski** (Dissipative Solitons on the Surface of a parametrically excited fluid, completed 2002)

2. **Hagai Arbell** (Superlattice formation in parametrically excited fluid layers, completed 2001)
3. **Eran Sharon** (Dynamic fracture in brittle materials, completed 2001)
4. **Amir Sagy** (The study of dynamic fracture in rock, completed 2005)
5. **Tamir Epstein** (Nonlinear wave interactions on a fluid surface excited by multiple frequencies, 2002-)
6. **Ariel Livne** (The study of brittle fracture in polyacrylamide gels, 2002-)
7. **Shmuel Rubinstein** (The study of the onset of frictional motion, 2004-)
8. **Oded Ben-David** (The study of frictional nucleation processes, 2005-)

Friedland Lazar

Date of Birth: 22 April, 1948

Department: Racah Institute of Physics, Hebrew University

Homepage: www.phys.huji.ac.il/~lazar

Academic Degrees (date and place received):

Diploma in Physics, 1971, Vilnius University (Lithuania).
Ph.D. (Suma Cum Laude), 1976, Hebrew University of Jerusalem.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Research Associate, Yale University, 1978-1980
Assistant Professor, Yale University, 1980-1982

Appointments at the Hebrew University (rank and year granted):

Senior Research Associate, Hebrew University of Jerusalem,	1981
Senior Lecturer, Hebrew University of Jerusalem,	1982 - 1983
Associate Professor, Hebrew University of Jerusalem,	1984 - 1989
Professor, Hebrew University of Jerusalem,	1990 – present

Other appointments

Staff Physicist, Lawrence Berkeley Laboratory (USA),	Aug. 1986 - Jul. 1987
Staff Physicist, Lawrence Berkeley Laboratory (USA),	Oct. 1992 - Jan. 1993
Visiting Scientist, Ecole Polytechnique (France),	Feb. 1993 - Sep. 1993
Visiting Researcher, UC Berkeley (USA)	Jan. 2003 - Sep. 2003
Visiting Professor, UC Berkeley (USA)	Mar 2007 - Aug. 2007

Main academic positions:

Within the Hebrew University:

Chairman of Prize and Fellowship Committee, Faculty of Science 1997-2000.
Vice-Dean (Research), Faculty of Science, 2000-2002.
University Promotions Committee, 2004-2006.

Honors and prizes:

Aharon Katzir Prize for outstanding Ph.D. thesis, 1976.
Bat Sheva De'Rotschild Fellowship, 1976-1977.
Igal Alon Fellowship, 1982-1985.
Fellow of the American Physical Society, elected 1994.
Michael Milken Prize for long-standing excellence in teaching, Hebrew University, 1998.
Rector Prize for excellence in research, Hebrew University, 2005.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students):

1. **Michael Khasin, MSc,** *Multi-phase excitation and control of a nonlinear lattice.*
2. **Yair Gofer, MSc,** *Multi-phase autoresonance excitations in discrete nonlinear Schrodinger systems.*
3. **Ido Barth, MSc,** *Autoresonant interactions in two-dimensional dynamical systems.*
4. **Pavel Khain, MSc,** *Chirped driven BGK modes in Vlasov plasmas.*
5. **Oded Yacoby, PhD,** *Resonant laser-plasma interactions.*

Friedman Eliahu

Date of Birth: 15.12.1938

Department: Racah Institute of Physics

Homepage: http://www.phys.huji.ac.il/~elifried/

Academic Degrees:

1960 M.Sc. physics and mathematics, The Hebrew University
1963 Ph.D. physics, The Hebrew University

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1964-1966 Rutherford Laboratory, UK

Appointments at the Hebrew University (rank and year granted):

Lecturer in physics, 1966
Senior Lecturer, 1968
Associate Professor, 1971
Professor, 1976

Visiting positions:

1970/71 Rutherford Lab., Science Research Council, UK
1976/77 Rutherford Lab., Science Research Council, UK
1982/83 TRIUMF, Vancouver, Canada
6-12/1990 TRIUMF, Vancouver, Canada
1994/5 TRIUMF, Vancouver, Canada

Main Academic Positions: (short list)

Within the Hebrew University:

1978-1980 Head, Racah Institute of Physics
1986-1989 Dean, Faculty of Science
1990-1994 Chair, University Scientific Infrastructure Committee
1997-2006 Head, Exact Sciences Teaching Program
2005- Chair, tenure-track appointments committee in science
2005- Head of Academic Review in Experimental Sciences

Outside Hebrew University: (short list)

current: Chair, International Steering Committee of the SARAF project.
current: member of the Board of the AEC-VATAT Research Foundation.

Honors and prizes:

The Kalman and Malke Cooper Chair in Nuclear Physics

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years: (including both those who have graduated over this period as well as current students)

1. **Gur Yaari** (M.Sc.) Elastic scattering of 21 MeV pions by nuclei**.**
2. **Michal Asher** (M. Sc.) Resonant detection of 9.2 MeV gamma rays.

Gal Avraham

Date of Birth: December 8, 1940

Department: Racah Institute of Physics, The Hebrew University of Jerusalem

Homepage: http://www.phys.huji.ac.il/avragal/

Academic Degrees:

M.Sc. – 1962, The Hebrew University of Jerusalem
Ph.D. – 1967, Weizmann Institute of Science

Post-Doctoral Fellowships and Appointments previous to your appointment at the Hebrew University:

1967-1969, Research Associate, Laboratory for Nuclear Science, M.I.T.

Appointments at the Hebrew University (rank and year granted):

Senior Lecturer 1969-1972
Associate Professor 1972-1976
Professor 1976-present

Other Appointments (partial list made of sabbatical visiting positions only):

1975/6 Visiting Professor, University of Virginia, Charlottesville, USA
1980/1 Visiting Senior Scientist, Brookhaven National Laboratory, USA (also in 1990, 2001)
1985/6 Visiting Senior Scientist, TRIUMF, Univ. BC, Vancouver, Canada (also in 1990)
1990 Royal Society Visiting Research Professor, Oxford University, UK
2006 Visiting Professor, TU Munich, Germany

Main Academic Positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

- Chairman, Racah Institute of Physics, HU, 1987-89
- Chairman, Authority for Research Students in the Experimental Sciences, HU, 1997-2001
- Chairman, Authority for Research Students, HU, 1999-2001
- Dean, Faculty of Science, HU, 2002-2005

Outside the Hebrew University:

- Member, National Council for High Education, 1997-2002

Miscellaneous - International Advisory Committees:

- Particle and Nuclear Physics International Conference (Uppsala 1999, Osaka 2002, Eilat 2008)
- Int'l Nuclear Physics Conference (Goteborg 2004, Tokyo 2007)
- Int'l Conference on Meson-Nucleon and the Structure of the Nucleon (Juelich 2007)
- Int'l Conference on Quark Nuclear Physics (Adelaide 2000, Madrid 2006)
- Int'l Conference on Hypernuclear and Strange Particle Physics (Warsaw 1979, Heidelberg 1982, Brookhaven 1985, Padova 1988, Shimoda 1991, Vancouver 1994, Brookhaven 1997, Torino 2000, Jlab 2003, Mainz 2006)
- 2nd Asia-Pacific Conference on Few-Body Problems in Physics (Shanghai 2002)
- XVIIIth European Conference on Few-Body Problems in Physics (Bled 2002)
- Int'l Conference on Mesons and Light Nuclei (Straz pod Ralskem 1995, Pruhonice 1998, Prague 2001)
- APCTP Workshop on Strangeness Nuclear Physics (Seoul 1999)
- Int'l Conferences on Quark Lepton Nuclear Physics (Osaka 1995, 1997, 1999)
- Int'l Symposium on Physics of Hadrons and Nuclei (Tokyo 1998)
- 2nd Int'l Conference on Meson-Nuclear Physics (Houston 1979)

Honors and Prizes:

Alexander von Humboldt Research Award 1992
Japan Society for Promotion of Science 2002, 2006

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

I had one postdoc during this period**.**

Gat Omri

Date of Birth: 24/04/1967

Department: Physics

Homepage:

Academic Degrees (date and place received):

B.Sc.: 1988, Dept of Physics, Technion---IIT. (Summa cum laude).
M.Sc.: 1992, Dept of Physics, Technion---IIT.
Ph.D.: 1998, Dept of Chemical Physics, Weizmann Institute.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

University of Geneva, Postdoc, 1998-2000
Technion, Postdoc, 2002-2003
Technion, Senior research associate, 2003-2005

Appointments at the Hebrew University (rank and year granted):

Senior lecturer, 2005

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years

1. Michael Katz, M.Sc. Ph.D, direct track (Co-advised with Prof. B. Fischer, EE, Technion), "Passive mode locking with dispersion and Kerr nonlinearity"
2. Oded Bassis, M.Sc. "Statistical physics of laser mode locking"
3. Amir Leshem, Ph. D, "Quantum nonlinear dynamics and quantum information"
4. Uri London, Ph.D, "Quantum normal forms and quantum control"

Giveon Amit

Date of Birth: 14.5.60

Department: Physics

Homepage:

Academic Degrees (date and place received):

Professor.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

LBL, Berkeley, CA, Postdoc, 89-91
IAS, Princeton, NJ, Postdoc, 91/92

Appointments at the Hebrew University (rank and year granted):

Senior Lecturer, 92; Associate Prof., 95; Full Prof., 2000

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

CERN, Geneva, Scientific Associate, 95/96

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

1. Appointments committee of the Physics Department
2. The Library Authority, Natural Sciences Faculty chair

Outside the Hebrew University:

