האוניברסיטה העברית בירושלים
The Hebrew University of Jerusalem

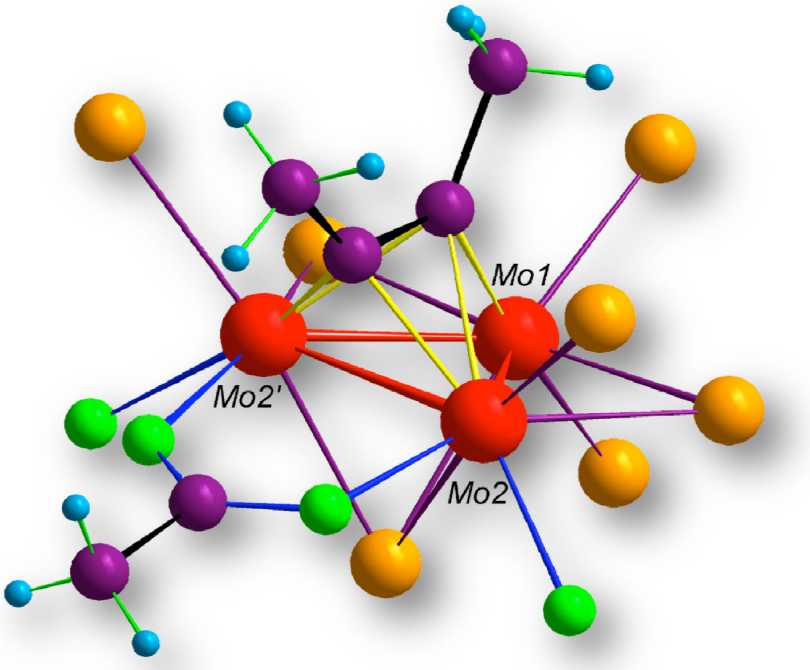
Faculty of Mathematics and Natural Sciences

Institute of Chemistry

Self-Evaluation Report

Submitted to

The Council for Higher Education



Jerusalem, July 2010

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Cover picture: From our Institute – "The formation of a carbon-carbon triple bond in a tri-nuclear molybdenum complex", Avi Bino, Michael Ardon, Elijah Shirman; *Science*, 308 **(2005)** 234.

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Chapter 1 – The Institution

1.1. *A brief summary describing the institution and its development since its establishment*

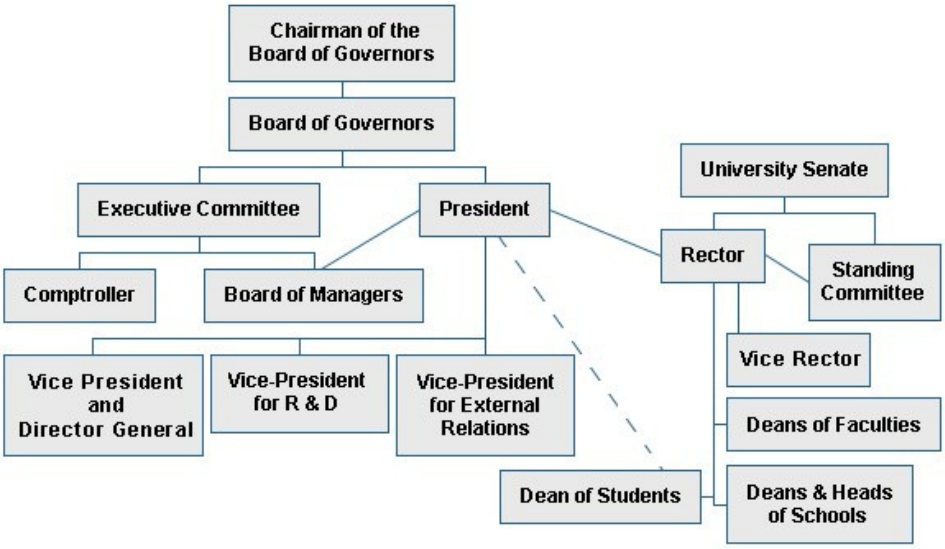
The proposal to establish a Jewish institution for higher education was raised as far back as 1882, yet it was not until 1918 that the cornerstone of the Hebrew University was laid in Jerusalem. On April 1, 1925, the university was officially opened on Mount Scopus. The academic life of the university (courses and research) took place on Mount Scopus until 1948, the year of the establishment of the State of Israel. During the War of Independence, the road to Mount Scopus was blocked, and the university was forced into exile; it continued its activities thereafter in rented facilities scattered throughout various parts of Jerusalem. In 1955, the government of Israel allocated land in the Givat Ram neighborhood for a new Hebrew University campus. In 1967, the road to Mount Scopus was reopened, and in the early 1970s, academic activities were restored on the Mount Scopus campus

The Hebrew University in Jerusalem was accredited as an institution of higher education by the President of Israel, Mr. Yitzhak Ben-Zvi, in accordance with the Law of the Council of Higher Education, 1958, on the 23rd of August 1962.

The Hebrew University operates on five campuses:

- The Mount Scopus campus, site of the Faculty of Humanities and the School of Education, the Faculty of Social Sciences, the School of Business Administration, the Faculty of Law and the Institute of Criminology, the School of Occupational Therapy, the School of Social Work, the Truman Institute for the Advancement of Peace, the Center for Pre-Academic Studies, the Rothberg International School, and the Buber Center for Adult Education.
- The Edmund J. Safra campus in Givat Ram, site of the Faculty of Mathematics and Natural Sciences, the School of Engineering and Computer Sciences, the Center for the Study of Rationality, the Institute for Advanced Studies, and the Jewish National and University Library.
- The Ein Kerem campus, site of the Faculty of Medicine (The Hebrew University–Hadassah Medical School, School of Public Health and Community Medicine, School of Pharmacy, and the School of Nursing) and the Faculty of Dental Medicine.
- The Rehovot campus, site of the Faculty of Agricultural, Food and Environmental Quality Sciences and the School of Nutritional and Home Sciences.
- The Beit Dagan campus, site of the Koret School of Veterinary Medicine.
- An additional site operated by the Hebrew University is the Inter-university Institute for Marine Science in Eilat, which is run for the benefit of all institutions of higher learning in Israel.

1.2. *A description and chart of the institution's organizational structure*



Chapter 2 - The Parent Unit Operating the Study Programs Under Evaluation

2.1. *The name of the parent unit and a brief summary of its history*

The Faculty of Mathematics and Natural Sciences was founded initially as the Faculty of Mathematics. Its first Dean, Prof. Abraham Halevi Fraenkel, joined the Hebrew University in 1929, four years after its foundation. In the two following years the Microbiology, Chemistry and Physics Departments were established and later were later joined together to form the Faculty of Science. The War of Independence in 1948 left the University's campus cut off from Israeli West Jerusalem, and alternative facilities located throughout the city were established. In 1953, construction began on a new main campus on Givat Ram in the heart of Jerusalem (currently the Edmond J. Safra Campus). During the 1960's and 1970's, the research and teaching activities were all transferred to this campus.

2.2. *Mission statement of the parent unit, its aims and goals*

The two major missions of the Faculty of Mathematics and Natural Sciences are as follows:

Learning, Teaching and Educating – The Faculty of Mathematics and Natural Sciences attracts some of the best students in Israel. The Faculty's aim is to offer them a high level of teaching and training at both the undergraduate and graduate levels, utilizing top-of-the-line academic and scientific expertise and advanced research facilities, with the goal of producing graduates that are highly capable and prepared to cope with any future scientific and professional challenges.

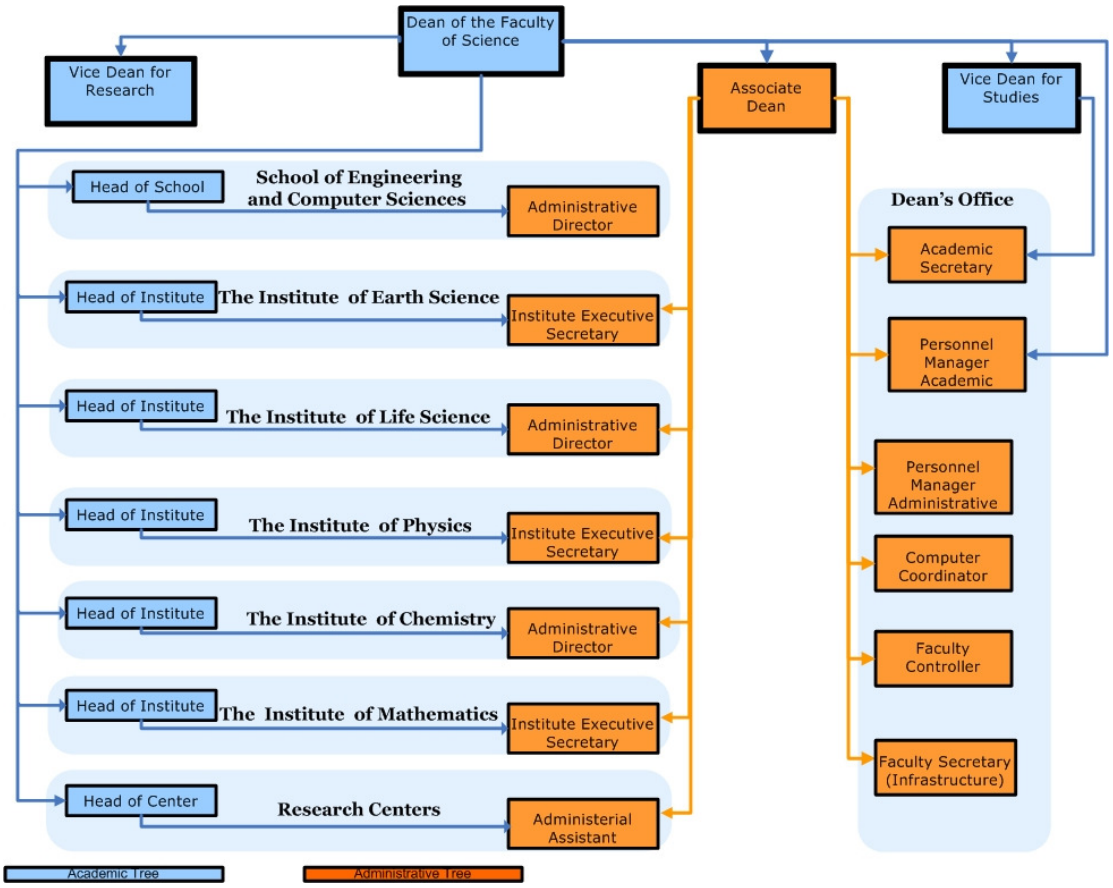
Research – The level of research carried out in the Faculty of Mathematics and Natural Sciences is one of the highest in the world. In their work, spanning many varied disciplines, our scientists and research students contribute to the worldwide store of knowledge. The Faculty's aim is to maintain first-class scientific research in all of its varied disciplines by providing its faculty members, both junior and senior, with advanced facilities and capabilities and by strictly monitoring their academic achievement record.

2.3. *Description and chart of the unit's academic and administrative organizational structure*

The Faculty of Mathematics and Natural Sciences consists of five research institutes: *Mathematics, Physics, Life Sciences, Chemistry and Earth Sciences*, as well as *the School of Engineering and Computer Science*. They are all located on the Edmond J. Safra Campus in close proximity to one another, which enables bridging of various scientific and technological fields and creation of new and versatile research directions. The desire to bridge different fields of research has found expression in the development of various multidisciplinary teaching and research centers, such as *The Amos de-Shalit Science Teaching Center, The Interdisciplinary Center for Neural Computation, The Center for the Study of Rationality, The Institute for Advanced Studies, The Center for Nanoscience and Nanotechnology, and The Sudarsky Center for Computational Biology*. The Faculty comprises some 240 faculty members, around 2,000 undergraduates, and 1,400 M.Sc. and Ph.D. research students.

Many members of the Faculty of Science have been internationally acclaimed, for example by receipt of many awards and honors in various fields of expertise. The following is a short list of representative recent prizes: **The Nobel Prize** (Prof. R. Aumann, Game Theory, 2006); **The Israel Prize** (Prof. Y. Bekenstein, Physics, 2005; Prof. Z. Rapaport, Chemistry, 2006; and the late Prof. Z. Selinger, Biology, 2007); **The Wolf Prize** (Prof. A. Levitzki, Life Sciences, 2005; and Prof. H. Furstenberg, Mathematics, 2007); **The EMET Prize** (Prof. H. Furstenberg, Mathematics, 2004; Prof. M. Rabin, Computer Science, 2004; the late Prof. Z. Selinger, Biological Chemistry, 2005; Prof. Z. Garfunkel, Geology, 2006; Prof. Batsheva Kerem, Life Sciences, 2008; and Prof. I. Willner, Chemistry, 2008); **The Fermat Prize** for Mathematical Research (Prof. E. Lindenstrauss, 2009); **The Rothschild Prize** (Prof. D. Kazhdan, 2010).

The Faculty is headed by the Dean of the Faculty. Two Vice Deans assist the Dean in coordinating the research and teaching activities. The Associate Dean is the Administrative Director of the Dean's Office and the Faculty. Each Faculty Institute is headed by the institute's Chairperson, who is assisted by an administrative director. The teaching activities of each institute are coordinated by the Head of the Teaching Program, who is an *ex-officio* member of the Faculty Teaching Committee under the Vice Dean for Teaching.



2.4. *Persons holding senior academic and administrative positions*

Dean of Faculty: Prof. Gad Marom

Associate Dean: Dr. Jacob Nissenbaum

Vice Dean for Studies: Prof. Nathan Paldor

Vice Dean for Research: Prof. Yosef Yarom

Assistant to the Dean for Scholarships/Fellowships: Prof. Alan Matthews

2.5. *The number of study programs (departments, etc) operating within its framework*

The Faculty of Science hosts **18** departments and programs of study towards a Bachelor's degree (**Bachelor of Science**) and **23** departments and programs of study towards a Master's degree (**Master of Science**) and **a Ph.D.** Ph.D. studies are administered within the framework of the Authority for Research Students.

The Table below lists the Departments and Programs of Study within the Faculty of Mathematics and Natural Sciences and the degrees conferred by each of them.

Table 2.5 - List of Departments and Programs of Study

Mathematics	מתמטיקה	B.Sc.	M.Sc.	Ph.D.
Physics	פיסיקה	B.Sc.	M.Sc.	Ph.D.
Chemistry	כימיה	B.Sc.	M.Sc.	Ph.D.
Life Sciences	מדעי החיים	B.Sc.		
Computer Sciences	מדעי המחשב	B.Sc.	M.Sc.	Ph.D.
Earth Sciences	מדעי כדור הארץ	B.Sc.		
Environmental science	מדעי הסביבה	B.Sc.	M.Sc.	Ph.D.
Mathematics and Math Teaching	מתמטיקה במגמת הוראה	B.Sc.		
Computer Sciences and Computational Biology	מדעי המחשב וביולוגיה חישובית	B.Sc.	M.Sc.	Ph.D.
Computer Engineering	מדעי המחשב	B.Sc.		
Computer Engineering with Specialization in Applied Physics	מדעי המחשב בהתמחות פיסיקה יישומית	B.Sc.		
Applied Physics	פיסיקה יישומית			Ph.D.
Brain Sciences: Computation and Information Processing	מדעי המח: חישוב ועיבוד מידע		M.Sc.	Ph.D.
Specialization in Rationality	התמחות ברציונליות		M.Sc.	Ph.D.
Amirim: Program for Outstanding Students	אמירים: תוכנית מצטיינים	B.Sc.		
Talpiot: IDF Academic Program in Physics and Mathematics	תלפיות: תוכנית אקדמית צה"לית בפיסיקה-מתמטיקה	B.Sc.		
Plant Sciences (Botany)	מדעי הצמח (בוטניקה)		M.Sc.	Ph.D.
Cellular and Developmental Biology	ביולוגיה תאית והתפתחותית		M.Sc.	Ph.D.
Genetics	גנטיקה		M.Sc.	Ph.D.
Brain and Behavioral Sciences	מדעי המח וההתנהגות		M.Sc.	Ph.D.
Structural and Molecular Biochemistry	ביוכימיה מבנית ומולקולרית		M.Sc.	Ph.D.
Evolution, Systematics and Ecology	אבולוציה, סיסטמטיקה ואקולוגיה		M.Sc.	Ph.D.
Specialization in Genomics and Bioinformatics	התמחות בגנומיקה		M.Sc.	Ph.D.
Biotechnology	ביוטכנולוגיה		M.Sc.	
Bioengineering	ביו-הנדסה			Ph.D.
Exact Sciences (Physics-Chemistry)	מדעים מדויקים (פיסיקה-כימיה)	B.Sc.	M.Sc.	Ph.D.
Chemistry and Life Sciences	כימיה-ביולוגיה	B.Sc.		
Geology	גיאולוגיה	B.Sc.	M.Sc.	Ph.D.
Atmospheric Sciences	מדעי האטמוספרה	B.Sc.	M.Sc.	Ph.D.
Climate, Atmosphere and Oceanography	אקלים, אטמוספרה ואוקיאנוגרפיה	B.Sc.		
Science Instruction	הוראת המדעים		M.Sc.	Ph.D.
Oceanography	אוקיאנוגרפיה		M.Sc.	Ph.D.
Management of Technology	ניהול טכנולוגיה		M.Sc.	.

2.6. *The number of students who are studying and have studied in the unit over the last five years*

Table 2.6 - Number of students enrolled in the Faculty of Mathematics and Natural Sciences

Academic Year	B.Sc.*	M.Sc. with thesis	M.Sc. without thesis	Ph.D.
2005-06	2250	668	53	632
2006-07	2217	638	75	663
2007-08	2262	651	75	677
2008-09	2299	643	75	626
2009-10	2250	619	84	605

* The actual numbers may be around 15% lower after accounting for B.Sc. students who are enrolled in joint study programs

2.7. *The number of graduates who have studied in the unit in each of the last five years*

Table 2.7 - Number of graduates of the Faculty of Mathematics and Natural Sciences

Academic Year	B.Sc.	M.Sc. with thesis	M.Sc. en route to a Ph.D.	M.Sc. without thesis	Ph.D.
2005-06	552	183		35	73
2006-07	480	144	22	10	69
2007-08	476	154	26	17	82
2008-09	505	129	16	23	75

2.8. *What bodies decide on rationale, mission and goals of the parent unit*

The Institute of Chemistry is governed by the Faculty's Dean through the Faculty's Central Committee. This committee is headed by the Dean and comprises the heads of the Faculty's Institutes (including the Head of the Institute of Chemistry), the Vice Deans for Research, for Appointments and for Fellowships, and three additional members nominated by the Dean.

The body academically responsible for the teaching programs is the Faculty's Teaching Committee. It is headed by the Vice Dean for Teaching and it comprises the heads of all the Faculty's teaching programs, including the Head of the Teaching Committee in Chemistry and student representatives (the Dean is an *ex-officio* member). The main responsibilities of the Faculty's Teaching Committee are to propose, discuss, approve, and monitor all the Faculty's teaching programs, including interfaculty as well as interuniversity programs. Depending on the issue at hand, new programs are submitted for ratification by the University's Standing Committee and – if required – by the Council for Higher Education.

Chapter 3 - The Evaluated Study Program

3.1. *The Goals and Structure of the Study Program*

3.1.1. *A brief summary describing the development of the study program*

The main study program is simply referred to as Chemistry. Joint programs, Chemistry-Biology, and Chemistry- Exact Sciences (Phys-Chem), exist as well. The programs are dynamic and are constantly adapted to developments in the field of Chemistry. For instance, in recent years, new courses in Green Chemistry, Nano-Chemistry, and Materials Sciences have been introduced. A special Studies Committee routinely evaluates the programs and the courses. Laboratories have always been at the focus of our teaching programs, and here too, developments over the years have reflected the advent of new instrumentation. For instance, High-performance liquid chromatography (HPLC) apparatuses were introduced more than a decade ago, and last year their number was expanded to enable exposure of all our students to this analytical tool. Another update of the laboratory program occurred when a laboratory in Chemistry of Materials was introduced 5 years ago; this laboratory is currently is in high demand.

3.1.2. *Mission statement of the study program, its aims and goals*

(i) The key goal of our **Undergraduate Program** is to educate and train scientists to attain a deep understanding and comprehensive knowledge of the principles of Chemistry, while also mastering the basic concepts and tools of key related disciplines (such as mathematics, physics, biology, computer programming, and statistics).

Furthermore, we aim to educate our students to attain the following qualities:

- To display broad and rigorous analytical skills and intellectual inquisitiveness;
- To develop critical thinking skills, not constrained by conventional paradigms;
- To develop the ability to integrate knowledge and view the science of Chemistry as a multifaceted but coherent body of knowledge, not confined within rigid domains. This is reflected in two interdisciplinary undergraduate programs established by the School of Chemistry in collaboration with other schools in the faculty: the Exact Sciences program (Chemistry-Physics) and the Chemistry-Biology program.

We teach our students according to the principles stated above, with the objective of generating chemists able to contribute to Israeli society on diverse fronts, such as industry, academic and research institutes, and the teaching of Chemistry at various levels, while being able to "realize" their potential professionally and fulfil their personal aspirations as chemists.

(ii) The fundamental objective of our **Graduate Program**, including M.Sc. and Ph.D. studies, is to enable our students to acquire additional knowledge of contemporary Chemistry, while further deepening their knowledge in specific areas that are of special interest to them. The pillar of the Graduate Program is the research thesis required of the students, during which they learn how to design and perform independent research work in a critical manner, and how to carry out rigorous experimental plan using sound methodology.

During their graduate studies, the students are also required, in certain areas, to integrate experimental results with theoretical considerations to generate new

contributions to the existing body of knowledge. Additionally, the students learn how to process scientific information, in all its facets, from reading and writing papers through database search to IP protection, acquiring as well the skills required to efficiently deliver scientific information both orally and in writing.

Due to the wealth of knowledge and recent explosion of information in the field, the Graduate Program is divided into five sub-programs, called Specialization Areas (*Megamot*, in Hebrew), that cover a broad range of areas of modern Chemistry: Theoretical and Physical Chemistry, Applied Chemistry, Analytical and Inorganic Chemistry, Organic and Biological Chemistry, and Materials Chemistry and Nanotechnology. Additionally, students that prefer to gain a broader perspective of the whole field are able to choose courses from different Specialization Areas.

(iii) **M.Sc.** students of the School of Chemistry may also continue their studies and towards a Ph.D. thesis. During their **Ph.D. Studies**, the students of the Program perform cutting edge, innovative research in various fields of Chemistry, in an independent manner, supervised by the faculty members at the Institute of Chemistry. In addition to their thesis, students are required to take advanced courses (a total of 12 credits) to both deepen and broaden their toolbox of scientific skills.

Presently, the whole structure of the Ph.D. Programs at the Hebrew University is being reassessed. Changes are expected to be implemented as early as the 2010-2011 academic year**.**

3.1.3. *Description and chart of the academic and administrative organizational structure of the study program (including relevant committees).*

The Head of the School of Chemistry, who is closely assisted by the Studies Committee of the Program, is responsible for all teaching activities of the study program. This includes being in constant contact with the students, guiding and assisting them, planning the different study programs that are offered, monitoring the teaching activities, updating syllabi, critically reassessing the dynamic needs of the program, and dealing with a broad range of activities conducted at the School. All the faculty of the School elect the Head of the School for a term of three years.

The Senior Secretary of the School of Chemistry plays a key role in the Program, since she coordinates and directs all the activities of the Program and takes care of all administrative issues in the School.

The choice of the Head of School and Head of Institute is made by search committees that nominate candidates to the faculty to be approved.

The head of the school is assisted by three committees: (i) the teaching committee; (ii) the teaching assistants committee; and (iii) the prizes committee. The activity of these committees is described below.

(i) **Teaching committee:** Four teachers of the program, the Head of the School of Chemistry, and the Secretary of Studies compose the Studies Committee of the School of Chemistry, which convenes several (typically 4-5) times per year). The Head of the School reports to the Vice-Dean for Teaching of the Faculty of Natural Sciences and Mathematics, who is also the Head of the faculty's Teaching Committee. The Head of the School of Chemistry is a member of the faculty's teaching committee, where decisions about teaching at the faculty level are made.

The members of the Studies Committee are appointed by the Head of the School, usually for a term of three years. An attempt is made to include in the committee teachers differing in their professional background and amount of teaching experience. This approach has yielded a very active and diversified Studies Committees, where different views and approaches are expressed, enormously enriching the decision making process.

(ii) **Teaching Assistants Committee:** This committee is responsible for appointing both M.Sc. and Ph.D. students to different teaching positions (laboratory instructors, analytical equipment operators and teaching assistants) in the School of Chemistry. This committee is also appointed by the Head of the School for a three year term, and it convenes towards the beginning of each semester, in early September and in early January, for a series of meetings. During these meetings, the committee allocates the different positions and, in some instances, interviews some of the candidates, to better assess their knowledge and teaching capabilities.

(iii) **Prizes committee:** This committee deals with awarding prizes of various types to the students of the School, as described in detail below. The prizes are granted based on diverse criteria, depending on the requirements of the organization or individual who donates the prize. Typically, excellence in both studies and research is required for M.Sc. and Ph.D. students.

Additionally, special committees having specific objectives are appointed by the Head of the Program, should the need arise.

Advisors: Students of each year of the B.Sc. and M.Sc. programs have an advisor that keeps in close contact with them and supervises various aspects of their academic activities and duties in the Study Program. Three advisors for the B.Sc. students, one for students of each year (year 1, year 2 and year 3), serve in this capacity. There are six advisors for the M.Sc. students, depending on their Specialization Area of choice, with the Head of the School serving as the advisor for the students not in any specific specialization area. Since the Authority for Research Students is responsible for all Ph.D. students from an administrative point of view, the Authority serves as their supervisor. That being said, their academic activities, including most of their courses and their very comprehensive research theses, are conducted within the Program. Since this duality generates confusion and is somewhat inefficient, this whole structure is now being revised by the University and is expected to be changed in the near future.

Two additional secretaries assist both the Head of the School and the Senior Secretary, which is the senior administrative position in the Program. One of these secretaries deals mostly with the students' daily inquiries and needs, while the activities of the third secretary focus on organizing and scheduling exams of our many M.Sc. students. She also coordinates all aspects of the Progress Lecture that all Ph.D. students are required to give towards the end of their thesis.

3.1.4. *Persons holding senior academic and administrative positions*

Administrative functions of the Institute of Chemistry are divided between two bodies: the Institute of Chemistry, which handles the administration and research activities conducted by the faculty, and the School of Chemistry, which handles the teaching programs and students' related issues.

The Head of the Institute of Chemistry is Prof. David Avnir, the Administrative Director is Ms. Esti Ben-Shoan, and the Senior Secretary is Ms. Tamar Arava.

The Head of the School of Chemistry is Prof. Daniel Cohn, the Senior Secretary Administrator of the teaching programs is Ms. Florence Darmon, and the Secretary for Students' Affairs is Ms. Tali Hezi.

3.1.5. *The number of students who have studied in the program over the last five years*

Table 3.1.5 - Number of students in the School of Chemistry

Level of degree	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
B.Sc.	292	268	251	215	187	180
M.Sc.	129	140	113	136	134	120
Ph.D.	122	130	118	145	138	137

3.1.6. *The number of graduates who have studied in the program over the last five years*

Table 3.1.6 - Number of graduates of the School of Chemistry

Level of degree	2004-05	2005-06	2006-07	2007-08	2008-09
B.Sc.	57	58	67	68	60
M.Sc.	24	29	41	43	38
Ph.D.	19	23	14	17	20

3.2. *The Study Program – Content, Structure and Scope*

3.2.1. *Name of the study program and specializations/tracks within the program*

Undergraduate Programs

The name of the Study Program is Chemistry, and it offers several "tracks" to B.Sc. students that differ primarily in the depth and breadth of the Chemistry courses. As a rule, studies last three years (six semesters), but often students extend them to 3.5-4 years.

The flagship track of the Program is the Extended Track (*Maslul Chimia Murchav* in Hebrew), which has the largest number of credits (156 credits) and the richest and deepest Chemistry content. A credit point is equivalent to one hour per week of lecture over one semester. This track is especially suited to students that want to study Chemistry in a rigorous, in-depth, and comprehensive manner and that plan to continue on to advanced degrees. 125 of the 156 credits are obligatory courses, while 21 additional credits are devoted to elective Chemistry courses. The remaining 10 credits are allocated to courses outside the program, and even from other Faculties, called "complementary courses."

The obligatory courses are divided as follows: {a} Chemistry courses - 90 credits; {b} Mathematics - 17 credits; {c} Physics - 12 credits; {d} Statistics - 3 credits, and {e} Programming

- 3 credits. The students are allowed to take the elective courses starting in the second year, but most students choose to take their elective courses during the third year of the Program.

Until last year, the total credits of the B.Sc. degree were 144, including the 10 credits allocated to the complementary courses. Last year, the Program was extended to 156 credits. Students already in their second and third years will be able to conclude their studies after completing 144 credits. That said, and given the importance of the additional 5 credits of the Mathematics course added (Linear Algebra), students currently in their second year are required to take this course, with the number of credits devoted to other elective and complementary courses decreased accordingly. Since the course is taken during the second year, students presently in their third year will not be required to take this additional course in Mathematics.

(i) Students may choose to enrol in the "Double Major Track" (*Maslul Chimia Du-chugi* – in Hebrew), which combines Chemistry studies with courses of another program. This track is especially well matched to students with high acceptance grades who wish to study Chemistry and another discipline such as Biology, Physics, Earth Sciences, Environmental Sciences or Mathematics. Students in this track are required to take at least 60 credits in Chemistry courses and an additional 27 credits of Mathematics, Physics and Programming courses. The latter can be courses in the Program or alternatively courses in other programs in the Faculty of at least the same level. In the last few years, special programs were launched in the university to enable students to combine chemistry with physics or biology. The "Exact Sciences" program (chemistry-physics) and the chemistry-biology programs have essentially replaced the traditional "Double Major Track" described above for these two directions.

(ii) The "Chemistry Major Track" (*Maslul Chimia Chad-Chugi* – in Hebrew) is an alternative pathway offered to students who want to study only Chemistry, but wish to follow a less extensive curriculum. In this case, students are required to complete their studies by taking a Cluster (*Chativa* – in Hebrew) of complementary studies of another program. A Cluster is a structured set of courses offered by one or more of the programs in the Faculty of Mathematics and Natural Sciences or by other faculties. The student must take at least 90 credits of courses offered by the Faculty of Sciences in order to receive a degree from this Faculty.