Honors and prizes:

Organization of Workshops or Seminars within the Hebrew University (last 5 years only):

1. Scientific committee of the 20th Jerusalem winter school in theoretical physics on "String Theory from Confinement to Cosmology", Jerusalem, 31 December 2002 – 9 January 2003.
2. Scientific committee of the 23rd Jerusalem winter school in theoretical physics on "Symmetries and Dynamics", Jerusalem, 28 December 2005 – 6 January 2006.
3. Organizing committee of the workshop on "Einstein's Gravity in Higher Dimensions", Jerusalem, 17-23 February 2007.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Oskar Pelc**, PhD, Investigations in Superstring Theory and 4D Supersymmetric Gauge Theories
2. **David Tsabar**, MSc, Branes, Orientifolds and Chiral Four Dimensional Field Theory
3. **Ofer Feinerman**, MSc, String Theory on AdS(3)xS(3)xS(3)xS(1)
4. **Assaf Shomer**, PhD, String theory on Curved Backgrounds and the Target Space Theories
5. **Amit Sever**, PhD, Aspects of String Theory – Black Holes and AdS/CFT
6. **Vadim Asnin**, PhD Student
7. **Michael Smolkin**, PhD Student
8. **Merav Stern**, MSc Student

Hoffman Yehuda

Date of Birth: 09 November 1951

Department: The Racah Institute of Physics

Academic Degrees (date and place received):

[1972-1975] B.Sc. in Physics and Mathematics
The Hebrew University of Jerusalem, Jerusalem, Israel.
[1975-1978] M.Sc. in Physics. and Astrophysics, Supervisor, Professor G. Shaviv
Tel-Aviv University, Tel-Aviv, Israel.
[1978-1983] Ph.D. in Physics and Astrophysics .
Supervisors, Professors J. Shaham and G. Shaviv
Tel-Aviv University, Tel-Aviv, Israel.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

[1983-1986] Research Associate, Dept. of Physics, University of Pennsylvania (USA).

[1986-1988] Research Associate, Theoretical Astrophysics, Los Alamos Nat. (USA).

[1988-1990] Senior Research Associate, Dept. of Physics, The Technion (Israel)

Appointments at the Hebrew University (rank and year granted):

[1990-1993] Research Fellow
[1993-1997] Senior Lecturer
[1997-] Associate Professor

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

[2004] Leverhulme visiting Professorship, University of Oxford and University College London (UK)

[2005-2007] Mercator Gastprofessur, Astrophysikalisches Institut Potsdam (Germany)

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years:

Mira Sivan, M.Sc., 2006 "The coldness of the local Hubble flow"

Ofer Metuki, present M.Sc. Student, 2006-, "Populating luminous galaxies in dark matter halos"

Yaniv Dover, present Ph. D. Student, 2006-, "Constrained simulations of the Local Universe"

Postdoctoral Fellows:

[2002] Dr. Cristiano Porciani (gravitational instability, large scale structure)

[2004] Dr. Andreas Faltenbacher (dark matter halos, large scale structure)

[2005-2006] Dr. Emilio Romano-Diaz (constrained galaxy formation)

Invited Lectures:

1. 2004 - "Gaussian Fields and Constrained Simulations of the Large Scale Structure", Lectures series given at the summer school "Data Analysis in Cosmology", Valencia (Spain)

2. 2006 - "Constrained Simulation of the Local Universe: Simulating Nearby Voids", Academy Colloquium "Cosmic Voids", Royal Netherlands Academy of Arts and Sciences (Trippenhuis, Amsterdam)

Glaberson William I.

Date of Birth: 8.11.1944

Department: Physics

Homepage: www.phys.huji.ac.il/~glabersn

Academic Degrees (date and place received):

B.S., University of Chicago 1964
Ph.D., University of Chicago 1969

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Assistant Professor, Rutgers University	1968-1973
Associate Professor, Rutgers University	1973 - 1980
Director of Graduate Program in Physics, Rutgers University	1975-1978
Professor, Rutgers University	1980-1989
Visiting Scientist, AT &T Bell Laboratories Murray Hill, NJ	1980-1981
Director, Low Temperature Physics Program,National Science Foundation	1986-1987

Appointments at the Hebrew University (rank and year granted):

Professor, The Hebrew University	1989-

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Associate Chairman, Physics Department	1991-1996
Head, Physics Studies, The Hebrew University	1999- 2004
Head, Physics Studies, The Hebrew University	2006-

Outside the Hebrew University:

Honors and prizes:

Alfred P. Sloan Foundation, Research Fellow	1971

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

Kol Barak

Date of Birth: 4.8.1968

Department: Physics

Homepage: *http://www.phys.huji.ac.il/~barak_kol/*

Academic Degrees (date and place received):

BSc in Physics and Mathematics (combined program) 1989, Tel Aviv Univ.
PhD in Physics 1998, Stanford ["(p,q) Webs in String Theory", advisor: L. Susskind]

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1998-2000 post-doc, Tel-Aviv University
2000-2002 post-doc, Institute for Advanced Study, Princeton

Appointments at the Hebrew University (rank and year granted):

2002 Senior lecturer
2006 Associate Professor

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.): Workshop organizer, 18-22.2.07, "Einstein Gravity in Higher Dimensions" (International)

Outside the Hebrew University: N/A

Honors and prizes:

2003 The BSF Bergmann award
1998 Kirkpatrick teaching award (Stanford)
1986-1989 During undergraduate studies at Tel-Aviv Un.:
Member of the Special Program for Excellence.
On the dean's list for all 3 years.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Evgeny Sorkin**, PhD 2005, "Black holes and Extra dimensions"
2. **Dan Gorbonos,** PhD**,** expected 2007
3. **Vadim Asnin,** PhD, current
4. **Michael Smolkin,** PhD, current
5. **Michel Levi,** PhD, current

Leviatan Amiram

Date of Birth: July 25, 1955

Department: Racah Institute of Physics, The Hebrew University

Homepage: http://www.phys.huji.ac.il/~ami/

Academic Degrees:

(1980) B.Sc. Physics and Mathematics, Tel Aviv University
(1982) M.Sc. Physics, Weizmann Institute of Science
(1986) Ph.D. Physics, Weizmann Institute of Science

Post-Doctoral Fellowships and Appointments (prior to appointment at HU)

(1986-1988) Postdoctoral Fellow, Department of Physics, Yale University
(1988-1990) Postdoctoral Appointee, Theoretical Division, Los Alamos National Laboratory
(1990-1991) Associate Research Scientist, Center for Theoretical Physics, Yale University

Appointments at the Hebrew University:

(1991-1993) Research Associate
(1993-1998) Senior Lecturer
(1998-2005) Associate Professor
(2005-Present) Full Professor

Other Appointments:

(1990-Present) Consultant, Los Alamos National Laboratory, USA
(1999) Visiting Professor, Institute for Nuclear Theory, University of Washington, USA
(1991-Present) Yearly visits, Yale University, Los Alamos National Laboratory, USA

Main Academic Positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

(1997-Present) Member, committee for physics studies at the Racah Institute
(1999-2000) Head, committee for appointments in the parallel track in the exact sciences
(2003-2005) Member, committee for appointments in the parallel track in the exact sciences
(2000-2001) Head, committee for an appointment of a senior lecturer in the Rechavi group
(2004-2005) Plenum member, authority for research students in the exact sciences

Outside the Hebrew University:

Honors and Prizes:

1984, The Wolf Foundation Scholarship
1985, Michael Landau Research Prize
1986, Dr. Chaim Weizmann Postdoctoral Fellowship for Scientific Research
1986, John F. Kennedy Prize for distinction
1996, On the list of distinguished teachers at the Hebrew University

Miscellaneous

Membership: American Physical Society, European Physical Society, Israel Physical Society
Coordinator: Nuclear Physics Seminar (1992-1997), Theoretical Physics Seminar (1992-1993)
Organizing Committee: National Joint Nuclear Physics Seminar (2002-Present)

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

Livne Eli

Date of Birth: 16.06.1947

Department: Racah Institute of Physics

Homepage:

Academic Degrees (date and place received):

1972 - B.Sc. mathematics and statistics , The Hebrew University

1975 - M.Sc. applied math, The Hebrew University

1990 - Ph.D. physics, The Hebrew University

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1991-1993, University of Arizona, Tucson, AZ, USA

Appointments at the Hebrew University (rank and year granted):

Lecturer - 1993

Senior Lecturer - 1995

Associate Professor - 2002

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1999-2002 PhD student : **Yair Kurzweil**, Supervisors : B. Meerson and Eli Livne :

' Vorticity Generation and Turbulent Cooling of Hot Channels in Gases in Two and Three Dimensions', PhD thesis submitted Dec. 2002

Mandelzweig Victor

Date of Birth: October 28, l939.

Department: Physics Department

Homepage: http://www.phys.huji.ac.il/~victor/

Academic Degrees (date and place received):

l965 Ph.D. Degree, Institute of Theoretical and
Experimental Physics (ITEP), Moscow, USSR
l962 Master's Degree, Faculty of Physics,
Moscow State University, Moscow, USSR

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Institute of Theoretical and Experimental Physics (ITEP), Moscow, USSR:
l97l-l972 Senior Scientist
l965-l970 Scientist

Appointments at the Hebrew University (rank and year granted):

1989 - Professor
l98l - 1988 Associate Professor
l973 - l980 Senior Lecturer

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

2006-2007: Visiting Professor, University of Graz , Austria; Flinders University, Adelaide, Australia.