(iii) Students of other programs are welcome to take the Cluster of complementary studies offered by the Program (at least 35 credits), in addition to the Mathematics, Physics, Statistics and Programming courses.

(iv) Jointly with the Environmental Sciences Department, the Faculty offers yet another avenue for students interested in combining these two disciplines. The students of this combined program are required to take 60 credits of Chemistry courses and 27 credits of Mathematics, Physics and Programming courses, with the remaining 56 credits taught by the Environmental Sciences Department.

(v) There are two interdisciplinary programs, the Exact Sciences program (combining physics and chemistry) and the Chemistry-Biology program. At the moment, these programs are administratively not under the authority of the School of Chemistry (although, of course, they are based on its courses) and therefore are not further analyzed in this report.

Further information on the programs described in paragraphs (iii), (iv), and (v) will be provided to those that are interested.

Table 3.2.1 - Structure of the different tracks available within the Program

	Chemistry Full Track (5010)	**Chemistry Double Major Track (5011)**	**Chemistry Major Track (5012)**	**Chemistry Cluster (5030)**	**Chemistry and Environmental Science Track (8033)**
Credits within the Program	146	87	90	35	87
Minimum credits in the complementary program					56
Complimentary studies outside the Program	10		44		
Total credits	**156**		**134**		**143**
Total number of students in 2009	148	22	18	5	6
Total number of students in 2010	128	23	22	7	6

Graduate Study Programs

The graduate study program described in this section includes the M.Sc. studies only. The Ph.D. program will be described separately.

The School of Chemistry enrolls in its Graduate Program students holding a B.Sc. degree in Chemistry from the Hebrew University or an equivalent institution in the country or abroad, with a grade of 80 or above. Compliance with this requirement does not guarantee acceptance to the Program, since additional considerations are weighed. An additional key requirement is finding a Supervisor among the Faculty of the Program. The M.Sc. program is four semesters long; in most cases, students complete all their degree requirements, including writing the thesis and passing the final exam, within 24 - 28 months. Students with a B/Sc. Degree in other disciplines, such as Physics, Biology or Environmental Sciences, may also enroll, but the Head of the Program may require them to take supplementary courses, in addition to the normal Graduate Program, in order to complete their background in Chemistry and bring them to an even starting point with Chemistry students. Students with a B.Sc. final grade between 75 and 80 may join the Graduate Program, but they may be asked to comply with one or more of the following requirements: [i] They may be required take supplementary courses and complete them with a minimal average grade of 80; [ii] They may be allowed to start their M.Sc. program on a conditional basis, the condition being completion of all courses of the first semester with a minimal average grade of 80. In either case, if the students do not achieve the goal/s described above, they will have to leave the Program.

The Head of the Program meets all students applying to any of the Graduate Programs, reviews their application file, describes the various Specialization Areas available to them, highlights the various aspects of their studies in the Program, and answers their questions. At this stage, the students are required to have already chosen a supervisor for their thesis. As already indicated, this is a pre-requisite for acceptance to the Program, to avoid the extremely rare, but unacceptable situation where a student who has begun his Graduate studies is unable to find a Supervisor.

The Graduate program is composed of three components: {i} the courses, {ii} the research thesis, and {iii} the final exam. The relative weights of these components in the final grade are 40%, 30% and 30%, respectively.

a. Courses

The M.Sc. studies at the School of Chemistry have 31 credits (one credit point is equivalent to one hour per week of lecture during one semester), and the student can choose from the following six Specialization Areas:

- Theoretical and Physical Chemistry
- Inorganic and Analytical Chemistry
- Applied Chemistry
- Materials Chemistry and Nanotechnology
- Organic and Biological Chemistry
- Combined Specialization Areas

All students, regardless of the Specialization Area they have chosen, have to take two seminars: the Research Seminar and the M.Sc. Seminar. In the Research Seminar, the students have to attend to **22** research lectures given at the Institute of Chemistry or other Institutes of the Faculty and write a short report about **4** of them (1 credit). Having received the approval of the Head of the Program beforehand, students are also allowed to attend seminars given at other universities as well. In the M.Sc. Seminar (2 credits), the students give seminars where they describe the background of their thesis, the methodology they follow, the analytical techniques they utilize, and results of their own work. In this case, students are required to attend **14** lectures, including their own.

The remaining 28 credits required of students differ, depending on their Specialization Area, and are divided into three categories:

- ♦ courses that are obligatory to students of that specific Specialization Area (12 credits)
- ♦ elective courses from a list compiled for that Specialization Area (6 credits)
- ♦ elective courses that the student can choose from any of the Specialization Areas of the Program as well as outside it, including the Faculty of Sciences, other Faculties, and other Universities (10 credits). Courses taken outside the Faculty of Mathematics and Science require the approval of the Head of the School.

Finally, students who choose to combine several Specialization Areas have to choose 12 credits from the obligatory courses of at least three different Specialization Areas. In this

way, the student receives proper exposure to the broad spectrum of subjects they are interested in studying.

The above guidelines are a reflection of the unambiguous philosophy guiding the Program, whereby efforts are made to maximize flexibility and, in accordance with the Mission of the Program, allow students to tailor their study programs according to their own desired direction, as much as possible. Furthermore, this approach transcends former boundaries between classic fields of Chemistry, which are of little consequence to contemporary Chemistry.

The students build their program of studies in consultation with their thesis supervisor and then submit it to the advisor of their specialization area for his approval. The students are allowed to make changes in their program as they progress, but any changes need to be approved by both the student's supervisor and the Advisor of his Specialization Area.

b. Research theses

As stated above, finding a supervisor is a prerequisite for beginning graduate studies in the School of Chemistry. The topic of the thesis is decided by the supervisor and the student. Since students take most of their courses during the first year of the degree, they usually carry out most of their research work during the second year.

The purpose of the thesis is to impart to the student additional knowledge of modern Chemistry and strengthen his expertise in specific areas of particular interest to him. During his research thesis, the student learns how to conduct independent research while critically reviewing his findings, applying thorough methodology, and meticulously planning his experimental work.

Additionally, the program assigns much importance to teaching the students how to deal, intelligently and effectively, with the various forms of scientific information. Much attention is also given to ensure that the student works according to the most stringent safety regulations, and that they become an inherent part of the student’s way of conducting chemical research.

About 2-3 weeks before the exam, the thesis is sent for refereeing to the Supervisor of the student and two additional staff members that are knowledgeable of the relevant field of research. After thoroughly reviewing the written thesis, the referees are required to submit their grades to the Advisor of the Specialization, before the exam.

c. Final Exam

The final exam consists of three different parts. First, the student gives a short lecture (around 20 minutes), during which he briefly covers the background of the field, defines the goal of his thesis, and presents the key findings of the work he conducted. At the end of his presentation, the student is expected to suggest the future steps of the research project on which he has worked. During the next stage of the exam, the student is asked questions focusing primarily on the research work he conducted. The third round of questions covers a broader range of areas that the student has been instructed to study in depth. To this end, the student’s supervisor and the advisor of the relevant specialization area jointly prepare a bibliographic list, covering various areas about which that the student can be asked during the exam. At the end of the exam, the

student leaves the room, the examiners discuss the various aspects of the exam, and each of them assigns a grade.

The final grade of the student, composed by the courses (40%), the research thesis (30%) and the final exam (30%), is calculated and communicated to the student. For him to be entitled to continue on to a Ph.D. degree, he must receive a grade of at least 85 in each of the three categories indicated above.

Direct Ph.D. track: Students that have completed their Undergraduate degree with a grade equal to or above 85 are entitled to enter the Direct Ph.D. Track, which allows them to start their doctorate studies sooner. A student in this special track starts out as a Graduate student and has to complete during his first year all the courses of the M.Sc. program of the Specialization Area he has chosen. If at the end of this first year, the student has an average grade of at least 85 in the courses, he is entitled to submit his candidacy to the Direct Ph.D. Track. During this first year, the student also conducts research work, with the aim of generating the basis for his doctoral thesis. Any students who comply with the above requirements must write a short Research Proposal concerning his future Ph.D. thesis and submit it to a special panel of examiners appointed to him. Additionally, the special panel examines the student's general knowledge and the rationale and novelty of his thesis, as well as critically discussing the data already generated by the student. If successful, the student joins the Ph.D. program and embarks on his research thesis. Usually the students in this track receive their M.Sc. degree during their Ph.D. studies, according to the university regulations, with no final grade on a Master's thesis and with the Direct Ph.D. route exam grade considered as the Master's exam grade.

Ph.D. Program

Qualified Graduate students of the School of Chemistry are encouraged to continue their studies towards a Ph.D. The key part of the doctorate program is the research thesis. In addition, the student is required to take courses (12 credits) that are selected by him and his Supervisor and are approved by a Committee that is appointed by the Authority of Research Students to accompany him throughout his thesis. After up to two years, when the student has accumulated enough data to evaluate his work, he submits his Research Program to the Accompanying Committee, which then convenes and discusses with the student the findings of his research to date. Moreover, during these discussions the members of the Committee also determine the level of knowledge of the student, address issues concerning his Research Program, and address the list of courses (12 credits) the student will study. If the Committee approves the student's Research Proposal, the student passes from the First Stage to the Second Stage.

Towards the end of his research project, at least six months before the expected date of completion of the research work, the student gives his Ph.D. lecture (which is not the classical Thesis defense). This lecture is open to all staff members and students, with the attendance of two examiners. One of the examiners is a member of the student's Committee, while the other one is a researcher in the relevant field, who can be a staff member of the School, any other program in the Hebrew University, or any other university in the country. The examiners submit their review of the Ph.D. lecture to the Head of the Program, which reviews them and usually approves them. The Committee that accompanies the student again meets at this stage, to evaluate the overall performance of the student and confirm his completion of all obligations towards receiving a Ph.D. degree.

New cross-disciplinary M.Sc. program with specialization in nanotechnology

Finally, we would like to mention that the School of Chemistry is a participant in the recently opened cross-disciplinary M.Sc. program in Nanoscience and Nanotechnology. This program evolved after extensive discussions about the optimal path to creating an effective and attractive interdisciplinary study program, while maintaining core expertise for the excellent group of participating students. The initial launch of the program has three tracks leading to a M.Sc. degree:

- Specialization in Nanoscience and Nanotechnology in Chemistry
- Specialization in Nanoscience and Nanotechnology in Physics
- Specialization in Nanoscience and Nanotechnology in Engineering-Applied Physics

The studies were set-up in a modular structure of, which will allow incorporation of additional tracks in the coming years, in particular one in the direction of Life-Sciences and Nanomedicine. The program requires students to take 35 course credit points (more than the regular M.Sc. program which requires 30 points). The structure of the program is such that the students have two joint and compulsory courses in Nanoscience, and a set of compulsory courses in their respective core discipline (Chemistry, Physics or Engineering-Applied Physics). A wide selection of courses in Nanoscience is offered in the different disciplines, and these are open to all the students of the program. To ensure highly inter-disciplinary studies, students are required to take courses from at least one additional discipline outside their core discipline (e.g. physics for the students with a core chemistry curricula and so on), in addition to the above courses. The lists of courses in the different disciplines are given below.

3.2.2. *Structure, content, and scope of the study program*

See Appendix 6.1 (page 61).

3.2.3. *Bodies/mechanisms responsible for managing/updating the study program*

Working closely with the Head of the School of Chemistry, a six-member Studies Committee (four teachers of the Program, as well as the Head of the School and the Senior Secretary of the School) is responsible for planning and managing the program, as well as for monitoring its successful implementation. The Head of the School, however, is responsible for its function on a daily basis, being in direct contact with teachers, teaching assistants, laboratory technicians, and students alike. The Senior Secretary of the School plays also a key role in coordinating the multifaceted activities of the School and is responsible for ensuring its efficient and smooth function.

The students of each of the three years of the B.Sc. degree have an Advisor who is in direct and constant contact with them. At least twice a year, the three advisors meet with the Head of the School and the Senior Secretary, to address issues that arise during the implementation of the program of studies. The same applies for the advisors of the six Specialization Areas (*Megamot* in Hebrew) offered to the M.Sc. students. Concerning its Ph.D. students, the Program sends a representative to the Authority for Research Students, which is presently responsible for the Ph.D. students of the University. The Authority for Research Students appoints an Accompanying Committee for each of our Ph.D. students, including his advisor and at least two additional researchers, to advise and direct the student in his thesis and complementary studies.

Fundamental changes in the program that will significantly affect its scope, content or structure are thoroughly discussed by all the teachers of the Program. During recent years that was conducted in two formats:

(i) Groups of teachers meet to discuss specific aspects of the teaching program. An example of these, are the "clusters" formed by teachers of courses that deal with a given branch of Chemistry. They have convened to critically discuss the structure and internal flow of a given “cluster” of courses and the current relevance of the different courses, as well as the content of each of the courses of that cluster. As a result of these discussions, the relationship and chronology of the different courses has been reviewed and updated, and in addition the content of courses has been discussed with the relevant teacher, when warranted.

(ii) All teachers of the School of Chemistry meet once per year for a whole day of discussions of the key topics on the agenda of the Program. Among the subjects thoroughly discussed in these meetings by the staff members are:

- Evaluating a proposal to significantly increase the total number of credits of our B.Sc. Program,
- Critically analyzing what type of chemist are we generating and whether this result is consistent with our goals,
- Evaluating whether the B.Sc. program should last six or eight semesters.

The key changes introduced in the study program during the last five years are as follows:

At the B.Sc. level, the following major changes were introduced:

a. Changes in the order of courses were made to avoid any conflicts between a course and the laboratory required for that course. This required rescheduling various laboratories, as in the case of the course in General Chemistry and the relevant laboratory.

b. A course in Statistics was introduced to first year students.

c. The courses available to the third year students were revised, and a few courses were omitted or merged.

d. Two new combined programs were introduced: Chemistry-Biology and Medicinal Chemistry (Chemistry-Pharmacy). In the meantime, while the former has been a big success, the latter was closed due to internal considerations of the Pharmacy Department.

e. The total number of credits was substantially increased, from 144 to 156 credits. The additional credits were allocated to the following: [i] establishing an obligatory Linear Algebra course (5 credits) in the second year, [ii] reinstating a 4-credit obligatory Advanced Synthetic Organic Chemistry laboratory in the third year. In addition, one credit additions were allocated to [iii] the Analytical Chemistry and [iv] Physical Chemistry A (Kinetics) courses in the first year, as well as to [v] the Spectral Analysis of Molecular Structural course, in the second year.

The M.Sc. program was completely revised:

a. The division into five different disciplines was revised and examined.

b. The two obligatory courses shared by all the students of the Program were converted into elective courses (only mandatory for the students of the Specialization Areas relevant to each of the two courses), and the structure of the M.Sc. program was redefined. The 31 credits were divided into the following: {a} Courses defined as obligatory by that specific Specialization Area: 12 credits, {b} Courses defined as elective by each Specialization Area: 6 credits, and {c} Elective courses to be chosen among those offered by the Program as well as outside it: 10 credits. Additionally, 3 credits were allocated to two seminars (the Research Seminar and the M.Sc. Seminar), common to all students, regardless of their Specialization Area.