Summers 2002-2004: Summer Visiting Professor, University of Pittsburgh, Pittsburgh, USA

2000-2001: Visiting Professor, University of Pittsburgh, Pittsburgh, USA
1989-1990: Minerva Honorarium Professor, Max Planck Institut fuer Kernphysik, Heidelberg, Germany
Winter 1999\2000: Israeli-Slovenia Exchange Visitor, J. Stefan Institute, Ljubljana
Summers l984-1995: Summer Visiting Faculty, University of Maryland, College Park, MD, 20742
Summers l982,l983: Summer Visitor, Triumf (Canada), SIN (Switzerland), Max Planck Institut fuer Kernphysik Heidelberg, Germany
1982-1983: Consultant, Weizmann Institute of Science, Rehovot, Israel
l980-l98l: Visiting Associate Professor, University of Maryland, College Park, Maryland 20742
l976-l977 Minerva Exchange Visitor, University of Heidelberg, Germany

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

2002- 2006, member of the committee on examination of documents

Outside the Hebrew University:

Honors and prizes:

1987 Recipient, Alan Berman Research Publicaton Award

Meerson Baruch

Date of Birth: 4 Dec. 1951

Department: The Racah Institute of Physics

Homepage: http://www.phys.huji.ac.il/~meerson

Academic Degrees (date and place received):

M.Sc. 1975, Moscow Institute for Physics and Technology (PhysTech), Moscow (cum laude)
Ph.D. 1978, Institute of Physics of the Earth, Academy of Sciences of the USSR, Moscow

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:
1975-1987 Junior/Senior Researcher at the Institute of Applied Geophysics, Moscow, USSR.

Appointments at the Hebrew University (rank and year granted):

Full Professor: 1995-present, Associate Professor: 1991-1995, Research Associate Professor: 1988-1991.

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc.):

Visiting scientist at U. Minnesota 2007-2008
Visiting scientist at Michigan Center for Theoretical Physics, U. Michigan 2004-2005
Visiting fellowship of the DAAD, Germany 2001
Visiting scientist at Argonne National Lab. 2001
Visiting scientist at Los Alamos National Lab. 2000-2001
Visiting fellowship of the Center of Excellence, Ministry of Education, Japan 1998
Guastella Fellowship of the Israel Academy of Sciences 1991-1994
Visiting fellowship of the Royal Society of London 1991-1992
Visiting scientist at MIT 1991
Visiting scientist at U. Maryland at College Park, MD 1989
Numerous short term (up to 1 month) visits to universities and research institutions all over the world.

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Chairman of Physics Studies 1996-1999
"Kamea" (university level) committee

Outside the Hebrew University:

Scientific council (Beirat) of the Minerva Center for Nonlinear Physics of Complex Systems.

Committee Member of the Israel Science Foundation: three times in the last 10 years, including 2007.

Honors and prizes:

Numerous appearances on the Hebrew University List of Lecturers Ranked Excellent.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Yair Kurzweil**, Ph.D. thesis "Vorticity Generation and Turbulent Cooling of Hot Channels in Gases", 2002.
2. **Evgeniy Khain**, Ph.D. thesis "Symmetry-breaking instabilities in fluidized granular media", 2004.

3. **Michael Assaf**, M.Sc. thesis "Autoresonance in Faraday Waves", 2004.
4. **Efi Efrati**, M.Sc. thesis "Hydrodynamic singularities and clustering in a freely cooling inelastic gas", 2005.
5. **Michael Assaf**, Ph.D. studies "Spectral theory of large fluctuations in birth-death systems", 2005-2008.
6. **Itzhak (Alex) Fouxon**, a Lady Davies Postdoctoral Fellow, hosted in 2005-2007.

Millo Oded

Date of Birth: 30/3/55

Department: Racah Institute of Physics.

Homepage: http://cond-mat.phys.huji.ac.il/millo/

Academic Degrees (date and place received):

1981 B.Sc., Physics and Mathematics, The Hebrew University**.**
1982 M.Sc. studies, Physics, The Hebrew University.
1988 Ph.D., Physics, The Hebrew University.

Post-Doctoral Fellowships previous to your appointment at the Hebrew U.:

1989-1992 Post-Doctoral Fellow, Yale University.

Appointments at the Hebrew University (rank and year granted):

2004 Full professor
2001-2004 Associate Professor
1998-2001 Senior Lecturer (tenure)
1993-1998 Lecturer

Other appointments (Visiting Positions, etc…): N/A

Main academic positions:

Within the Hebrew University:

2006- Head of the Combined Physics-Chemistry Teaching Program.
2003-2004 Head of the Hebrew U. Center for Nanoscience and Nanotechnology.
2004 Head of the experimental Physics recruiting committee.
1998-2004 Authority of Graduate Students (Physics coordinator).

Outside the Hebrew University: N/A

Honors and prizes:
Landau Prize.
Weizmann Post-Doctoral Fellowship.
Alon Fellowship.
The Harry de Jur Chair of Applied Sciences

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **David Katz**. (Ph.D.) "Tunneling spectroscopy if single semiconductor nanocrystals"
2. **Amos Sharoni** (Ph.D.) "STS of anisotropic high temperature superconductors"
3. **Doron Azulay** (M.SC. and Ph.D) "Local-probing of electrical transport of composite systems" (with Prof. Isaac Balberg)
4. **Itay Asulin** (M.Sc.) "The proximity effect in gold-coated YBCO films: an STM study" ; (Ph.D.) "The proximity effect in superconductor-ferromagnet and superconductor-antiferromagnet bilayrs"
5. **Dov Steiner** (M.Sc.) "Tunneling spectroscopy of semiconductor nanorods" ; (Ph.D.) "STS of semiconductor arrays"
6. **Dana Toker** (M.Sc. and Ph.D.) "Transport and percolation in granular and nanocrystalline materials" (with Prof. Isaac Balberg)
7. **Ofer Yuli** (M.Sc. and Ph.D.) "STM studies of the pseudogap regime in LSCO"
8. **Liat Dovrat** (M.Sc.) "Tunneling and nonuniversality in continuum-percolation systems" (with Prof. Issac Balberg).
9. **Hadar Levi** (M.Sc.) "C-AFM studies of transport and phototransport in nanocrystalline silicon" (with Prof. Isaac Balberg).

Orgad Dror

Date of Birth: April 21st 1966

Department: Racah Institute of Physics, The Hebrew University of Jerusalem

Homepage: http://www.phys.huji.ac.il/~orgad/

Academic Degrees (date and place received):

1987- B.Sc. in physics and mathematics, The Hebrew University
1998- Ph.D. in physics, The Weizmann Institute

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1998-2001 The Schwinger postdoctoral fellow (adjunct professor) at the University of California Los Angeles.

Appointments at the Hebrew University (rank and year granted):

Senior Lecturer (2001)

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…): NA

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.): NA

Outside the Hebrew University: NA

Honors and prizes:

The Kennedy prize (awarded by the Weizmann Institute of Science)
The Knesset prize for graduate students
The Rothschild Fellowship, Yad Hanadiv Foundation.
The Schwinger Fellowship, University of California Los Angeles.
The Alon Fellowship, Council for Higher Education in Israel.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

M.Sc:

1. 2003-2004 **Shirit Baruch**: "Hubbard models of bond-aligned and diagonal stripes in weak coupling"
2. 2004-2005 **Uri London**: "Disorder effects in fluctuating one-dimensional interacting systems"
3. 2006- **Gideon Wachtel**: "Inhomogeneous phases in double-exchange magnets"

Ph.D.

1. 2005- **Shirit Baruch**: "Inhomogeneous superconducting phases"

Ovadyahu Zvi

Date of Birth: 13/03/1946

Department: Physics

Homepage: N.A.

Academic Degrees:

1978 Ph.D., Solid State Physics, Tel Aviv University
1974 MSc., Solid State Physics, Tel Aviv University
1971 B.Sc., Physics and Mathematics, The Hebrew University.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1970-1972 Physicist at the Radioisotope Center of Hadassah Hospital Tel-Aviv.
1974-1975 Teaching Assistant, Physics Department, Tel Aviv University.
1975-1977 Assistant, Physics Department, Tel Aviv University.
1977-1978 Instructor, Physics Department, Tel Aviv University.
1978-1980 Research Associate, Brookhaven National Laboratory, USA.
1980-1982 Associate Physicist, Brookhaven National Laboratory, USA.
1982-1986 Senior Lecturer, Ben-Gurion University (Tenured, 1986).

Appointments at the Hebrew University (rank and year granted):

1986-1989 Senior Lecturer, The Racah Institute, The Hebrew University.
1989-1992 Associate Professor, The Racah Institute, The Hebrew University.
1993 Professor, The Racah Institute, The Hebrew University.
2005 Visiting Professor, Physics, Utah University

Other appointments:

1989 Visiting Scientist, IBM Research Center, Yorktown Heights.
1998 Visiting Professor, Grenoble CNRS
2003 Visiting Professor, National High Magnetic Field, Florida
2005 Visiting Professor, Physics, Utah University

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.): N.A.

Outside the Hebrew University: N.A.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

Paul Michael

Date of Birth: 3 November 1945

Department: Racah Institute of Physics

Homepage: http://www.phys.huji.ac.il/~paul/

Academic Degrees (date and place received):

B.Sc., Hebrew University, Jerusalem, 1965; M.Sc., Hebrew University, Jerusalem, 1968
Ph.D., Hebrew University, Jerusalem, 1972

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Physics Division, Argonne National Laboratory, Argonne, Research Assoc.1977-79

Appointments at the Hebrew University (rank and year granted):

Lecturer, 1975; Senior Lecturer, 1979; Associate Professor, 1986; Full Professor, 1990

Other appointments (Visiting Positions, Membership in Research Centers):

1980-1992 : Research Associate (summer) at Physics Division, Argonne Nat Lab, Il., USA
1985: Visiting Scientist, Centre d'Etudes Nucleaires, Saclay, France
1992: Visiting Scientist, TRIUMF Laboratory, Vancouver, BC, Canada
1992: Visiting Scientist, Australian Nuclear Science and Technology Organization, Sydney, Australia and Australian National University, Canberra, Australia
1995: Visiting Professor, University of Vienna, Vienna, Austria
1993- 2007: Special-term staff appointment, Physics Division, Argonne National Laboratory, Argonne, Il, USA
2005: Visiting Professor, Universite Paris-Sud, Orsay, France

Main academic duties:

within the Hebrew University:

Vice-Dean for Studies, Faculty of Mathematics and Natural Sciences, 2006-present
Member Professional Committee, Physics, 2004-2006
Member (external) Professional Committee in Earth Sciences, 2003-2006

Outside the Hebrew University:

Member Evaluation Panel FP6-2004-Infrastructures-5, European Commission, Brussels
Chair of Scientific Program Advisory Committee of SARAF Accelerator, Soreq Nuclear Research Center, 2006-present
International Advisory Committees (AMS- Berkeley 2006, EMIS-Deauville 2007)

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Avishai Ofan**, M.Sc., 2004-06, Development of a detection method of the radionuclide ^{244}Pu by resonance ionization spectrometry
2. **Hisham Nassar**, Ph.D., 2002-present, Measurement of cross-sections of astrophysical nuclear reactions by accelerator mass spectrometry
3. **Gitai Feinberg**, Ph.D., 2006-present, A liquid-Li target for stellar neutron production
4. **Shlomi Halfon**, Ph.D.,2006-present, Neutron capture at the Saraf accelerator facility

Perel Reuven L

Date of Birth: April 9, 1951

Department: Physics

Homepage:

Academic Degrees (date and place received):

1974 B.Sc., The Hebrew University in Jerusalem, in Mathematics and Physics.

1976 M.Sc., The Hebrew University in Jerusalem, Racah Institute of Physics. Thesis: "Relativistic Computations of Energies and Transition Strengths in Spectra of Highly Ionized Atoms" supervised by Prof. M. Klapisch and Prof. J. Schwob.

1996 Ph.D., The Hebrew University in Jerusalem, Racah Institute of Physics. Thesis: "Adjustment of Differential Parameters by Integral Responses: Extension of Current Methods and their Application to Neutronics" supervised by Prof. J.J. Wagschal and Prof. Y. Yeivin.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1997, 1998 Senior research associate at the Forschungszentrum Karlsruhe.

Appointments at the Hebrew University (rank and year granted):

1998-2005 Senior research associate at the Racah Institute of Physics.

2005- Lecturer at the Racah Institute of Physics.

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

1999-present Member in the OECD/NEA JEFF (Joint European Fission Fusion File) working group

2000-present Member in ICSBEP (International Criticality Safety Benchmark Evaluation Project)

Piran Tsvi

Date of Birth: 6/5/1949

Department: Physics

Homepage: http://www.phys.huji.ac.il/~tsvi/

Academic Degrees (date and place received):

Bs.c. Physics, Cum Laude, Tel Aviv University, 1970.
Ms.c. Space Science, Magna Cum Laude, Tel Aviv University, 1972.
Ph.D. Physics, Hebrew University, 1976.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1979-1981: Member, The Institute for Advanced Studies, Princeton NJ.
1979-1979: Assistant Professor, University of Texas at Austin.
1977-1979: Postdoctoral Fellow, University of Texas at Austin.
1976-1977: Postdoctoral fellow, Oxford University.

Appointments at the Hebrew University (rank and year granted):

1986:- Professor, Hebrew University.
1983-1986: Associate Professor, Hebrew University.
1981-1983: Senior Lecturer, Hebrew University.

Other appointments

2004-2005: Moore Distinguhsied Scholar, Caltech
1998-1999: Visiting Professor (Physics) Columbia University.
1990-1993: Visiting Professor (Astronomy) Harvard University.
1981-1988: Long term Member, The Institute for Advanced Studies, Princeton NJ.

Main academic positions:

Within the Hebrew University:

2005:- Dean Business School
1999-2004: Head Promotion Committee Sciences

Outside the Hebrew University:

Director, Elbit Vision Systems, 2003-2005
Member Steering Committee, Israel Space Agency, 1999-2004

Honors and prizes:

1. Highly Cited (http://isihighlycited.com/) in Space Sciences Since 2005 (top 250 cited scientists world wide in Space Sciences)
2. Schwartzmann Chair, Hebrew University 2005:-

Names and thesis titles of all MSc and PhD students over the last 5 years

Phd Students:

1. **Ehud Nakar**: Theory of Gamma-Ray Bursts
2. **Evgeney Sorkin**: Higher Dimensional Black Holes
3. **Yonatan Oren**: Numerical Solutions of Higher Dimensional Black Holes
4. **Yasmin Friedman**: Voids in the Large Scale Galaxy Distributions.

MSc Students:

1. **Aya Lazar**: Temporal Structures in Models of Gamma Ray Bursts

Questembert-Balaban Nathalie

Date of Birth: 21/04/66

Department: Physics

Homepage: http://www.phys.huji.ac.il/bio_physics/nathalie/

Academic Degrees (date and place received):

1993-1999: Ph. D.: Sub-micron Center, Department of Physics, Weizmann Institute, Israel.
1991-1992: M. Sc.: Sub-micron Center, Department of Physics, Weizmann Institute, Israel,
1989-1991: B. Sc.: Mathematics and Physics, Hebrew University, Israel

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

2001-2003: Post-doctoral fellow, Center for Physics and Biology, Rockefeller University, USA
2000 – 2001: Post-doctoral fellow, Physics Dept. Princeton University, USA
1999-2000: Post doctorate fellow: Cell Biology Dept., Weizmann Insitute, Israel

Appointments at the Hebrew University (rank and year granted):

2003 - present: Senior Lecturer, Physics Department.

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

Dicke fellowship – Physics department, Princeton University.
2003-2006 Fellow of the Horowitz Center for Complexity Science

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Sivan Pearl** (MSc) "Single-cell heterogeneity in the host-phage interaction"
2. **Orit Gefen** (PhD) "Quantitative gene expression as a tool for single-cell characterization"
3. **Eitan Rotem** (PhD) " Experimental and theoretical analysis of a toxin-antitoxin module"

Rabinovici Eliezer

Date of Birth: May 27, 1946

Department: Racah Institute of Physics

Academic Degrees:

1969 B.Sc. in Mathematics and Physics, Hebrew University Jerusalem.(with distinction)
1971 M.Sc. in Physics, Hebrew University,Jerusalem (with special distinction)
1974 Ph.D. in High Energy Physics, Weizmann Institute of Science.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1974/5-1975/6 Research Associate at Fermilab, Batavia, U.S.A.
1976/7 Research Associate at Lawrence Berkeley Laboratory, U.S.A.

Appointments at the Hebrew University:

1977 Senior Lecturer, Racah Institute of Physics
Oct. 1981 Associate Professor
Oct. 1985 Professor of Physics
2005 Named Professor of Physics

Other appointments:

Cern
University of Chicago
University of Geneve
Imperial College London
KITP - University of California Santa Barbara,
Lawrence Berkeley Lab, Fermilab
University of Michigan Ann Arbor
University of Paris,
IAS Princeton (member)
SISSA Trieste
University of Tokyo
Rutgers University

Main academic positions:

Within the Hebrew University:

Chairman, Racah Institute of Physics
Member of University standing committee
Member and Chairman of Hebrew University promotion committees
Co-director Jerusalem Winter School in Theoretical Physics-string theory since 1995
Chairman of university committee on gender status in academic staff
Member of committee for development of the Physics Department
Director of Institute for Advanced Studies

Outside the Hebrew University:

Member HEP board of European Physics Society since 2002
Member of Israeli High Energy committee since 1982
Chairman of Israeli High Energy committee and Israeli scientific observer to Cern council since 2004
Co-director Cargese schools in string theory since 2001
Member of MESC (Middle East Scientific Collaboration) leadership

Outside the Hebrew University:

Chairman of Israeli Science Committee and Israeli representative to the SESAME (Synchrotron light for Experimental Science and Applications in the Middle East to be set up in Jordan) councils, since their inception
Member of Scientific Committee of the GGI Institute Florence, Italy since its inception in 2004
Crete (2001, 2003, 2005) Regional meeting on String Theory (India-Iran-Israel-Greece)

Honors and prizes:

University of Utrecht (Kramers Professor 1996),
University of California at Berkeley (Miller Professor 2002)
MPI Golm and MPI Munich (Humboldt Award-2005)

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

Sa'ar Amir

Date of Birth: 6-6-1956

Department: Racah Institute of Physics

Homepage:

Academic Degrees (date and place received):

1978-1981	Tel Aviv University	B.Sc.	Physics
1981-1984	Tel Aviv University	M.Sc.	Physics
1984-1988	Tel Aviv University	Ph.D.	Physics

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

California Institute of Technology (Caltech)

Appointments at the Hebrew University (rank and year granted):

1999-Present	Hebrew University	Associate Professor	Physics
1995-1999	Hebrew University	Senior Lecturer	Applied Physics
1991-1995	Hebrew University	Lecturer	Applied Physics

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Summer 2005 – Visiting Professor – The Institute for Microstructural Sciences, NRC (National Research Council) of Canada, Ottawa, Canada
Member of the management team – The Hebrew University Center for Nanoscience and Nanotechnology

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

1999-2003 Head of the Studies Committee - the School of Applied Science, the Hebrew University of Jerusalem
1994-1996 Head of the Teaching Committee, Applied Physics Department, The Hebrew University of Jerusalem
2000-Present Academic director – The unit for Nano-characterization
2001-Present Member of the management team – The Hebrew University Center for Nanoscience and Nanotechnology.