3.2.4. *Mechanism for coordinating/examining the course contents*

Even though the key concepts that constitute the pillars of Chemistry remain the same, this discipline is constantly expanding due to continuing progress, inventions and discoveries within the realm of this science. Additionally, new topics in Chemistry need to be taught, as dictated by developments in other disciplines and changes in society, the environment, etc. Section 3.2.3 describes in detail the mechanisms for examining the contents of the studies.

3.2.5. *Non-academic bodies involved in the activities of the parent unit and study program*

No non-academic bodies are involved in running the activities of the School of Chemistry. In some instances, however, external organizations have shared their views regarding various issues with the School, such as the profile of the Chemist they would like to see and the areas where well-prepared Chemists are especially needed. The Studies Committee of the School may take these views into consideration among the entire mosaic of considerations guiding its activity.

3.2.6. *Future development plans of the evaluated study program*

After a period of many changes, it is consensual among the teachers of the School of Chemistry that, besides minor changes that may be required, the time has come for the system to stabilize and let the changes already made prove themselves. Should additional changes need to be made, they will be discussed by Studies Committee of the Program, and then brought by the Head of the Program for discussion and final approval by the Teaching Committee of the Faculty

3.2.7. *Extent of the program achieving its mission; strengths and weaknesses*

In general, the program achieves its goals, with most of our Graduates leaving the Program with good knowledge of Chemistry, well-equipped in terms of chemical knowledge, analytical skills and methodological tools for pursuing diverse career options in chemistry. Many of our alumni have pursued successful academic careers in Israel as well as abroad, while many others occupy key positions in the various branches of Israel's chemical industry and in diverse research institutes. Many others perform very successfully at various levels of Chemistry teaching.

Having said that, the steady decrease in the level and scope of the Chemistry taught at high schools in the country raises serious concerns as to the level of the average student when starting Chemistry studies in the program. Although outstanding students will keep the high end of the spectrum at a remarkably high level, the tools and preparation high school students receive prior to enrolling the Program lack the depth and rigorousness of the past. This is a steady and extremely worrisome process that the Program attempted to address, but this issue is far beyond the scope of the School of Chemistry and needs to be dealt with at a

national level. Aiming to help improve the level of the students starting their first year in the School, we have begun teaching a short but very intensive course called Basic Concepts in Chemistry, immediately before the beginning of the first academic year of the program. The scope of the course is almost 3 credits (no formal credits are given, however), and it is offered to all students desiring to take it. The School started teaching this course only last year, but the results are most encouraging. First, we had more than 40 students registered to this course out of about 70 students who registered for Year 1, indicating, in our view, that the students themselves feel the need to improve their knowledge in Chemistry. Second, the teacher of the General Chemistry course noticed a remarkable improvement in the performance of the students in his course. In light of this limited but encouraging finding, we are optimistic that this course will be able to ameliorate to some extent the decrease in the knowledge of the students enrolling in the Program. We expect that this, in addition to the 12 credits added to the credits required for B.Sc. students, will help raise the level of most of our graduates.

3.3. *Teaching, Learning and Learning Outcomes*

3.3.1. *Steps taken in order to evaluate and improve teaching*

The Program assigns the utmost importance to teaching quality and devotes substantial efforts to maintain and even improve their typically high teaching level. To illustrate this, it should suffice to mention that the teaching performance of a faculty member is a key component during his overall evaluation, at the time of consideration for promotion. The quality of teaching in the Program is evaluated by various means, primarily written feedback given by the students and the teacher at the end of the course. Additionally, the Head of the Program occasionally attends lectures, with priority given to young and inexperienced staff members, as well as to those that have begun teaching new courses. In some instances, the attendance of the Head of the Program to a course is triggered by input given by the students following a meeting convened by the Head of the Program or, alternatively, raised directly by the students themselves. It is also worth stressing that the Head of the Program contacts the teacher and informs him that he will be coming to one or more of his lectures, prior to entering his classroom.

Should the performance of a teacher be below the high standards of the Program, the Head of the Program meets with the teacher and draws his attention to the importance of teaching and, most importantly, discusses with him ways of improving his performance. In some instances, one of the best teachers of the program works with the teacher and coaches him as to how to improve his teaching capabilities and techniques.

The University's Students Authority (*Minhal Talmidim*, in Hebrew) publishes a list of excellent teachers, who recognized publicly. In addition, during the Teachers Assembly that the Program holds once a year, the three leading teachers are acknowledged by their peers and receive a small present for their superior teaching.

The Program urges teachers whose teaching capabilities need improvement to attend workshops specifically designed for this purpose. While not many teachers were asked to attend these workshops, those that did substantially benefited from the teaching tools they acquired.

New staff members typically receive a year of grace after they join the Program, during which they do not teach, but are given time to thoroughly and carefully prepare the course they will

teach the following year. Additionally, the Head of the Program assigns one of the senior teachers in the Program to the young staff member, to coach and help him both while preparing the course and also while teaching it the following year.

In recent years, new faculty members in the university have to undergo an obligatory 2-day course on good teaching techniques.

3.3.2. *Rankings of the courses as a result of the teaching surveys of the last 5 years*

Due to computerization problems, the requested information is available only from the last three years. In addition, due to long strikes in 2007 and 2008, no surveys were taken in the second semester of 2007 and over the entire 2008 academic year.

See Appendix 6.3 (page 78).

3.3.3. *Use of information technology in teaching and learning*

Many of our courses use PowerPoint presentations as the main route of teaching. Most of the lecture halls are equipped for that purpose. Part of our courses are taught using the traditional chalk-and-blackboard method, as many of our teachers feel that the teaching pace that this dictates is still the most suitable for the student. Other courses use a combination of both PowerPoint presentations and chalk and blackboard. There is no strict policy regarding which way of teaching is preferred, and it is up to each teacher to choose his / her own preferred mode of teaching.

The use of the internet as a learning aid is increasing constantly, both at the initiative of the teachers, and as the main source of information to which the modern student resorts today. We, like many other learning institutes worldwide, are in a transition period from the point of view of the use of information technology in teaching, and we are following closely and critically the developments in this field. In many, if not most, of the courses – there are course websites that are being updated regularly. Most of the teaching material, such as exercises, solutions etc, is uploaded onto the course website, and the students download it from there. In many course websites there are active discussion forums, in which the teachers and the students participate. The university is currently trying a new system for course websites (http://moodle.huji.ac.il), which offers a wide range of e-learning possibilities. It is intended that all to course websites will be built on this platform.

3.3.4. *Learning Outcomes*

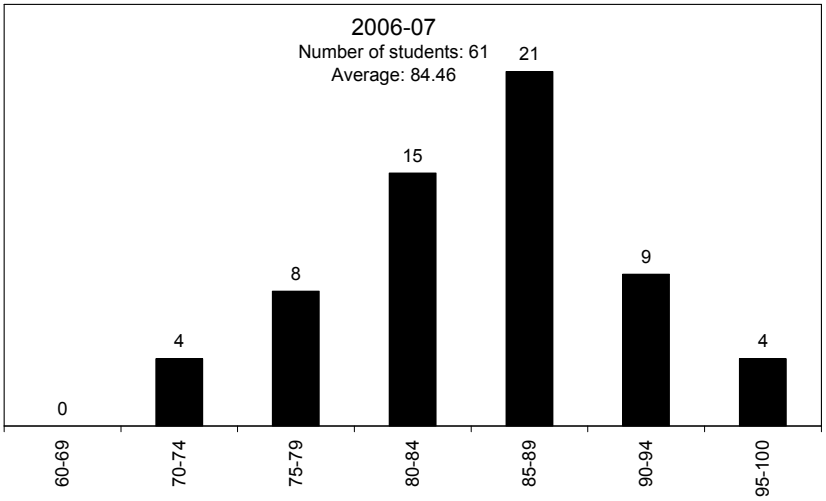
3.3.4.1. *Examinations*

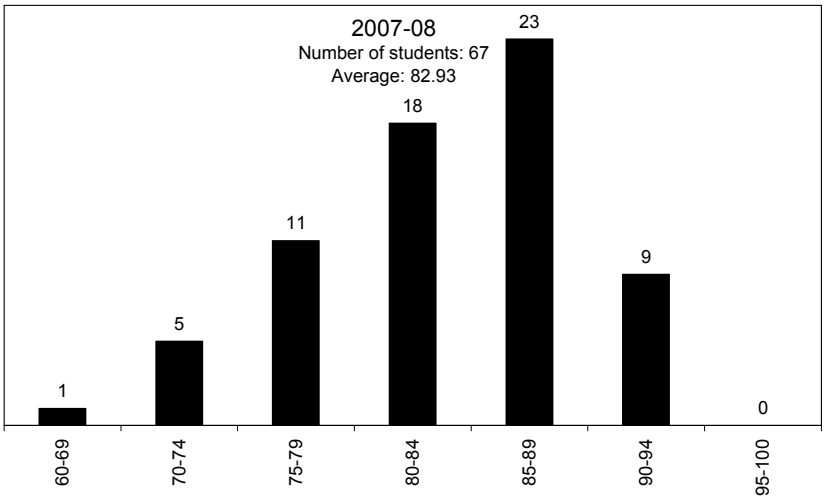
a. *Methods of examinations and their character*

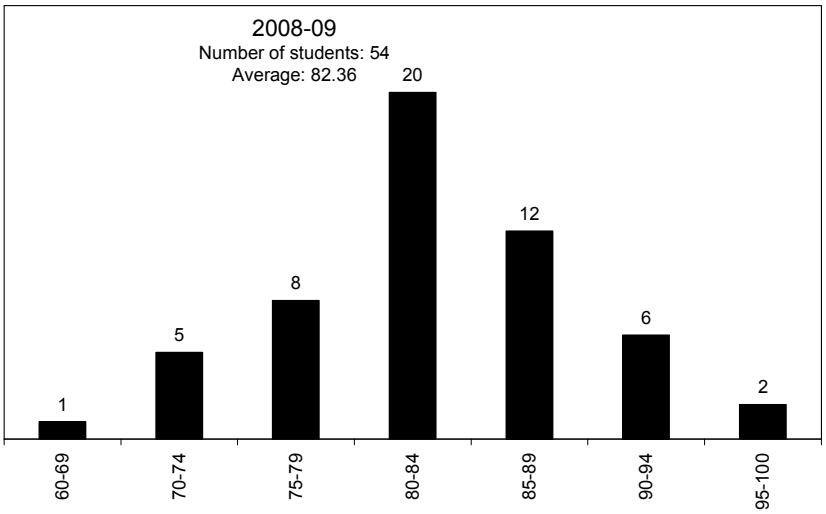
In the vast majority of cases, final written exams are the method of examination. Oral examinations are conducted only in the rare cases where the student could not attend the regular exams, due to *force major*, and was granted a special date by the committee in charge in the faculty. In these cases, a second teacher is present during the exam. Some teachers also give mid-term exams, as part of the overall evaluation of the student performance and his final grade. It is up to the individual teacher to decide whether a mid-term exam is given and what weight is has, if any, in the final grade. In some courses the exercises also constitute a part of the final grade, which is again decided by the individual teacher.

b. *Distribution of the final grades in all study programs over the last 3 years.*

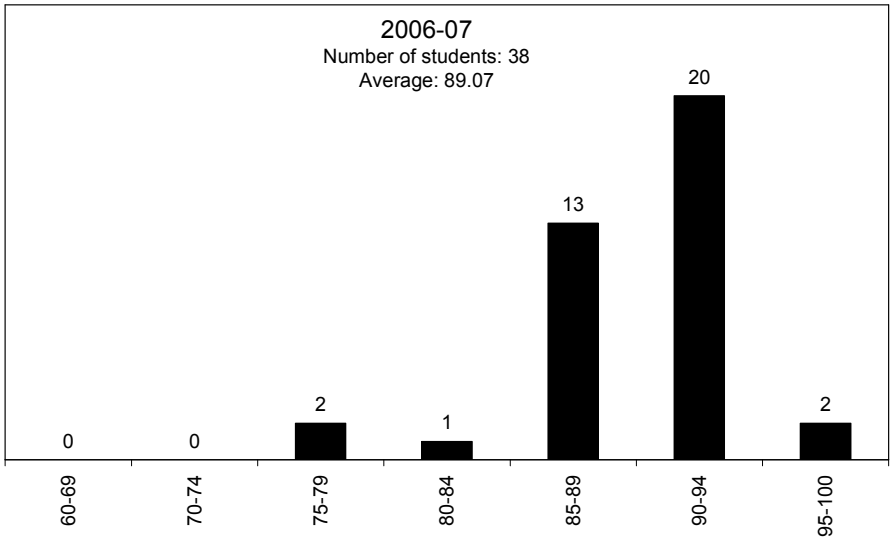
The grade distribution of the B.Sc. degree in Chemistry is presented below (the histograms include the grade distribution of all the different study programs – Full Track, Double Major Track and Chemistry Major Track):

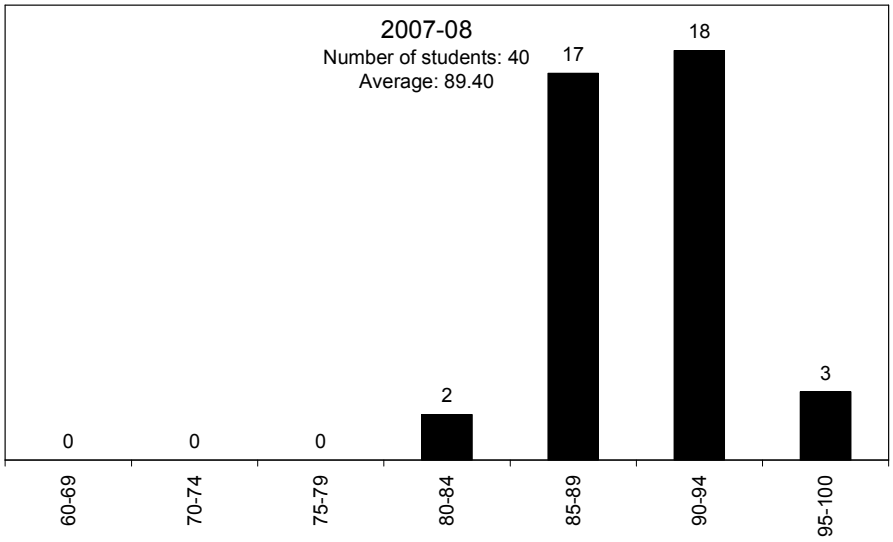


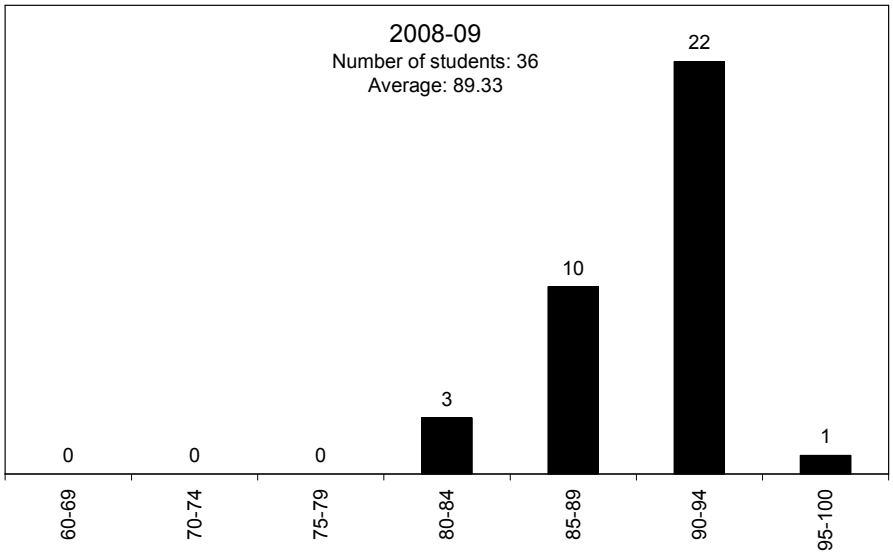




The grade distribution of the M.Sc. degree in Chemistry is presented below:







c. *Distribution of the overall average grade of the graduates for each of the last three years.*

The requested information is not available.