Outside the Hebrew University:

1995 Co-Chairman and member of the organizing committee - ITQW'95: The International Workshop on "Intersubband Transitions in Quantum Wells: Physics and Applications" Ginosar, Israel (October 23-26, 1995).
1997 Member of the organizing committee - ITQW97: The International Workshop on "Intersubband Transitions in Quantum Wells: Physics and Devices" Tainan, Taiwan R.O.C. (December 15-18, 1997).
1998 Member of the organizing committee - ICPS 1998: The 24th International Conference on the Physics of Semiconductors, Jerusalem, Israel, August 2-7, 1998.
1999 Member of the program committee - ITQW99: The 5th International Conference on "Intersubband Transitions in Quantum Wells, Bad Ischl, Austria, September 7-11, 1999.

2004-Present Member of the national steering committee, the Israeli Ministry of Science

Honors and prizes:

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Diego Krapf** - 1999-2003 – PhD - Optical intersubband transitions in Si based nanostructures
2. **Gilia Meshulam** - 1998-2003 – PhD - Non linear Optical properties of new organic molecules
3. **Miki Dovrat** – 2002–present – PhD - optical and electronic properties of silicon based nanocrystals
4. **Benayahu Urbach** - 2002-present – PhD - Optical and electrical properties of composite and heterostructures of porous silicon
5. **Noam Cohen** - 2000-present – PhD - Bias Controlled NIR/LWIR QWIP Based Structure for Night Vision and See Spot
6. **Nadav Gutman** - 2005-present – PhD - Development of periodic structures and photonic crystals from porous silicon for photonic and bio-photonic application
7. **Ariel Davidi** - 2001-2003 – MSc - Investigation of infrared transitions in porous silicon using photo-induced absorption
8. **Yuval Oppenheim** - 2001-2003 – MSc - Time resolved photoluminescence of silicon nanocrystals
9. **Shalom Weinberger** - 2002-2004 – MSc - Optical transitions in Si/Ge
10. **Yona Riechman** - 2002-2004 – MSc - Photo-induced absorption in silicon nanocrystals within silicon dioxide
11. **Karnit Mizrachi** - 2002-2004 – MSc - Periodic structures and photonic crystals in porous silicon
12. **Gilad Mizrachi** - 2002-2004 – MSC - Two-color photodetectors based on quantum well structures
13. **Yitzhak Angel** - 2003-2005 – MSc - Optical microcavity with narrow linewidth based on porous silicon

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

14. **Omri Radai** - 2003-2006 – MSc - Characterizations of defects in MOS capacitors by the EBIC technique
15. **Gitai Fienberg** - 2003-2006 – MSc - Optical transitions in silicon based nano-structures
16. **Shlomi Halfon** - 2003-2006 – MSc - Porous silicon for bio-photonic applications
17. **Yosi Cohen** - 2003-2006 – MSc - Laterally anodized porous-silicon for optoelectronic applications
18. **Neta Aard** - 2004-2007 – MSc - Optical properties of silicon nanowires
19. **Ron Gartdi** - 2004-2007 – MSc - Development and characterization of two-color HBT/QWIP photodetectors

Re'em Sari

Current Address: Theoretical Astrophysics 130-33, Caltech, Pasadena, CA 91125.

E-mail: sari@tapir.caltech.edu

Born Feb 19 1971 in Be'er-Sheva, Israel.

Married, four boys.

Education:

Ph.D. in Astrophysics, September 1998, Hebrew University, Jerusalem.
Adviser Prof. Tsvi Piran.Thesis on "Gamma-Ray Bursts", Summa cum laude.
M.Sc. in Physics, October 1994, Hebrew University, Jerusalem, Israel.
Advisers Prof. Dov Shvarts and Prof. Gideon Rechavi. Thesis on "Stability of Spherical Accelerating Shock Waves" cum laude
B.Sc. in Mathematics, July 1992, Ben-Gurion University of the Negev. With great distinction.
B.Sc. in Physics, March 1991, Ben-Gurion University of the Negev, Israel. With great distinction

Research and Work Experience

2007- Professor, The Racah Institute of Physics of the Hebrew University
2003 – Associate Professor of Astrophysics and
Planetary Science.Caltech
Faculty position, tenured in 2006 Pasadena, CA
1998 – 2003 Sherman Fairchild Senior Research Fellow Caltech
Faculty position in theoretical astrophysics Pasadena, CA
1995 – 1998 Teaching Assistant. Hebrew University.
Practice for undergraduate courses Jerusalem, Israel
1991 – 1995 Research Position Nuclear Research Center, Negev
Research position in the Physics Department Be'er-Sheva, Israel

Awards

2006 Warner Prize of the American Astronomical Society
2004 Packard fellowship
2004 Sloan research fellowship
2003 Graduate Student Council Mentoring Award.
2002 Michelson Prize Postdoctoral Lectureship.
1998 Fairchild Fellowship at Caltech.
1998 Hubble Fellowship (declined).
1998 Harvard Junior Fellowship at the Society of Fellows (declined).
1998 Katzir prize for graduate students.
1998 Israel Physical Society award for outstanding graduate students.
1997 Clore Scholars Program.
1996 Wolf Scholarship.
1993 Rector award from the Hebrew University.
1991 Rector award from Ben-Gurion University.
1989 Rector award from BGU and from the Israeli Parliament's educational committee.

Invited Talks 2001-2006

Oct 2006 "Binaries in the Kuiper Belt", to be given in 38th Annual DPS Meeting, Pasadena, CA.
Dec 2005 "Jets in GRBs- A technical review", given in Relativistic Jets: The Common Physics of AGN, Microquasars and GRBs, Ann Arbor, MI.

May 2005	“The Formation of the Solar System”, given in A Decade of Extrasolar Planets Around Normal Stars, STScI, Baltimore, MD.
Feb 2005	“The formation of the solar system”, given in Planet Formation and Detection, Aspen, CO.
Nov 2004	“Gamma Ray Bursts and Their Afterglow”, given in JGR14, Kyoto, Japan.
May 2004	“Dynamical issues with extrasolar planets”, given in "Astrophysics of Planetary Systems”, The Third Harvard-Smithsonian Conference on Theoretical Astrophysics, Cambridge, MA.
March 2004	“Timescales for Planet Formation”, given in ”Planet Formation” ITP workshop, Santa Barbara, CA.
Sep 2003	“Theory of late afterglow” given in Santa Fe, NM, USA.
Sep 2003	“Planetary Formation and Prediction for The Size Distribution in The Kuiper Belt” given in DPS meeting Monterey, CA, USA.
Aug 2003	“Polarization in GRBs” given in Santorini, Greece.
Oct 2002	“Multiwavelength GRB Afterglows: Observations and Interpretation”, given at 34th Committee on Space Research Scientific Assembly, Houston, TX, USA.
June 2002	“Exciting The Eccentricities of Extrasolar Planets”, given at Scientific Frontiers in Research on Extrasolar Planets, Washington DC, USA.
May 2002	“Overview of Afterglow Theory”, given at Gamma Ray Bursts: The Brightest Explosions in The Universe, Cambridge, MA, USA.
Oct 2001	“Theory of Gamma-Ray Bursts and their Afterglow”, given at Laboratory Astrophysics Using High Intensity Particle and Photon Beams, Stanford, CA, USA.
Oct 2001	“Theory of Prompt Emission in GRBs”, given at Gamma-Ray Bursts and Afterglow Astronomy 2001, Woods Hole, MA, USA.
June 2001	“The First Three Minutes”, given at 198th American Astronomical Society Meeting Pasadena, CA, USA.

Schiller Avraham

Date of Birth: 19/2/1963

Department: Racah Institute of Physics, The Hebrew University.

Homepage: http://cond-mat.phys.huji.ac.il/schiller

Academic Degrees (date and place received):

1. 1987, Hebrew University, B.Sc. in Physics, Mathematics, Computer Science.
2. 1989, Hebrew University, M.Sc. in Physics.
3. 1993, Hebrew University, Ph.D. in Physics.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1. 1993–1996: Postdoctoral research associate, University of Florida.
2. 1996–1998: Postdoctoral research associate, The Ohio State University.

Appointments at the Hebrew University (rank and year granted):

1. 1998–2004: Senior Lecturer, Racah Institute of Physics.
2. 2004–Now: Associate Professor, Racah Institute of Physics.

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

1. July–August 2001: Visiting Professor, University of California, Davis.
2. August 2004–June 2005: Visiting professor, Rutgers University.
3. July–August 2005: Visiting professor, Stanford University.

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

1. 2000–2003: Member of the teaching committee (Vaadat Horaa) of the Faculty of Mathematics and Natural Sciences.
2. 2005–Present: Member of the authority for graduate (Ph.D.) students – experimental sciences.