3.3.4.2. *Written assignments (projects, thesis, dissertations)*

a. *Types of written assignments and other projects required in the program*

Our undergraduate program includes two obligatory seminars:

The first is called "Seminar in Chemistry for B.Sc. Students". This seminar requires attendance at 14 lectures of other students, a 40 minute-oral presentation, and a written essay. The written essay must be around 20 pages and accounts for 40% of the final grade.

The second is called "Horizons in Chemical Research for B.Sc. Students". It requires attendance at 20 lectures of one of the unit's teachers and a written essay summarizing two of the lectures.

Our M.Sc. graduate program requires submission of a written thesis. This thesis should not exceed 60 pages and accounts for 30% of the M.Sc.'s final grade. There are cases in which the student goes through a direct route for a Ph.D. In these cases, a 25-page research proposal is submitted.

The Ph.D. program at the Hebrew University requires submission of a written dissertation in order to receive a Ph.D. degree. This dissertation should not exceed 100 pages.

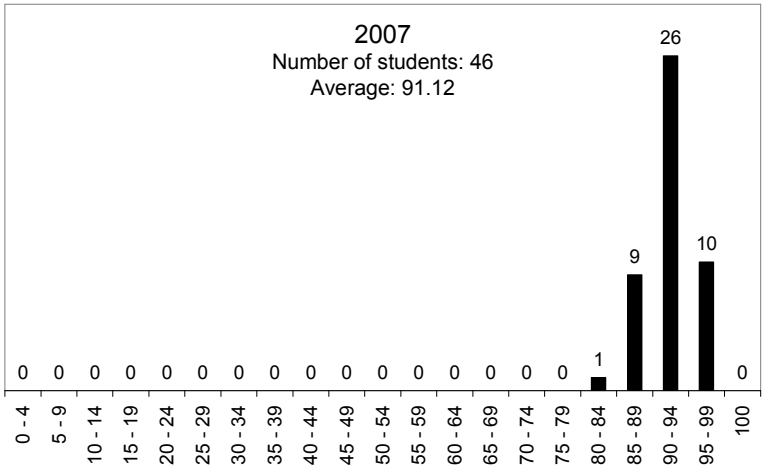
b. *Methods applied to evaluate written assignments and projects*

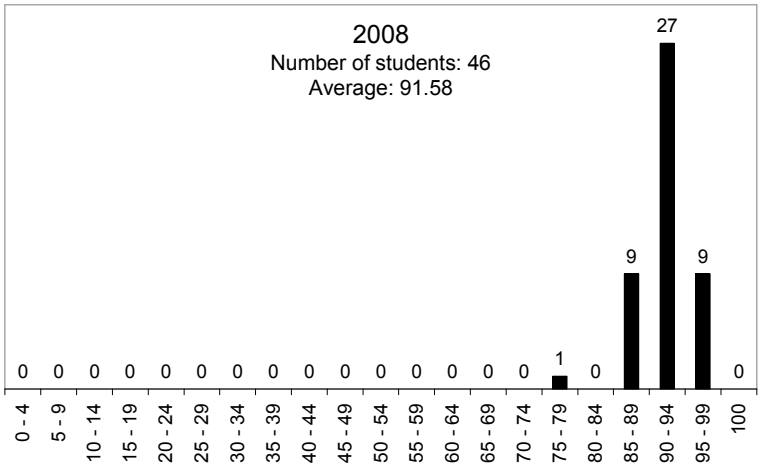
The teacher thoroughly reads and corrects the exams and writes his comments in the exam notebook. Once having received their grade, students are welcome to meet with the teacher, go through their exam notebook, discuss the mistakes they made and understand the corrections introduced by the teacher. In some instances, students appeal and teachers reassess the exam and may change the grade given, if they believe it is justified. This year, the University changed the procedure following the correction stage. The exam notebooks are scanned and uploaded to a website, and each student can access his corrected notebook. If the student has questions and/or wants to appeal, he does it initially via email, and then meets the teacher if needed. In laboratory courses, the lab reports are checked and corrected by the teaching assistants usually within two weeks from submission.

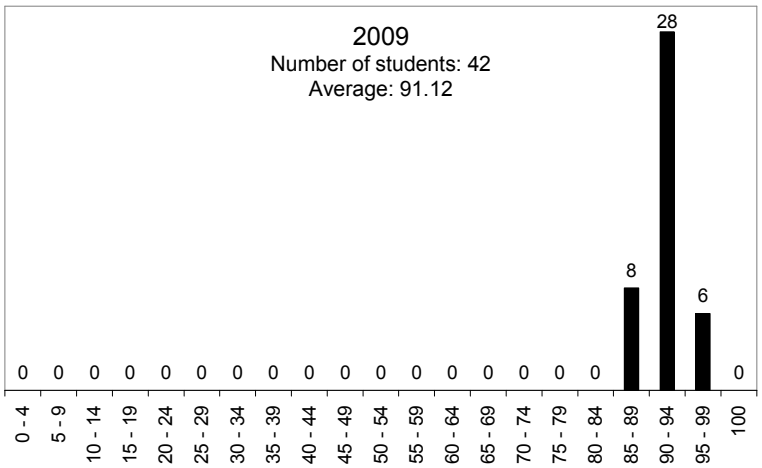
c. *Average grades received by the graduates for each of the last three years*

There are several courses in the B.Sc. Chemistry program that require written assignments but no final exam.

The average grades and histograms for the M.Sc. thesis are presented below:







In the case of a direct route for Ph.D., no thesis is submitted.

3.3.4.3. *Number of graduates who graduated with honors.*

	2004-05	2005-06	2006-07	2007-08	2008-09
B.Sc.	2	7	9	5	8
M.Sc.	2	1	3	3	1

3.3.4.4. *Other methods applied to measure the achievements of the students*

N/A.

3.3.5. *Summary- strengths and weaknesses of the teaching and learning*

The key strength of the teaching in the School of Chemistry stems from the strong emphasis the Program assigns to the quality of its teachers and the genuine commitment of the vast majority of the staff members to high quality teaching. The fundamental strength of teaching is that teachers care. This has been unequivocally and repeatedly stated, not only by the teachers, but also by the students themselves.

In spite of the above, much work remains to be done, mainly concerning improving the feedback tools available to the Program as well as the means to improve the performance of the teachers that are not teaching at the level required by the Program. Efforts are currently devoted to increasing the percentage of students that submit written feedback. Having larger percentages of students submitting their feedback would contribute to increase their value and statistical significance.

3.4. *Students*

3.4.1. *Entry requirements/criteria for the program and the actual admission*

a. *Number of candidates that applied to the program,* de facto *admitted students, etc.*

b. de Facto *admission criteria for the program*

c. *Range of psychometric test scores and matriculation averages of the students over the last five years.*

The minimum admission criteria an applicant must meet in order to apply for studies at The Hebrew University include a high-school diploma, a minimal grade in the national psychometric exam, and passing the minimum knowledge requirement in English and Hebrew. In addition, to apply for studies at The School of Chemistry, the applicant's high-school diploma must include an additional scientific subject besides math. A combined grade comprising the high-school diploma average and the national psychometric exam grade is calculated for each applicant by the Authority for Student Admission, and the highest scoring applicants are accepted, according to the number of students The School of Chemistry can enroll. It should be noted that each applicant can apply to up to 4 study programs, so the average of the accepted applicants is always higher than the average of enrolled students (Tables 3.4.1.A & 3.4.1.B).

Table 3.4.1.A - Number of applicants and accepted and enrolled students in the Chemistry Program

	2005-06	2006-07	2007-08	2008-09	2009-10
Applicants	575	483	431	415	401
Accepted applicants	192	199	165	149	145
Registered students in year 1	66	89	61	56	69

Table 3.4.1.B - Statistics of the accepted and enrolled students at the Chemistry Program

			2005-06	2006-07	2007-08	2008-09	2009-10
Accepted	High-school diploma	Average	10.52	10.50	10.52	10.54	10.59
		Standard Deviation	0.49	0.53	0.53	0.59	0.57
	Psychometric exam	Average	622.6	615.8	634.8	632.5	632.4
		Standard Deviation	59.9	61.5	58.3	56.6	60.3
Enrolled	High-school diploma	Average	10.48	10.46	10.58	10.41	10.64
		Standard Deviation	0.52	0.56	0.53	0.53	0.55
	Psychometric exam	Average	601.7	599.2	629.8	616.1	623.9
		Standard Deviation	65.6	58.0	62.8	54.2	61.6

To apply for advanced studies (M.Sc.) in The Faculty of Science, an applicant must have a B.Sc. degree with a minimal average grade of 80. Acceptance to The School of Chemistry is dependent on finding a supervisor among the faculty of The Institute of Chemistry. Table 3.4.1.C shows the number of applicants and accepted and enrolled M.Sc. students at the Chemistry Program.

Table 3.4.1.C - Number of applicants and accepted and enrolled students at the Chemistry M.Sc. Program

	2005-06	2006-07	2007-08	2008-09	2009-10
Applicants	66	71	71	69	66
Accepted applicants	49	38	46	45	46
Enrolled students	37	32	41	38	42

3.4.2. *Selection and admission process and criteria of advancement/completion of the studies*

The selection and admission process is conducted by the Authority for Student Admissions. There is a policy of affirmative action. Applicants classified as eligible for affirmative action can be accepted without meeting the minimum admission criterion, according to the numbers allotted to their population. There are also standards for admitting of candidates with special needs, who are allowed to take the national psychometric exam under special conditions suitable for their circumstances. In addition, they may file an appeal to the Appealing Committee of the Authority of Student Admissions, if they do not meet the minimum admission criterion.

A student may advance from the first year to the second year of the program if he received a grade of at least 55 in all his courses and has an average of at least 65 in the obligatory courses. For a student to pass from the second year to the third year, he must maintain the 55 grade minimum for each curse and an average of at least 60 in the obligatory courses.

Until this year, in order to complete the studies and be entitled to receive an academic degree in Chemistry, a student had to complete a total of 144 credit points (134 within the Chemistry Program). Students starting their studies in 2010 must complete a total of 156 credit points (146 within the Chemistry Program) to be entitled to receive an academic degree in Chemistry.

3.4.3. *de Facto criteria for advancing a year in the program and for completion of the degree*

We do not apply *de facto* criteria, but rather rigorously follow the regulations.

3.4.4. *Yearly drop-out rate of students from the program over the last five years*

A typical profile of students that graduate within The Chemistry Program is shown in Table 3.4.4.A. As can be seen in the table, less than 50% of the students graduate within 3 years, even though the program is designed for 3 years. Around 10% of the students are still enrolled in The Chemistry Program and are expected to graduate this year – within 5 years.

Table 3.4.4.A - Typical profile of students graduating from The Chemistry Program (2005-06)

Total No. of students	Graduate within 2 years	Graduate within 3 years	Graduate within 4 years	Enrolled in 2010		Graduate in other study programs	Drop-out
				Chemistry	Other programs		
73	11	21	10	8	6	1	16
Percentage	15%	29%	14%	11%	8%	1%	22%
Accumulating Percentage	15%	44%	58%	69%*			

* These students are expected to graduate.

Given this situation, we were unable to examine the graduation profile of later years. We therefore decided to calculate the percentage of students advancing to the next year of the program as another indication instead of the drop-out rate (see Table 3.4.4.B). This index is also controversial, since some students participate in advanced-year courses while technically registered for an earlier year, due to incomplete fulfilment of the requirements. However, we believe that over the years, this variable becomes negligible.

Table 3.4.4.B - Percentage of students advancing to the next year of the program*

Year	2005 to 2006	2006 to 2007	2007 to 2008	2008 to 2009	2009 to 2010
First to Second	120 to 76 (63%)	73 to 51 (70%)	90 to 61 (68%)	64 to 47 (73%)	57 to 36 (63%)
Second to Third	89 to 77 (87%)	76 to 67 (88%)	51 to 42 (82%)	61 to 47 (77%)	47 to 38 (81%)
Third (and above) to Graduate	90 to 58 (64%)	118 to 67 (57%)	108 to 68 (63%)	88 to 60 (68%)	No Data

*The numbers of first year students are different from table 3.4.1 since the current table counts all students that are enrolled in year 1, including those who did not advance to year 2 because they had to repeat some courses and thus are still considered as being in year 1. Table 3.4.1 counts only the new students registered each year.

As can be seen from the table, a rather high percentage of students do not advance from year one to the second year (27% - 37%). Those who advance to the second year in most cases continue to advance to the third year (12% - 23% do not advance). However, a very high percentage of students do not graduate within three years (32% - 43%).

The information above shows that around 70% of the students enrolled to The Chemistry Program eventually graduate. This is a high percentage, and we are very satisfied with it. However, a large percentage of students do not graduate within the 3 year time frame of the program, suggesting that maybe it should be altered.

Regarding graduate studies, the drop-out rate is negligible, and almost all the students who start their graduate studies eventually graduate (not always within the two-year time frame).

3.4.5. *Extent of students' involvement in research projects of the staff members*

B.Sc. students are free to directly contact the faculty members to join their research groups as assistant researchers, and are encouraged to so. Naturally, this is seen more with the brighter students, often as soon as their second-year studies. In many instances, the students then stay on for a Master's Degree at the same group. The amount of involvement varies within the groups and with the time of the year. Summer months are the period where the involvement of B.Sc. students is of the highest volume. Students involved in research in that context are paid from research grants of the group leader, usually on an hourly basis. We regard this activity as positive and of high educational value. An added benefit is that this activity reduces the competitive loss of good students to other academic institutions at the higher degree levels.

3.4.6. *Counselling systems*

3.4.6.1. *System of academic counselling for students before and during the period of*

The Head of the Program, assisted by the Secretary of Studies of the Program, individually counsels the students, prior to and during their studies. Towards the commencement of the first year, the new students meet with the Head of the Program during an Orientation Day organized by the Faculty of Sciences. During that meeting, besides warmly welcoming the students, the Head of the Program describes the structure of the B.Sc. Degree, the challenges ahead for the students, and the *modus operandi* of the Program. Following his presentation, the Head of the Program answers the questions raised by the students. Each of the three years of the B.Sc. degree has an Advisor that closely and continually counsels the students. Additionally, as indicated above, the Head of the Program is always available and glad to meet with students, and the secretaries of the Program are always ready to provide information and guidance (and also encouragement) to the students.

Since the University as a whole, as well as the Head of the Program, are fully aware of the unique hurdles students with special needs are required to overcome, they are treated accordingly and receive special support. Among other adjustments made for this population of students, each with his particular needs, longer examination times are granted, oral exams are scheduled, teachers counsel them more closely, etc. At an infrastructure level, efforts have been made to provide them with easier access to lecture halls, laboratories and offices. In addition, special arrangements were made to allow these students to participate in laboratories, provided they do not endanger themselves and those surrounding them.

3.4.6.2. *Assistance provided to students with regard to their future professional careers*

During year 3, there is a special obligatory course in which the faculty members in the chemistry program present their research. This is done in order to expose the students to the diverse research fields in the program and to possible M.Sc. projects. In addition, the Head of the Program as well as staff members do communicate with third year students concerning their professional future, but this is not done in a formal and programmed manner. There are no work placement services for the graduates. That said, it is worth stressing that our graduates find suitable positions in a variety of different areas (e.g. industry, research institutes and teaching), upon completion of their B.Sc. studies.

3.4.7. *Mechanisms that deal with student complaints*

Students' complaints are occasionally raised, and the Head of the Program addresses them seriously and earnestly. He meets with the students and listens to their complaints, and often also discusses the subject with other parties involved, typically the teacher of the course relevant to the complaint. In some instances the Head of the Program also meets with representatives of the Student Union or talks to the Dean for Students Affairs, with the aim of thoroughly understanding the issue and finding a just and timely solution. If there are any students who feel that their complaints are not being treated as expected, they can contact the Dean for Students Affairs and/or the Student Union, which assist them in dealing further with their complaints.

3.4.8. *Financial assistance to students with financial problems and to outstanding students*

Undergraduate students:

The School of Chemistry grants several prizes for outstanding undergraduate students, such as the Elbing Prize for Analytical Chemistry, the Kenet Prize for students from the southern region of the country, and the Pelzenstein Prize for outstanding students having economic difficulties.

There are also numerous prizes of the Faculty of Science for outstanding undergraduate students, such as the Rector's list, the Dean's list, the "Amirim" program, etc.

Graduate students (M.Sc. and Ph.D.):

The Institute of Chemistry provides financial support for M.Sc. and Ph.D. students, either from the researchers' grants or from the School of Chemistry budget.

M.Sc. monthly financial assistance ranges from 1,750 ILS (when the student is also employed as a T.A.) to 3,400 ILS.

Ph.D. monthly financial assistance ranges from 2,400 ILS (when the student is also employed as a T.A.) to 6,000 ILS. In addition, the School of Chemistry grants many prizes for outstanding graduate students, such as the Casali Scholarship for Applied Chemistry, the Klein Scholarship, the Marcus Scholarship for Liquid-Phase Chemistry, the Levine-Jortner Prize (awarded at the annual Israel Chemical Society meeting), the Waldman Prize for Polymer Chemistry and the Yeshinski Prize.

There are also many prizes given to outstanding graduate students that are funded by external resources, such as the Adams Fellowship, the Clore Fellowship, the Azrieli Foundation Fellowship, the Wolf Prize, the Teva Prize, the D.N. Chorafas Foundation Prize, the Intel Prize, etc.

In 2008, for example, the School of Chemistry awarded 3 B.Sc. students with the Elbing Prize (3,000 NIS), 2 students with the Kenet Prize (3,000 NIS) and 1 student with the Pelzenstein Prize ($400). The School of Chemistry also awarded 19 M.Sc. students with the Klein Scholarship (15,000 NIS), 4 students with the "M.Sc. Excellence" Prize (10,590 NIS and 12,000 NIS to cover tuition fees), 31 students with the Casali Scholarship (2,500 NIS), 1 student with the Rudin Scholarship ($10,000), 1 student with the Waldman Prize ($350) and 1 student with the Wolf Prize (4,000 NIS). In addition, The School of Chemistry awarded 1 Ph.D. student with the Maydan Scholarship (80,000 NIS), 1 student with the Waldman Prize ($650), 2 students with the Levine-Jortner Prize ($350), 1 student with the Yeshinski Prize (6,000 NIS), and 1 student with the Wolf Prize (7,000 NIS).

3.4.9. *Maintaining contact with alumni, employers, and with employment market*

Contact with alumni has been weak, despite previous efforts to change the situation. Yet see Section 4.3 for a detailed description of the Institute of Chemistry's connections with industry, many of which are connected with our alumni.

One of the main conclusions of this report is the need to re-think the routes for organized connections with alumni. We intend to approach this by searching for successful models in other academic institutions (particularly in the USA, where such infrastructure is quite developed), and adapt such a model to our institution.

3.4.10. *Summary- strengths and weakness*

The total drop-out rate of around 30% in the B.Sc. studies partly reflects the fact that it is easier to be accepted to the Chemistry Program than to pass the courses, and some of the students who fulfill the admission criteria face difficulties upon reaching the actual studies. The fact that the drop-out rate from the M.Sc. studies is minimal is a big strength of the program. Other strengths include the financial support system for students and the large variety of fellowships and prizes they can apply for, the counseling system, which works very well, and the high involvement of undergraduate students in research activity.

There are several aspects of the program in which changes should be made:

- Currently, the Authority for Student Admissions is the only function in the university that decides on the admission criteria. The Program should have a deeper involvement in setting the admission criteria.
- A major finding of the current self evaluation process is that the number of students who do not finish their degree within 3 years is much too high. This requires rethinking and strategic planning, especially considering the option of making the B.Sc. degree in chemistry 3.5 or 4 years (7 or 8 terms). This topic was raised several times in internal meetings and is currently under discussion, as a result of the self-evaluation process.
- The contact with the alumni is weak and should be improved.

3.5. *Human Resources*

3.5.1. *Teaching Staff*

3.5.1.1. *Profile of the program's teaching staff*

See Appendix 6.2 (page 68).

3.5.1.2. *How the staff members are divided into areas of specialty in the discipline*

Historically, the staff members were divided into departments, representing different areas of Chemistry (e.g. Organic, Physical, Inorganic etc.). In light of the nature of modern Chemistry, where the boundaries between areas of specialization have gradually become antiquated, the division of the Institute of Chemistry into departments was eliminated three years ago. This move was consensually and strongly supported by all staff members, who felt that the division into strict areas of Chemistry was artificial and did not reflect the current climate for conducting advanced research in Chemistry, where boundary crossovers are more common than not. The Institute of Chemistry sees contemporary research in Chemistry as often covering subjects and using tools that in the past were considered part of different fields of Chemistry. This philosophy is also distinctly reflected in the Study program. As soon as the third year of the B.Sc. degree, students are encouraged to choose elective courses, as dictated by their own scientific curiosity and interest, and regardless of which areas of Chemistry the courses may have belonged to in the past. Needless to say, this view becomes dominant for students pursuing M.Sc. and Ph.D. degrees. At the M.Sc. level, as described in **Section 3.2**, the students can choose with substantial flexibility among courses that are part of different Specialization Areas. Furthermore, 10 out of the 31 credits of the degree are devoted to courses that the student can choose, not only from any of the Specialization

Areas of the Program, but from any program of the Faculty of Sciences. Students can take courses given in other Faculties and even in other universities. Obviously, though, the student chooses the courses in consultation with his Supervisor and the Advisor of his Specialization Area. Additionally, with the aim of allowing for additional flexibility, one of the Specialization Areas offered to the students is called the Combined Specialization Area (*Al-Megamati*, in Hebrew). In this case, the student has to choose courses from at least three Specialization Areas, reflecting, once again, a broad range of subjects. Ph.D. students are granted a large amount of latitude when choosing their Complementary Studies, being guided only by the student's Supervisor and his Accompanying Committee (see below).

3.5.1.3. *Specializations and skills required of the staff members teaching*

The teachers are appointed to teach a specific course based on their teaching capabilities, their background, and their area of specialization. That being said, all staff members are expected to be able to teach basic Chemistry courses in a highly professional manner, regardless of their present line of research. While no formal requirements are made of young staff members joining the Program, successful previous teaching experience is one of the leading considerations when evaluating candidates for a position in the Program. Most of them have broad experience as TAs during their Ph.D. and Post-Doctorate periods and have conclusively demonstrated their ability to teach at a university that, like Hebrew University, has very high teaching requirements. In the cases that this proved not to be the case, teachers are instructed to take educational workshops that are tailored to help university teachers to improve the level of their teaching.

3.5.1.4. *Ensuring that staff members are updated with regard to the program*

Staff members are encouraged to constantly update their syllabi and critically revise the content of their courses. Also, to avoid stagnation each teacher's course assignment is changed every few years.

3.5.1.5. & 3.5.1.6. *Criteria and procedures for appointing the head of the study program and the staff. Definition of the position of the head of the study program*

The Head of the Study Program – the Chairman of the School (חוג) of Chemistry – is elected by the faculty of the Institute of Chemistry; the School is part of the Institute. The appointment is usually for three years, with the possibility of one-year extension. Both associate professors and full professors can be elected. Elected for that position are faculty members with a clear vision of teaching needs and teaching philosophy, and with positive and emphatic attitude to students. (Tenure and promotions are the mandate of the Head of the Institute). The Head of the Institute and the Chairman of the School work hand-in-hand, consulting each other on teaching issues and on Institute issues. In the absence of the Head of the Institute, the School Chairman temporarily substitutes for him.

3.5.1.6. See 3.5.1.5

3.5.1.7. *Definition of full employment in the institution for senior and junior staff*

There is no formal definition of "full employment", but the vast majority of staff members teach three or more courses. The number of hours varies depending of the type of course taught (frontal, laboratory or seminar). Additionally, staff members perform other academic duties, such as being Advisors of B.Sc. students or of the different Specialization Areas at the M.Sc. level. They are also active members of the various Committees of the Program (e.g. the Studies Committee, the Teaching Assistants Committee, and the Prizes Committee). Staff members are also very active at both the Faculty and University levels. Overall, the level of good citizenship of the teachers of the Program is very high. An additional significant part of the time of the staff members of the Program is allocated to supervise M.Sc. and Ph.D. students. It is worth stressing that the average Graduate student-to-staff member ratio in the Program is one of the highest in the Faculty.

3.5.1.8. *Obligation of staff members to serve as advisors for final projects*

Yes, staff members are obliged to perform these duties. The main criterion in assignment is the match between the expertise of the advisor and the thesis topic. Occasionally, an additional advisor whose expertise is not as close is co-appointed.

3.5.1.9. *Policy regarding recruiting and absorbing teaching staff*

The recruitment policy is a balance between a carefully designed list of the teaching and research requirements of the Institute and the School and the expertise that highly qualified applicants bring with them. The list of our requirements is prepared by the Search Committee, which currently holds 7 members, representing the various Chemistry expertise areas of our Institute. Current fields we seek to strengthen are Analytical Chemistry, Inorganic Chemistry, Bio-Inorganic Chemistry, Polymers Chemistry, Computational Materials Science, Synthetic Organic Chemistry, Energy and the Environment, and NMR. We try to be balanced: Our foremost recent recruitments have been in nanomaterials, catalysis, ultra-fast chemical phenomena, and biomaterials. Since candidates compete on an all-faculty level, only the very best candidates are submitted, and our success rate has been high. After their evaluation by the Search committee, all members of the institute are asked to attend the lectures of the candidates (two lectures), to meet them, and to share their impressions. Our rate of recruitment has been about one new scientist per year, currently balances more-or-less the retirement rate. However, this was not the case in the two recent decades and thus there has been a significant drop in the number of active faculty from 59 in 1990 to 34 in 2010. Generally, this change has been for the better; we became "lean and mean". Our conclusion is that the recruitment rate must be significantly increased in order to maintain qualified teaching level.

Regarding junior staff, teaching assistants (TAs) - are selected by a committee among M.Sc. students and Ph.D. students, taking into account their grades, their research topic, and our view of their teaching abilities. Between 1/2 and 2/3 of

our M.Sc. and Ph.D. students are recruited as TAs, and usually they serve for the whole duration of their studies.

3.5.2. *Technical and administrative staff*

The entire list of technical and administrative staff is displayed in Table 3.5.2.

Table 3.5.2 - Technical and administrative staff

Name	Title	Position
Esti Ben-Shoan	Ms.	Administrative Director, Institute of Chemistry
Florence Darmon	Ms.	Senior Secretary Administrator of the Teaching Program
Tali Hezi	Ms.	Secretary for Students' Affairs
Tamar Arava	Ms.	Senior Secretary
Helya Bar-Mag	Ms.	Institute Secretary
Shulamit Ben-Naim	Ms.	Secretary
Anat Shimon	Ms.	Senior Secretary
Margalit Fingerhut	Ms.	Senior Secretary
Adriana Yanai	Ms.	Senior Secretary
Miriam Netanelli	Ms.	Senior Secretary
Geula Levy	Ms.	Assistant Administrator
Myriam Boussidan	Ms.	Director, Students' Labs
Aya Suslensky	Ms.	Laboratory Assistant at the Students' Lab
Elena Naymark	Ms.	Laboratory Assistant at the Students' Lab
Erwin Gross	Mr.	Laboratory Assistant at the Students' Lab
Lia Savin	Ms.	Laboratory Assistant at the Students' Lab
Sorina Leizerovici	Ms.	Laboratory Assistant at the Students' Lab
Boris Haynman	Mr.	Laboratory Assistant at the Students' Lab
Matityahu Altshul	Dr.	Laboratory Assistant at the Students' Lab
David Rinenberg	Mr.	Students' Lab Technician
Elyse Gelfand	Ms.	Editor, Scientific Papers and Final Exams Coordinator
Marcelo Friedman	Mr.	Director, Electronics Lab
Alexander Lantsman	Mr.	Electronics Lab Technician
Shaul Binyamini	Mr.	Electronics Lab Technician
Michael Vilenkin	Mr.	Computer Technician
Yonathan Ben-Avraham	Mr.	Electrician
Shmuel Cohen	Dr.	Director, Crystallography Lab
Igor Brodsky	Dr.	Lab Technician
Carina Hazan	Dr.	Director, Microanalysis Lab
Leah Cohen	Ms.	Microanalysis Lab Technician
Roy Hoffman	Dr.	NMR Lab Manager
Yair Ozery	Mr.	NMR Lab Technician
Tal Dagan	Mr.	Mechanics Workshop Technician
Guy Gasser	Mr.	Chemical Engineer
Sharona Henig-Talmor	Ms.	Chemical Technician
Abraham Aserin	Dr.	Lab Director
Itzik Shweky	Dr.	Lab Director
Carmen Tamburu	Ms.	Lab Technician
Luba Kristol	Ms.	Lab Technician
David Danovich	Dr.	Researcher
Gilat Nizri	Dr.	Researcher
Oleg Liubashevski	Dr.	Researcher
Hannah Harel	Ms.	Senior Engineer
Helena Vinetsky	Dr.	Senior Engineer
Inna Svitov	Ms.	Senior Engineer
Jenia Gun	Dr.	Senior Engineer
Tom Koevary	Mr.	Senior Engineer

Myriam Boussidan is in charge of the Students' Labs.

Aya Suslensky is the Laboratory Assistant in charge of the following laboratory-courses: "Chemistry Lab for Medical Science Students – semester A" and "General Chemistry Lab for Biology Students". She is in charge of preparing the labs for the students, including all the materials and solutions necessary for the experiments, and taking care of the laboratory equipment and instruments.

Elena Naymark is the Laboratory Assistant in charge of the following laboratory-courses: "Organic Synthetics Lab", "Organic Synthetics Lab B" and "Organic Chemistry Lab". She is in charge of preparing the labs for the students, including all the materials and solutions necessary for the experiments, and taking care of the laboratory equipment and instruments.