Outside the Hebrew University:

1. December 17 2001: Organizer of the "Strongly Correlated Electron Systems" session of the 2001 Israeli Physical Society meeting.
2. December 30 2001–January 8 2002: Director of the 19th JerusalemWinter School in Theoretical Physics on "High Temperature Superconductivity & Correlated Electron Systems."
3. March 31 2003–April 17 2003: Organizer of the workshop "Modern Aspects of Quantum Impurity Systems," held at the Max-Planck-Institute fuer Physik komplexer Systeme, Dresden (Co-organizers: Ralf Bulla of Augsburg University and David E. Logan of Oxford University).
4. December 17 2006: Member of the local organizing committee of the 2006 Israeli Physical Society meeting. Organizer of the "Solid-state physics II" session.
5. August 13 2007–August 24 2007: Organizer of the forthcoming workshop "New Frontiers in Quantum Impurity Physics: From Nano-Structures to Molecular Devices," to held at the Max-Planck-Institute fuer Physik komplexer Systeme, Dresden (Co-organizers: Ralf Bulla of Augsburg University and David E. Logan of Oxford University).

Honors and prizes:

1. 2001: Rector's prize for excellence in research, teaching and academic activity.
2. 2002–2004: Siegfried Samuel Wolf Lecturer Chair of Physics.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Amnon Buxboim**, M.Sc. student, Graduated December 2001. Thesis title: "Current Characteristics of the Single-Electron Transistor at the Degeneracy Point."
2. **Eran Lebanon**, Ph.D. student, Graduated October 2003. Thesis title: "Charging of Quantum Boxes and Two-Channel Kondo Physics."
3. **Dotan Goberman**, Ph.D. student as of 2003. Thesis title (tentative); "Correlation Effects in Confined Nanostructures far from Thermal Equilibrium."
4. **Eitan Eidelstein**, Ph.D. student as of 2004. Thesis title (tentative): "Theoretical Investigation of Strong Electronuc Correlations in Low-Dimensional Systems."

Sharon Eran

Date of Birth: 16.7.65

Department: The Racah Institute of Physics

Homepage: -

Academic Degrees:

B.Sc. (physics) *cum laude* Hebrew University, Jerusalem, 1991
M.Sc. (physics), *summa cum laude* Hebrew University, Jerusalem, Israel 1995,
Advisor: Prof. Jay Fineberg.
PhD. (physics), *summa cum laude* Hebrew University, Jerusalem, Israel 2000,

Post-Doctoral Fellowships:

The Center for Nonlinear Dynamics in the University of Texas at Austin 2000-2003, Host: Prof. Harry L. Swinney.

Appointments at the Hebrew University:

A senior lecturer at the Racah Institute of Physics, (since Oct. 2003).

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…):

Main academic positions: none

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

2000 The Fulbright scholarship for postdoctoral research.
2001 The Kennedy-Leigh prize for PhD work.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Yuval Goshen - PhD –** The Dynamics of Coherent Structures in Rotating Turbulent Flow
2. **Efi Efrati – PhD –** The Limitations on Embeddings of Non-Euclidean Metrics, as a Shape Selection Mechanism in Elastic Sheets.
3. **Yael Klein – PhD - (completed MSc) –** Shaping of Thin Sheets by Prescription of Non-Euclidean Metrics.
4. **Hillel Aharoni – MsC -** The Dynamics of Crumpling
5. **Shahf Shilon – MsC –** The Role of Mechanical Instabilities During Leaf Development.

Shaviv Nir J.

Date of Birth: 6/7/1972

Department: Racah Institute of Physics

Homepage: http://www.phys.huji.ac.il/~shaviv

Academic Degrees (date and place received):

1996 D.Sc. in Physics, Israel Institute of Technology
1994 M.Sc. in Physics, Israel Institute of Technology
1990 B.A. in Physics, Israel Institute of Technology

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

1999-2001 Post-Doctoral Fellow, Canadian Inst. for Theoretical Astrophysics, U. of Toronto

1996-1999 Lee Dubridge Prize Fellow, California Institute of Technology

Appointments at the Hebrew University (rank and year granted):

2006 Associate Professor, Racah Institute of Physics
2001 Senior Lecturer, Racah Institute of Physics

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…): N/A

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.): N/A

Outside the Hebrew University:

Honors and prizes:

1990 B.A, Technion, Summa Cum Laude (and first in Class)
1995 Excelling teaching assistant (awarded by the Technion)
1996 Persistent excelling teaching assistant
1996 The Wolf Award for excellence in PhD studies (nationally in Israel)
1996 Lee A. DuBridge Prize fellowship (Caltech)
2000 The Beatrice Tremaine Award (CITA)

Honors and prizes:

2004 The Siegfried Samuel Wolf Lectureship in nuclear physics (HU)

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students):

2002-2004 Smadar Naoz: Milky Way's Spiral Arm dynamics (M.Sc.)
2003-2005 Calanit Dotan: Super Eddington behavior of Super-Massive (M.Sc.)
2003-2006 Daphna Peimer: The radio signal polarization behavior (M.Sc.)
2004-2006 Amir Leshem: Reconstructing the Milky Ways star formation history using the Hipparcos star catalogue (M.Sc.)
2004-2006 Amir Mihaelis: Development of a fast radiative transfer (M.Sc.)
2006- Ofer Springer: On the propagation and trapping of acoustic waves in Roche lobe filling stars (M.Sc.)
2005- Calanit Dotan: Super Eddington behavior of High Accretion Systems (PhD)
2006- Amir Mihaelis: The Development of a Radiative-Hydrodynamic Code and its application to very luminous systems (PhD)

Solomon Sorin

Date of Birth: 17 Dec 1953

Department: Racah Institute of Physics

Homepage: http://shum.huji.ac.il/~sorin

Academic Degrees: PhD 1984 Weizmann Institute of Science

Post-Doctoral Fellowships and previous appointments:

1982-1985 Caltech,
1985-1989 Weizmann Institute (Career Development Chair)

Appointments at the Hebrew University:

Assoc Professor 1989;
Full Professor 1996

Other appointments: Too many "visiting professorships" to list all:

SISSA Trieste, ISI Torino, ITP Santa Barbara, CERN, IAS, Sorbonne etc etc

Main academic positions:

Within the Hebrew University:

Outside the Hebrew University:

Chair of the EU Commission's Expert Committee on Complexity Science
Scientific Head of the Lagrange Interdisciplinary Laboratory for Excellence in Complexity
Scientific Director, Division of Complex Multi-Agent Systems; ISI
Scientific Coordinator of GIACS (General Integration of the Applications of Complexity in Science) http://www.giacs.org/

Honors /prizes:

Keren Kayemet prize Fellowships: Weizmann, JF Kennedy, Bantrell, Levinson

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Eran Shir** - (with Yuval Shavitt, Engineering TA) Distributed Internet Measurement and Simulation
2. **Limor Issaharoff** - Phase Transitions and Criticality in Solomon Networks
3. **Lev Muchnik** - Simulating emergence and complex collective dy-namics in the stock markets http://www.complexity-research.org/natlab.
4. **Oren Klass - (with Ofer Biham, HUJ)** Emergence of power-law distributions in random multiplicative processes
5. **Ifat Levy - (with Rafi Malach, Brain Imaging WIS)** Mapping of Shape-Related areas in the Human Visual Cortex using fMRI
6. **Yehuda Stolov - (with Moshe Idel , Jewish Thought, HUJ)** Development Templates in Rabbi Nachman of Bratslav's Stories – A Complex Dynamics Approach
7. **Uri Hershberg - (with Irun Cohen, Immunology, WIS)** The emergence of meaning in Biological Systems
8. **Avishalom Shalit - (Neural Computation, HUJ)** Emergent collective dynamics in Activation Networks
9. **Guy Kelman - (with Scott Kirkpatrick, CS , HUJ)** Emergence of collective Dynamics and meaning in conceptual Networks

10. **Gur Yaari - (with Nadav Shnerb, Physics, BIU)** Emergence of Localization and Scaling in discrete autocatalytic systems
11. **Gilles Daniel - (with David Bree, CS, Manchester U)** Asynchronous Simulations of a Limit Order Book http://gillesdaniel.free.fr/phd/

Miscellaneous

Chair of the European Conference of Complexity Science, 2004, 2008.

Media Coverage

BBC, New York Times, Herald Tribune, Boston Globe, Der Standard, New Scientist, Neue Zurische Zeitung, Le Figaro, Business2.0, The Guardian, Nature, Science, Ha'Aretz, Europhysics News, Globe and Mail (Canada), Reuters, Daily Telegraph, YNet, Slashdot etc etc

Sompolinsky Haim

Date of Birth: 14.10. 1949

Department: Racah Institute of Physics

Homepage: http://neurophysics.huji.ac.il

Academic Degrees (date and place received):

1980- Bar-Ilan University, Physics, Ph.D.
1973-Bar-Ilan University, Physics, M.Sc.
1972-Bar-Ilan University, Physics & Mathematics, *B.Sc*

Previous appointments:

1986 - 1982 Bar-Ilan University, Associate Professor
1982 - 1980 Harvard University, Post-doctoral Research

Appointments at the Hebrew University:

1986 - Professor of Physics

Other appointments

2003 Harvard University, Visiting Professor
2002 New York University, Visiting Professor
1998 - 1983 Bell Laboratories, Visiting Researcher

Main academic positions:

Within the Hebrew University

Founding member of the Interdisciplinary Center of Neural Computation
Member of the appointments committee of the Racah Institute of Physics

Outside the Hebrew University:

Harvard University – Visiting Professor**.**

Honors and prizes:

Hebrew University Presidential Award for Outstanding Researcher, 2005
Rothschild Fellowship 1980
Chaim Weizmann Post-doctoral Fellowship 1980 - 1979
Sir Isaac Wolfson Prize 1977

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

1. **Joshua Goldberg** - Dynamical States of the Cortico-Basal Ganglia Circuits
2. **Maoz Shamir** - Population Coding in Neuronal Networks
3. **Uri Rokni** - The Brain as an Generative Dynamical System
4. **Yontan Lowenstein** - The Olivo-Cerebellar System: Dynamical Processes and Computational Principles
5. **Avigail Ben Or** - Network Models of Short-Term Memory
6. **Moshe Safran** - Adaptation in Sensory Systems: Mechanisms and Functions
7. **Ran Rubin** - Supervised Learning in Spike-Based Systems
8. **Sam Zibman** - Multi-Stability in Single Neurons: Theory and Experiment

Vaknin Ady

Date of Birth: Israel, 1968.

Department: Racah Institute of Physics

Homepage:

Academic Degrees (date and place received):

B.Sc. − The Hebrew University, Physics, 1993.
M.Sc.− The Hebrew University, Physics, 1995. Thesis title: "Contribution of electron-electron interaction to the magneto-resistance in Anderson insulators".
Advisor: Prof. Zvi Ovadyahu.
Ph.D.− The Hebrew University, Physics, 2001, − concluded with special distinction. Thesis title: "Non-equilibrium transport in Anderson insulators".
Advisor: Prof. Zvi Ovadyahu.

Professional employment

1. 1994 – 1996 *Department of engineering*, Intel Corporation, Jerusalem
2. Israel. 1996 – 2000 *Teaching assistant*, Hebrew University, Jerusalem
3. Israel. 2001 − 2002 *Post-doctoral fellow*, Hadassah medical school Jerusalem, Israel. With Professor Baruch Minke. 2002
4. 2003-2007 *Post-doctoral fellow,* Harvard University, Cambridge, USA. With Professor Howard C. Berg.
5. 2007 – Senior Lecturer *The Racah Institute of Physics*, The Hebrew University of Jerusalem

Academic honours

1. Shimon Ofer award, Racah institute of physics (1994).
2. Post-doctoral Scholarship, Hebrew University (2000).

Invited talks

1. 1999 - "Non-equilibrium transport in Anderson insulators - The role of interactions". VII International Conference on Hopping and related phenomenon,
2. Murcia, Spain. 2000 - "Aging in Anderson Insulators". International Conference on Mesoscopic and strongly
3. Correlated electron systems. Chernogolovka, Russia. 2000 - "Aging in Anderson Insulators".
4. Japanese-Israeli meeting, Tokyo, Japan. 2002 - "Aging effects in conductivity – electron glass?"
5. American Physical Society, March meeting, Texas, USA. 2004 - "Special and spatial effect in chemotaxis".
6. Aspen center for physics, Colorado, USA. 2006 - "Mechanics of chemoreceptors signaling".
7. Gordon conference in sensory transduction in microorganisms, Ventura, California, USA.

Zigler Arie

Date of Birth: 20 June 1946

Department: Racah Inst. of Physics, Hebrew University, Jerusalem, Israel

Homepage: http://www.phys.huji.ac.il/~zigler/

Academic Degrees (date and place received):

1968 - 1971: B. Sc. - Hebrew University , Jerusalem , Israel.
1972 - 1974: M. Sc. - Hebrew University, Jerusalem , Israel.
1975 - 1978: Ph.D. - Hebrew University, Jerusalem , Israel.

Post-Doctoral Fellowships and appointments previous to your appointment at the Hebrew University:

Senior Researcher Soreq NRC Israel 1982- 1985
Visiting Scientist, Plasma Fusion Center, M.I.T., Cambridge MA, USA 1982
Head of Experimental Plasma Branch, Soreq NRC Israel 1982- 1985
Visiting Scientist, Lawrence Livermore National Laboratory, USA. 1986
Visiting Scientist, Dept. of Physics, University of California, Berkeley, USA. 1987
Head of Plasma Physics Department, Soreq Nuclear Research Center 1988-1991
Senior Researcher, FM/Naval Research Laboratory, Washington DC, USA. 91-92

Appointments at the Hebrew University (rank and year granted):

Assoc. Prof. 1992
Prof. 1996

Other appointments (Visiting Positions, Membership in Research Centers, fellowships etc…): See above

Main academic positions:

Within the Hebrew University (Head of academic units, faculty and university level committees, etc.):

Outside the Hebrew University:

Honors and prizes:

Fellow of American Physical Society.

Names and thesis titles of all MSc and PhD students that you have had over the last 5 years (including both those who have graduated over this period as well as current students)

Ph. D Students:

1. **Dan Hashimshony** - Conversion of electrostatic energy to terahertz radiation by super-luminous ionization front. (graduated)
2. **D.Kaganovich** – Guiding of Ultra high laser intensities by capillary discharge (graduated)
3. **M.Inon** – Elimination of thermal distortions in lasers (graduated)
4. **G. Marcus**- AUTORESONANCE AS A METHOD FOR MOLECULAR EXCITATION (graduated)
5. **M.Levin** - Laser electron acceleration
6. **E. Louzon** - Radiation heat wave propagation
7. **S.Eisenmann** - Laser channeling in air
8. **T.Palhan** - Laser interaction with the clusters
9. **Y.Katzir** - Fast ignition

M.Sc students

1. **I.Geltner** (graduated)
2. **S.Pecker** (graduated)
3. **Aelet- Chen** (graduated)
4. **E. Louzon** (graduated)
5. **S.Eisenmann** (graduated)
6. **T.Palhan** (graduated)
7. **Y.Katzir** (graduated)
8. **O.Gonen** (graduated)
9. **David Shwa**

Appendix 2 –Ph D Students and their Thesis Titles 2001-2006

Surname	First name	Acceptance date	Submission date	Advisor	Thesis title
Doron	Rami	05/03/1996	24/07/2000	Schwob	The study of spectra stemming from autoionization levels in highly ionized heavy elements
Sharon	Eran	30/07/1995	17/08/2000	Fineberg	The micro-branching instability in dynamic fracture
Levy	Yair	11/02/1996	17/08/2000	Millo	An STM study of inhomogeneous superconductors
Yakimov	Aharon	15/05/1996	21/08/2000	Davidov	The electro-optical characteristics of thin polymer films
Pazy	Ehoud	25/06/1996	05/09/2000	Leichtman	Electronic tunneling in the presence of phonons
Eldar	Amiram	14/11/1994	25/09/2000	Dekel	Methods of analysis of cosmological velocity fields
Arbel	Hagai	11/09/1994	26/09/2000	Fineberg	The study of the Faraday system when driven by multiple frequencies
Hod	Shahar	25/02/1996	11/10/2000	Piran	Black holes: Classical and quantum properties
Ganon-Bistoles	Galit	07/12/1992	14/12/2000	Dekel	Density fields and the cosomological velocity in the weakly nonlinear regime
Menashe	David	05/03/1995	21/12/2000	Leichtman	Interactions between electrons in low dimensional electronic systems
Bosak	Elyakim	22/02/1993	25/12/2000	Kaplan	The prevention of the influence of motion in tomography
Furman	Itay	13/03/1996	25/01/2001	Biham	Diffusion reactions and growth on surfaces
Roshoto	Miriam		25/02/2001	Balberg	Luminescence in solid-state quantum structures
Niedis	Roman	13/11/1995	18/07/2001	Balberg	Spectroscopy of noncrystalline materials using photoconduction
Granot	Yonatan	02/11/1998	06/08/2001	Piran	The glow resulting from gamma ray bursts
Hashimshony	Dan	18/01/1995	06/09/2001	Zigler	The conversion of electrostatic energy to radiation in the terra-hertz regime by means of an ionization front moving at the speed of light
Sarkissian	Gor	15/05/1996	30/09/2001	Elitzur Rabinovici	The properties of world manifolds and space-time in string theories with D-Branes
Ayal	Shai	19/01/1997	30/09/2001	Piran	Numerical post-Neutonian hydrodynamics in astrophysics
Mayo	Avraham	21/10/1996	25/10/2001	Bekenstein	Adiabatic invariance in the physics of black holes
Peleg	Avner	19/08/1997	25/10/2001	Meerson	Phase ordering in disordered systems with global conservation laws dominated by bounding surfaces