Erwin Gross is the Laboratory Assistant in charge of the following laboratory-courses: "Chemistry of Materials – Lab" and "Chemistry Lab for Medical Science students – semester B". He is in charge of preparing the laboratories for the students, including all the materials and solutions necessary for the experiments, and taking care of the laboratory equipment and instruments. In addition, he is also one of the laboratory assistants in the lab-courses: "Analytical & General Chemistry Lab" and "General Chemistry Lab".

Lia Savin is the Laboratory Assistant in charge of the following laboratory-courses: "Physical Chemistry Lab" and "Physical Chemistry Lab for the Physics Science program". She is in charge of preparing the laboratories for the students, including all the materials and solutions necessary for the experiments, and taking care of the laboratory equipment and instruments.

Sorina Leizerovici is the Laboratory Assistant in charge of the laboratory-course "Inorganic Chemistry Lab". She is in charge of preparing the laboratories for the students, including all the materials and solutions necessary for the experiments, and taking care of the laboratory equipment and instruments. In addition, she is the administrative coordinator for the lab-course: "Advanced Laboratory in Chemistry".

Boris Haynman is a Laboratory Technician in charge of all the orders for the students' labs and helps whenever needed.

Matityahu Altshul is the Laboratory Assistant in charge of the following laboratory-courses: "Analytical & General Chemistry Lab" and "General Chemistry Lab". He is in charge of preparing the laboratories for the students, including all the materials and solutions necessary for the experiments, and taking care of the laboratory equipment and instruments.

David Rinenberg is an electricity technician who takes care of all the small instrumentation in the students' labs.

3.5.3. *Summary, strength and weakness of the human resources*

Overall, the teaching, technical and administrative staffs are comprised of dedicated and committed people that do a very good job. The weaknesses are mainly the number of staff, both academic and technical, which has been rapidly decreasing over the last few years:

- The number of active teachers in the program (faculty members in the Institute of Chemistry) has decreased significantly in recent years (from 59 to 34), due to the retirement of many teachers, without recruitment of new faculty members at the same rate. This has lead to a significantly increased teaching load. Luckily, many of the retired teachers still volunteer to teach after their retirement, which maximizes the quality of the instruction. It is our conclusion that the rate of recruitment must be increased, in order to enable the best instruction.
- The number of technical staff is also decreasing dramatically, and most of the technical staff is dealing with teaching but not with research. There are almost no research assistants in the research labs. This must be changed, and technical stuff must be hired in order to ensure the continuation of cutting-edge, high-quality research in the Institute.

3.6. *Infrastructure*

3.6.1. *Administration*

3.6.1.1. *Physical location of the unit in the institution*

The Institute of Chemistry is located in the Los Angeles building at the Edmond Safra Campus of the Hebrew University. The study program operates throughout the Edmond Safra Campus, along with all the other study programs of the Faculty of Science.

3.6.1.2. *Number of rooms and equipment that serve the academic staff*

The senior academic staff of the Institute of Chemistry is spread out over five buildings: Los Angeles, Philadelphia, Alberman, Aronberg, and Casali. Each member has an office equipped with a phone line and internet connection. There is at least one shared office for the junior academic staff on each floor. These rooms are equipped with at least one phone line and two computers with internet connection. There is an office for a secretary in each building, equipped with a phone line, fax, internet connection and a printer. All the buildings have central air-conditioning.

3.6.2. *Classes*

3.6.2.1. *Number of classrooms, seminar rooms, rooms for group activities, etc.*

All the academic activities take place in lecture halls that belong to the Faculty of Science.

Table 3.6.2.1 – Classrooms

Class name	Number of seats
Chemistry 7	298
Levi 06	90
Levi 07	100
Levin 8	150
Mathematics 110	64
Mathematics 2	160
Silberman 502	80
Silberman 504	35
Silberman 506	35
Silberman 508	35
Rachell	128
Lower Popik	75
Feldman A	215
Feldman B	215
Casali	40
Canada	318
Upper Canada	68
Kaplan	212
Rothberg	160
Sprinzak 24	30
Sprinzak 25	35
Sprinzak 26	48
Sprinzak 27	48
Sprinzak 28	42
Sprinzak 29	48
Sprinzak 101	40
Sprinzak 102	30
Sprinzak 114	42
Sprinzak 115	110
Sprinzak 116	46
Sprinzak 117	73
Sprinzak 201	38
Sprinzak 202	30
Sprinzak 213	42
Sprinzak 214	65
Sprinzak 215	56
Sprinzak 216	36
Sprinzak 217	70

* All class rooms have smart tables, slide projectors and “Barko” projectors.

As can be seen in Table 3.6.2.1, there are 8 large lecture halls (150 seats and above), 12 medium-sized lecture halls (50 – 150 seats) and 18 small classrooms (50 seats and below). All of them are equipped with a “smart table”, “Barko” projector, and slide projector. The Edmond Safra Campus has wireless network

coverage in most of the lecture halls so that students and staff can use laptop computers.

3.6.2.2. *Access of the parent unit and study program to additional facilities for special purposes*

There is a small meeting room in each building for group meetings and graduate exams, equipped with a "Barko" projector. In addition, there is a central large conference room in the Los Angeles building for institute lectures and seminars, equipped with a "Barko" projector and a pc computer.

No teaching takes place outside the campus.

3.6.3. *Computerization*

3.6.3.1. *The institutional and unit computer layout*

The Institute of Chemistry has three UNIX servers that host the institute's e-mails and websites. In addition, there are two centers for theoretical chemistry: The Lise Meitner Minerva Center for Computational Quantum Chemistry and The Fritz Haber Research Center for Molecular Dynamics.

The Lise Meitner Minerva Center for Computational Quantum Chemistry has eight computer clusters with 2 – 29 nodes and 5 servers. All have a RedHat Enterprise Linux 5 operating system and use IGLO (IGLO program), LORG (RPAC program), GAUSSIAN-03, GAMESS-USA, GAMESS-UK, SPARTAN-4.1, MOLCAS-4, MOLPRO 2000.1, JAGUAR, *ab-initio* programs for electronic structure calculations, thermochemistry of organic reactions (localization of transition states and excited states of the molecules), and MOPAC and AMPAC 6.0 semiempirical programs.

The Fritz Haber Research Center for Molecular Dynamics has 2 SGI Origin 2000 servers (UNIX – SGI IRIX), 3 HP ProLiant DL 380 system servers (1 – Windows 2003 server, 2 – RedHat Linux 3), 1 HP MA 500 storage system, 1 NetApp FAS 270 storage system, 3 Intel system servers, 1 SUN x4600 8 Dual Core AMD Opteron 885 CPU 32 GB RAM, 1 SUN 15 server-based cluster (SUSE 10/11 LINUX), 2 PC-based clusters (12 and 32 nodes), 1 SGI Altix XE cluster of 15 servers (SUSE 10 LINUX), 1 SGI Altix 350 server (SUSE 9 LINUX), 1 SGI Altix XE 1300 cluster of 15 servers (SUSE 11 LINUX), 20 different servers with RedHat/Centos/SUSE LINUX installed, and 55 workstations (mostly PC).

3.6.3.2. *Number of computer labs that serve the students in the program*

The Faculty of Science has a computer center called "The Berel Ginges Computer Centre" for the use of all faculty and students. This center has 180 pc computers. In addition, there are 10 information stations scattered throughout the campus.

3.6.4. *Laboratories*

The School of Chemistry has two laboratories in the new teaching laboratory building of the Faculty of Science. One can occupy up to 64 students and the other up to 48 students. Most of the lab-courses of the program are being held there (a list of the laboratory-courses is provided in Table 3.2.2). This building is equipped with the following equipment: 18 spectrophotometers (10 are over ten years old), 1 magnetic susceptibility balance, 7 HPLCs (1 is over ten years old), 1 ice flaking machine, 8 piston burettes (7 are over ten years old), 1 hydrogen generator, 1 spectrofluorimeter, 1 wafer spin processor, 1 nanoparticle characterization system, 11 analytical balances (10 are over ten years old), 9 semi-analytical balances (7 are over ten years old), 32 conductivity – pH meters, 2 ovens, 1 UV-VIS spectrophotometer, 48 vacuum pumps (2 are over ten years old), 1 homogenizer, 1 centrifuge, 1 water bath, 1 ultrasonic cleaner (over ten years old), 3 furnaces (over ten years old), 1 glassware washer (over ten years old), 1 FTIR (over ten years old), 1 press for IR plates (over ten years old), 3 electro-analyzers (over ten years old), 1 MS (over ten years old), 2 atomic absorption spectrometers (over ten years old), 1 GC (over ten years old), 1 ultra-pure water system (over ten years old), 2 conductivity meters, 1 chemical refrigerator, 155 heated plate magnetic stirrers, 10 power supplies, 11 heating mantles (10 are over ten years old), 46 PC computers, and 13 printers.

In addition, there are two additional laboratories located in the old buildings named “Lab 1” and “Lab 4”. “Lab 1” can occupy up to 34 students, while “Lab 4” can occupy up to 24 students. All the Organic Chemistry lab-courses are held in “Lab 1”, and all the Physical Chemistry lab-courses are held in “Lab 4”.

“Lab 1” is equipped with: 1 GC, 1 FTIR (over ten years old), 1 spectrophotometer (over ten years old), 1 distillation oven (over ten years old), 13 vacuum gauges, 4 analytical balances (over ten years old), 5 semi-analytical balances (1 is over ten years old), 1 ice flaking machine, 12 vacuum pumps (2 are over ten years old), 1 ultrasonic cleaner, 1 ultra-pure water system (over ten years old), 1 NMR 200MHz (over ten years old), 1 polarimeter (over ten years old), 1 ozone generator (over ten years old), 2 hydrogen generators (over ten years old), 6 heating mantles for funnels (3 are over ten years old), 3 evaporators (1 is over ten years old), 1 UV lamp (over ten years old), 6 melting point determination apparatuses (over ten years old), 2 chemical refrigerators (over ten years old), 1 photochemical reaction assembly (over ten years old), 1 immersion lamp for photochemical reactions (over ten years old), 14 engines for mechanical stirring (over ten years old), 20 thermostatic immersion-type heating elements, 34 heated plate magnetic stirrers (over ten years old), and 41 heating mantles (over ten years old).

“Lab 4” is equipped with: 1 refrigerated bath, 2 diode array spectrophotometers (1 is over ten years old), 3 oscilloscopes, 2 analytical balances (over ten years old), 1 semi-analytical balance (over ten years old), 1 balance, 1 SPM-AFM, 1 function generator, 1 CCD detector, 1 imaging spectrophotometer, 2 Nd-Yag lasers (1 is over ten years old), 1 neon-helium laser (over ten years old), 2 circulators (1 is over ten years old), 6 thermostats (over ten years old), 1 holographic grating (over ten years old), 1 Metris scanner (over ten years old), 4 pumps (over ten years old), 2 baratrons (over ten years old), 1 ultra-pure water system (over ten years old), 1 chemical refrigerator, and 3 power supplies.

3.6.5. *Library and Information Technology (IT)*

3.6.5.1. *Description of the library that serves the students and the teaching staff*

Background: The Harman Science Library, named for Avraham Harman, 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, and in 2006, the Earth Sciences Institute's library was absorbed by the Harman Library and now serves as a local reading room.

The Harman Science Library is part of the Hebrew University Library Authority.

However, the Library's connection to the Faculty of Science continues, emphasized by the fact that an academic member of the Faculty of Science, appointed by the Dean, serves as the chairman of the Harman Science Library committee and provides valuable guidance.

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, Earth Sciences and science teaching. It also serves first-year students of Mathematics, Computer Sciences, Medicine, Pharmacy, Medical Sciences, and the School of Engineering, who study on the Edmond J. Safra Campus. Staff members and students from other campuses, students and lecturers of local colleges, the high tech community, and others make frequent use of the library.

The Harman Science Library is located on the Edmond J. Safra Campus at Givat Ram and is housed in the Kaplan Building at the center of the campus. There are six levels, four of which house the library collection, arranged to accommodate the needs of the patrons. The library has very recently undergone extensive renovations. The purpose of this renovation was to establish the state-of-the-art Berel and Agnes Ginges Library Information Center.

The Collection:

In the Harman Science Library building there are:

- 7750 running meters of shelving.
- 2450 running meters of monographs.
- 5300 running meters of journals.

The collection is arranged as an open-shelf system, in which patrons search the online catalog and have free access to books and journals.

- Journals and series are located on three levels, each arranged alphabetically by title.
- Monographs, including text books, research books, reference books, dictionaries, theses, and rare books, are located on two levels arranged by the Library of Congress Classification.

The print collection:

- 76,126 monograph titles
- 100,114 monograph items, including volumes and multiple copies.

- 4,255 journal titles
- 238,280 journal volumes

The electronic collection:

1921 Chemistry electronic journals by category**:**

- Analytical chemistry 146 titles
- Applied chemistry 79 titles
- Biochemistry 709 titles
- Chemical engineering 204 titles
- Clinical chemistry 60 titles
- Crystallography 54 titles
- Electrochemistry 43 titles
- Environmental chemistry 46 titles
- General and others 440 titles
- Inorganic chemistry 76 titles
- Kinetics 34 titles
- Medicinal chemistry 64 titles
- Nuclear chemistry 42 titles
- Organic chemistry 120 titles
- Petroleum 24 titles
- Pharmaceutical chemistry 99 titles
- Physical chemistry 123 titles
- Polymers and plastics 108 titles
- Radiation chemistry 31 titles
- Synthesis 31 titles
- Toxicology 125 titles
- Life sciences 2620 titles
- Physics 953 titles
- Engineering 2901 titles
- Earth Sciences 876 titles
- Environmental sciences 1125 titles
- Material sciences and metallurgy 542 titles

Databases:

Science Electronic Databases: 37

Required reading course textbooks: The library purchases those textbooks that are assigned as required reading by lecturers. In order to meet the needs of students, the library tries to maintain a proportion of one copy per 10-12 students registered in the course. This is subject to the recommendations and advice of the academic teaching staff.

Library hours: During semesters – from the beginning of the school year until the end of July

- Sun-Wed 9:00 – 22:00
- Thurs 9:00 – 18:30
- Summer hours : Sun – Thurs 9:00 – 18:00

Seating capacity and computer stations: Following are the projected seating capacity and computer stations after the renovation (June 2010).

There will be approximately 500 seats distributed throughout the library. Two levels have been designated as group study areas and the other as quiet areas.

There will be 102 computer stations available for patrons, as well as four printers and one scanner, interspersed on all levels.

In addition, last year six laptop computers were added for loan, together with electronic dictionaries and scientific calculators.

Wireless connection is available everywhere in the building.

Library staff: The library staff is comprised of librarians, an administrative assistant, and students who are hired on an hourly basis. All professional librarians have library degrees (MLS or diploma). The schedule of each librarian includes a shift at the circulation desk or at the reference department to ensure interaction with library users. Multitasking has been made necessary due to changes in the library and information science world.

Our librarians are active in both inter- and intra-university forums, publish in professional journals, lecture at conferences, and have served as chairpersons of national committees.

There are currently 13 employees: 11 tenured employees and 2 temporary positions. In addition, the library employs students for an average of 600 hours/month.