Shimoni-Ayal	Nira	28/10/1996	01/05/2002	Millo	The influence of electrical current on the properties of nanometric complex systems
Vaknin	Ady	13/02/1996	20/06/2002	Ovadyahu	Conduction properties of non-equilibrium Anderson insulators The thermodynamics and quantum mechanics of black holes
Gour	Gilad	10/08/1998	02/07/2002	Bekenstein	The thermodynamics and quantum mechanics of black holes
Tashma	Tamar	13/01/1997	26/07/2002	Kaplan	A map of the dynamic properties of electronic spins in 1D organic conductors
Sowwan	Mukhles	11/08/1997	04/10/2002	Yaacobi	The study of the structure solid-solid of transition layers by means of a new method of X-ray diffraction
Kurzweil	Yair	27/10/1998	23/12/2002	Meerson	The formation of vortices and turbulent cooling of hot gas channels in 2 and 3 dimensions
Moshe	Inon	29/10/1998	04/02/2003	Zigler	The study of opto-thermal distortions in laser rods and compensation methods
Malcai	Ofer	27/02/1995	15/06/2003	Biham	Generic mechanisms for the formation of power laws and fractal structures
Lebanon	Eran	13/10/1999	02/10/2003	Schiller	Kondo physics in mesoscopic systems in both in and out of equilibrium
Abu-Teir	Musa	21/06/1998	21/10/2003	Davidov	The use of near-field microwave microscopy with micron and sub-micron resolution for the characterization of thin films of conductors, super-conductors and dialectric materials
Oron	Asaf	07/07/1997	12/11/2003	Bekenstein	New conservation laws in magneto-hydrodynamics
Shapira	Daniel	24/03/1998	22/02/2004	Biham	Dynamic analysis of quantum computation
Feintuch	Akiva	18/10/1999	18/04/2004	Kaplan	ESR imaging of the motion of charge carriers in a 1D organic conductor
Nakar	Ehud	20/02/2001	06/07/2004	Piran	The spatial and temporal structure of gamma ray bursts
Shomer	Assaf	17/10/1999	13/07/2004	Elitzur Giveon	String theory on a curved background and consistent theories on the target space
Katz	David	14/10/1999	15/07/2004	Millo	Tunneling spectroscopy of single semiconductor nanocrystals

Dmitri	Kaganovich	21/10/1996	30/01/2002	Zigler	Optical properties of plasma channels
De Leon	Smadar	08/09/1997	17/03/2002	Leichtman	Optical and conduction properties of excitons in quantum wells
Friedman	Yasmin	03/11/1997	25/07/2004	Piran	Voids in galaxy distributions and the analysis of perturbations in the far IR background radiation: two cosmological studies
Sharoni	Amos	20/10/2000	25/07/2004	Millo	Local tunneling spectroscopy of high TC superconductors
Khain	Evgeniy	07/11/2000	09/08/2004	Meerson	Instability and symmetry breaking in an excited granular system
Bettelheim	Eldad	29/10/2000	06/09/2004	Agam	Analysis of Laplacian growth models by means of field theory
Rokni	Uri	27/10/1998	17/10/2004	Sompolinsky	the brain as a generative dynamical system
Shamir	Maoz	01/03/1999	05/12/2004	Sompolinsky	Population coding in neural networks
Galstyan	Eduard	08/07/1999	29/05/2005	Felner	Coexistence of Superconductivity and Magnetic Order in the Rutheno- and Molybdeno-cuprates
Sorkin	Evgeny	30/11/2000	27/06/2005	Kol/Piran	Higher-Dimensional Black Holes
Lipshtat	Azi	01/01/2001	07/07/2005	Biham	Gas-Grain Interactions in the Interstellar Medium
Pakman	Ari	10/12/2000	11/09/2005	Elitzur	Aspects of String Theory in Curved Backgrounds
Lioubashevski	Oleg	20/12/1994	11/10/2005	Fineberg	Pattern Formation and Dissipative Solitary States in Driven Surface Waves
Marcus	Gilad	11/01/1998	28/11/2005	Zigler	Molecular Excitation in the Ladder-Climbing and Autoresonance Regimes
Sever	Amit	05/11/2000	28/11/2005	Giveon Rabinovici	Aspects of String Theory - Black Holes and AdS/CFT
Waldman	Roni	09/10/1997	26/12/2005	Barkat	The Evolution of Low Mass Helium Stars towards Supernova Type I Explosion
Anan	Copty	08/04/2002	19/03/2006	Davidov	The Effect of Localized Low-Power Microwave Irradiation on Soft Matter and Biological Media Using a Near-Field Microwave Applicator
Azulay	Doron	22/11/2001	22/06/2006	Millo Balberg	Local Probing of Electrical Transport in Disordered and Composite Systems
Orlyanchik	Valdimir	22/10/2001	05/09/2006	Ovadyahu	Non-Equilibrium Transport Effects in Anderson Insulators
Mehl	Hanoch	22/03/1998		Biham	Non-Equilibrium processes on metal surfaces
Feinerman	Ofer	29/03/1998		Giveon	
Mandelbaum	Yaakuv	05/07/1998		Rabinovici	Holography and thermodynamics in anti-Desitter spaces
Ater	Assaf	19/10/1999		Agam	
Burshtyn	Dmitri	21/08/2000		Elitzur	Gauge theories on D-Branes in the presence of NS Branes and Orientifolds
Vero	Robert	24/09/2000		Finkental	

Lirzman	Vladislav	12/02/2001		Davidov	Micro-optics and biosensors based on photonic crystals and surface plasmons
Birnboim	Yuval	13/05/2001		Dekel	Gaseous processes in galaxy creation
Levin	Michael	06/09/2001		Zigler	Excitation of high-energy plasma waves and particle acceleration
Sakran	Fadi	25/10/2001		Davidov	Magnetic resonance by means of a micro-wave microscope in the near field
Saado	Yuval	01/11/2001		Davidov	The study of the influence of non-completeness and uniformity in photonic crystals on microwave transitions - detection of surface features on a floating magnetic system
Yahalomi	Erez	11/08/2002		Glaberson	
Nassar	Hesham	14/10/2002		Paul	Measurement of cross-sectiions of astrophysical nuclear reactions
Urbach	Benayahu	22/11/2002		Sa'ar	Electrical and optical properties of comperties of composite and multi-layered porous silicon structures
Gorbonos	Dan	27/01/2003		Kol	Higher Dimensional Black Holes
Epstein	Tamir	08/04/2003		Fineberg	Resonant interactions and Spatio-Temporal Chaos in Parametrically Excited Surface Waves
Livne	Ariel	08/04/2003		Fineberg	Physical Processes at the Tip of a Dynamic Crack in Polyacruilamide Gels
Palehan	Tala	09/04/2003		Zigler	Interaction of intense laser with snow clusters
Asnin	Vadim	24/07/2003		Giveon Kol	Topics in general relativity and supersymmetric field theories
Gazit	Doron	24/07/2003		Barnea	Electro-weak interactions in light nuclei
Popov	Oleg	14/08/2003		Davidov	Surface plasmon resonance and optical emission of organic films, biomaterials and nanoparticales
Oren	Yonatan	04/09/2003		Piran	Hydrodynamics of Relativistic Shocks in GRB's
Mintkevich	Oded	08/09/2003		Barnea	
Goberman	Dotan	25/09/2003		Schiller	
Ceder	Roy	25/09/2003		Agam	

Gefen	Orit	02/10/2003		Balaban	Bacterial persistence as a model system for phenotypic variablility in a genetically uniform population
Shimoni	Yishai	22/10/2003		Biham	Quantum entanglement and its role in quantum algorithms
Neve-Oz	Yair	09/11/2003		Davidov	
Oppenheim	Yuval	08/12/2003		Sharon	the transition betwwwn 3D and quasi 2D turbulent flows in a rotating tank
Neistein	Eyal	06/01/2004		Dekel	Basic issues in galaxy formation
Asulin	Itay	19/10/2004		Millo	The proximity effect in superconductor/magnetically-ordered bilayers studied by scanning tunneling spectroscopy
toker	Dana	19/10/2004		Millo Balberg	Local probe study of the transport properties of metal semiconductor nano-particle ensembles
Steiner	Dov	20/10/2004		Millo	Scanning tunneling spectroscopy of semiconductor nanocrystals in arrays
Assaf	Michael	20/10/2004		Meerson	Spectral theory of large fluctuations in reaction kinetics
Eidelstein	Eitan	21/10/2004		Schiller	
Rubinstein	Shmuel	28/10/2004		Fineberg	The dynamics of dry friction
Baruch	Shirit	28/10/2004		Orgad	
Yaari	gur	28/10/2004		Solomon	
Smolkin	Michael	08/11/2004		Kol Giveon	Field theory techniques in general relativity
Mizrahi	Eedo	24/11/2004		Agam	
Matthews	Raphael	29/06/2005		Agam	
Efrati	Efi	26/10/2005		Sharon	
Yuli	Ofer	26/10/2005		Millo	
Sagi	Eva	10/04/2006		Bekenstein	
Michaelis	Amir	25/04/2006		Shaviv	
Klein	Yael	27/04/2006		Sharon	
Woo	Joanna	15/05/2006		Dekel	
Levi	Michele	04/09/2006		Kol	
Dovrat	Liat	03/10/2006		Eisenberg	
Loinger	Adiel	16/10/2006		Biham	
Leshem	Amir	16/10/2006		Gat	
Rotem	Eitan	31/10/2006		Balaban	
Zur	Shraga			Schwob	
Diaf	El Yamani			Dekel	
Gelkin	Alexander				
Berkovitz	Dan				
Shriever	Tsvi				

Eisenmann	Shmuel	27/10/2005		Zigler	
Dover	Yaniv	31/10/2005		Hoffman	
Zinger	Elad	02/11/2005		Dekel	
Lindenfeld	Zeev	02/11/2005		Schiller	
Ben-David	Oded	09/11/2005		Fineberg	
Barzel	Baruch	09/11/2005		Biham	
Gutman	Nadav	09/11/2005		Sa'ar	
Dotan	Calanit	15/11/2005		Shaviv	
Louzon	Einat	15/11/2005		Zigler	
Ya'akobi	Oded	24/11/2005		Friedland	
Karni	Boaz	03/01/2006		Rabinovici Elitzur	
Vinikman-Pincha	Shirly	25/01/2006		Zigler	
Halfon	Shlomi	10/04/2006		Paul	
Feinter	Gitai	10/04/2006		Paul	