Instruction Services: Library orientation sessions are offered to new students at the beginning of each academic year by our reference staff. These include organized tours of the library building with explanations of the available services and a demonstration of our computerized catalog. In the 2007/8 academic year, the library staff launched an online course entitled "Library resources". The course is compulsory and a pre-requisite for participation in all seminar courses for the Bachelor's Degree. The course is under ongoing development and maintenance by the library staff. The purpose of the course is to enable the students to learn the fundamentals of searching the library's resources, evaluating the information, citation rules of the sciences, copyrights, plagiarism, etc. For each research area in the science faculty there is a specific content unit. During the semester, small groups or individuals receive instruction sessions on any one of a variety of topics such as digital databases or reference and bibliographic tools within the library. Our reference librarians offer specific instruction at the campus units to the faculty.

Access to electronic subscriptions outside the library: Access to our databases and electronic journals is available on any computer that is connected to the university network. The exception is the SciFinder chemistry database, which requires a computer-specific registration to allow access. Undergraduate students can access electronic databases and electronic journals from home by entering a personal identification code via VPN communication. Graduate students, researchers, and faculty are able to connect to internet access from home, and thus are able to access electronic databases and electronic journals

from home, by entering a personal access code arranged by the Computation Authority of the Hebrew University for qualified members.

As a result of the above infrastructure, our electronic collection is accessible 24 hours per day, 7 days per week to the entire Hebrew University community.

Collection development - Acquisitions policy in the library: The library budget is used to purchase monographs (for courses and research), series, journals (print and electronic) and databases. The extremely high prices of journals in science, in particular experimental science (Chemistry, Physics and life sciences), has greatly reduced our budget's purchasing power. The major portion of the budget is spent on journal subscription, with a very small percentage available to purchase monographs.

Dissemination of scientific reports is mainly via journals. The emphasis in the Harman Science Library, as in most other academic science libraries, is to develop and maintain the journal collection. Decisions relating to monograph purchases and development of the collection is based on recommendations from the academic staff and researchers of the Faculty of Science as well as the reference librarian. The Library Director coordinates and approves all purchase decisions.

Textbook acquisition orders are placed after checking for the latest editions and for the number of available copies to determine the needs of the students registered in the course.

The library has a core journal collection which reflects the most important journals in the scientific fields in which our academic researchers work. Subscription decisions to new titles are based on a variety of parameters such as the impact factor, price, the number of researchers in the field that express interest in the title, etc. In addition to the titles to which the library directly subscribes, our patrons have access to a vast number of titles, thanks to the agreements the Library Authority signed with certain publishers. The Hebrew University has also signed contracts with the country's consortium, MALMAD, which enables access to package agreements with the world's largest publishers at reduced prices.

Databases in the sciences are extremely expensive, and it is very difficult for a faculty library to maintain the expense. The decision to acquire a new database is made on academic and budgetary considerations. The Library Committee and Faculty of Science Institute representatives make the academic recommendations.

3.6.5.2. *Enabling access of students with special needs to the study material and facilities*

All lecture halls and laboratories, as well as most areas of the library building are accessible to the handicapped by elevators. The circulation desk and the rest rooms are made compatible with wheelchairs. All computer stations are equipped with built-in Microsoft software that is adapted to the disabled.

3.6.6. *Summary- strengths and weaknesses of the physical infrastructure*

As evident from the above, the situation is adequate regarding buildings and classrooms. Renovations are an ongoing process that is dictated by the age of the facility and the state of the building, and by availability of resources from the faculty. While the latter is associated with constant negotiations with the faculty administration, it must be stated that cases of urgency and real pressing needs are well-attended to. Safety issues, air-conditioning, and other subjects important for the students' wellbeing are usually resolved within a reasonable time.

Less satisfactory is the response to the need to constantly upgrade laboratory instrumentation, and to introduce novel experimental techniques. As is clear from the above, in many instances the laboratories are equipped with mixtures of very old and very new instruments. Recently, we have purchased four modern HPLC instruments – but this type of purchase should occur much more frequently.

Regarding staff, we would like to see many more teaching assistant positions, particularly in order to reduce the size of the classes in which the drills and exercises of the main courses take place. At the moment, some of these classes have too many students (many more than 15-20, which is the optimal). In the laboratories, however, the situation is satisfactory and according to safety regulations: 8 students per one teaching assistant. Regarding technical staff, we are in need of a 25% increase in the number of laboratory technicians who prepare the laboratories (and clean them afterwards), and we are in need of 2-3 technical positions in electronics, glass-shop and machine-shop requirements. As for secretarial staff, the current situation, in which this large school is handled by only one receptionist/secretary, creates occasionally a situation of overload; here we need at least one more person.

Finally, the library and information accessibility is in very good condition, as indicated above.

Chapter 4 – Research

4.1. The research in the Institute of Chemistry

The Institute of Chemistry at The Hebrew University of Jerusalem was the first of its kind to be established in the country when the University was founded in 1925. It was the first institute in the Faculty of Science and was established in 1924, a year before the official opening of the Hebrew University. In due course, departments were set up, such as the Department of Organic Chemistry, under Prof. Chaim Weizmann in 1927, and at the same time the Department of Inorganic Chemistry, founded by Prof. M. Bobtelsky. In 1935, when the well-known Prof. L. Farkas joined the Hebrew University, the Department of Physical Chemistry was founded as well.

Today, the Institute of Chemistry at HUJI is the leading Chemistry institute in Israel in terms of scientific output (see Section 4.2 for details). The academic staff of the institute consists of 34 faculty members, and a similar number of emeriti. Many of the emeriti professors still pursue highly active research. It is worth mentioning that among the faculty members are three recipients of the Israel Prize in Chemistry (Professors Levine, Willner and Rappoport).

Since 2008, due to the interdisciplinary nature of modern chemistry, the organizational structure of the Institute of Chemistry was altered. The departments were dissolved, and currently all faculty members are under the Institute's umbrella. This enables higher flexibility and promotes dynamic and interdisciplinary research. Indeed, there are many research collaborations among the Institute's members, which include joint supervision of students, joint publications and patents.

The research in the Institute of Chemistry encompasses all areas of modern chemistry. These include, among others: Analytical Chemistry, Applied Chemistry, Biophysical and Biological Chemistry, Catalysis, Experimental Physical Chemistry, Inorganic Chemistry, Materials Chemistry, Medicinal Chemistry, Nanotechnology, Synthetic-Organic Chemistry, and Theoretical and Computational Chemistry. Some 130 M.Sc. students, 130 Ph.D. students and post-doctoral fellows from abroad are actively pursuing research in of all these fields. A detailed description of the major research areas of the institute members is presented below in this section.

The Institute of Chemistry maintains a close relationship with the chemical industry in Israel, and many patents have arisen from the research performed in the Institute. Section 4.3 provides more details on this topic.

The Institute of Chemistry has abolished three years ago the classical division into departments (Organic, Physical, Analytical, and Inorganic), but maintains several research centers, which are dedicated to focused research efforts in specific areas in Chemistry, bringing together experts in these fields. These centers include:

A. The Casali Institute of Applied Chemistry, which is named after the prominent Italian industrialist Alberto Casali of Trieste who, back in the 1960's, had a vision of supporting and backing the young Israeli chemical industry with an academic research institute. The Institute started operating in 1975 with the following objectives: To be a focus of strategic and applied scientific research directed towards developing the Israeli chemical industry; to teach and train M.Sc. and Ph.D. students in chemical industrial research; to be a center for transfer of innovative and advanced scientific knowledge for the Israeli and global chemical industry; and to enhance and empower the integration of basic and applied research within the Hebrew University. Since 2005 The Casali Institute is a fully integrated part of the Institute of Chemistry. The teaching programs in Applied Chemistry were incorporated into the general Chemistry curriculum. Currently the Institute is headed by Professor Yoel Sasson. There are seven full professor faculty members at the Casali

Institute. The main research areas are Energy and Fuels, Forensic Chemistry, Biomedical Polymers, Colloids and Emulsion Technology, Environmental Chemistry, Interface Science and Nanotechnology, Composite Materials, and Process and Environmental Catalysis.

B. The Farkas Center for Light-Induced Processes, which came into being in 1989, is one of the earliest Minerva Centers to be established at the Hebrew University, and one of three affiliated with the Institute of Chemistry – the others being the Fritz Haber and Lise Meitner Centers – see below. The Farkas Center focuses on research involving fundamental and applied aspects of light-matter interaction. Its mission has been to encourage collaborations between the Center's members, to provide crucial funding to allow the development of new and as-yet unfunded projects, and to facilitate active ties between the Center's members and colleagues in various academic institutions in Germany. Currently the Center has 8 faculty members and is headed by Prof. S. Ruhman.

C. The Lise Meitner Minerva Center for Computational Quantum Chemistry (jointly with the Technion), with support of the Minerva Foundation, was initiated as a result of the assessment that CQC has become 'chemistry's third power' alongside experiment and theory, and that such activity lacked critical mass in Israel while, and on the other hand, it was highly developed in Germany. Such a center was judged to be an essential element in the future development of modern chemistry in Israel. This recognition was followed by submission of a proposal to establish an interdisciplinary "Minerva Center for Computational Quantum Chemistry" wherein computations, theory, and experiment interact with and enrich each other. The Center was to serve also as a focal institution for training and educating a new generation of qualified young investigators, Ph.D. students, and Postdoctoral Fellows. The Center is directed by Prof. Sason Shaik and has 13 members, 4 of which are from the HUJI.

D. The Fritz Haber Minerva Center for Molecular Dynamics was established in 1981 by Prof. Raphael D. Levine; its current director is Prof. Roi Baer. The Fritz Haber Center's scientific mission is to support research in the field of Molecular Dynamics, including electron dynamics and coarse-grained dynamics in biophysical systems. The educational mission of the Center is to develop a new generation of theoreticians in Chemistry by coaching and guiding a large body of Theoretical Chemistry students, supporting and organizing a weekly seminar, summer school programs, symposiums and workshops. The number of researchers in the Center fluctuates around 35-45, organized into 9 research groups. The main emphasis of the Center's research is to develop novel theoretical-computational approaches and to apply them to studying a broad spectrum of important basic scientific problems (including environmental sciences, biophysics, material sciences, green energy and low-temperature chemistry/physics). The Center implements its mission by providing basic essential services to its researchers, mainly the day-to-day maintenance and system administration of the strong and stable computer facility that forms the backbone infrastructure of the research activities.

Funding and grants: The members of the institute of chemistry are highly successful in obtaining highly competitive grants, both at the national and international levels. These include for example EU-funded grants such as EU consortia and the individual ERC grants. Examples for such grants achieved by the institute members can be found in the CVs in the attached CD. The issue of research funding in more detail is outside the scope of the current self evaluation, but we will be happy to provide detailed information to the interested referee.

It is important to note that grants at the national level and internal university grants are usually very small (typically less than 50,000$ per researcher per year including overhead), and for a short period of time (1-3 years). This makes it very difficult to base the research only on national grants, and it is

absolutely essential to apply for competitive international grants in order to secure sufficient long-term research funding.

Scientific service units: There are several service units in the Institute. These core facilities contain capital equipment for use of all the researchers in the Institute, and are managed by dedicated expert scientists. These include the microanalysis lab, the NMR lab, and the crystallography lab. Other specialized equipment is located in the various research laboratories (as detailed below) and particularly at the Center for Nanoscience and Nanotechnology, which belongs to the Faculty of Mathematics and Natural Sciences and in which the Institute of Chemistry plays a leading role.

4.2. Scientific Impact of the Institute of Chemistry and comparison to other Chemistry institutes in Israel

The scientific impact of the Institute of Chemistry can be evaluated through the data available at the ISI Web of Knowledge website under the "Essential Science Indicators" section. A survey of the March 1, 2010 version of this database for the Israeli institutions in the category of Chemistry is summarized in the figures below. These figures describe three parameters: the number of citations per paper (Fig. 1), the number of papers (Fig. 2), and the total number of citations, all in five-year increments.

It is evident that the Institute of Chemistry at HUJI is leading in all three parameters in the period of 2005-2009. It is noteworthy that in the last two years, the Institute has become the leader among Israeli institutions in terms of Citations/Paper (Fig. 1), which is considered to be an essential indicator of scientific quality and international impact, and that this lead is steeply ascending. In fact, the Institute ranks among some of the best institutions worldwide under this category (2005-9). With a value of 9.77, HUJI chemistry is higher than prestigious institutions such as Oxford University (8.70), University of Munich (8.03), UC Davis (7.90), University of Strasbourg (9.01), University of Tokyo (8.79) and Kyoto University (8.10), and is close to ETH Zurich (9.97).

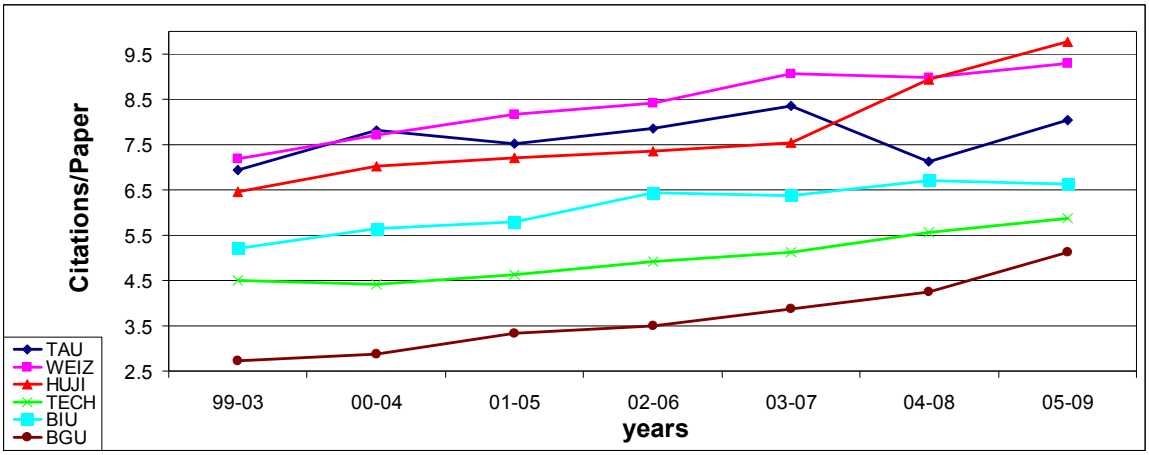


Figure 1: Number of citations per paper in five-year increments for the major Israeli chemistry institutes

Moving to Fig. 2, the number of citations, it is seen that the Institute of Chemistry has not only maintained its lead over the past decade, but is increasing the gap. This parameter indicates not only quality of research but also the overall visibility of the Institute in the international Chemistry arena. By this parameter, chemistry at HUJI is ranked #70 world wide (WEIZ: 135, TAU: 227, TEC: 270). It should be noted that Chemistry is the only major discipline in which HUJI is ranked highest compared to the other Israeli academic institutions.

Finally, as for the total number of publications (Fig. 3), note that one can detect an interesting trend – the overall number of publication has decreased recently (although it is still much higher than the other institutes), and this, combined with Fig. 2, indicates clearly the increase in the overall quality of the publications. The gradual slight decrease of total number of papers since 1999 is also a reflection of the gradual decrease of the size of our Institute, from 59 faculty members in the 1990's to 34 today. The fact that only a slight decrease appears in the total number of papers, despite the faculty number decreasing almost by half, is an indication of a dramatic increase in the productivity per researcher.

Brief CVs of the faculty members are compiled as an Appendix (see Appendix 6.4 on page 82). Full CVs are compiled in the attached CD. These CVs include detailed information about the scientific activity of the faculty members, including for example, research topics, research funding, local and international collaborations, patents, scientific community activity, prizes and awards etc.

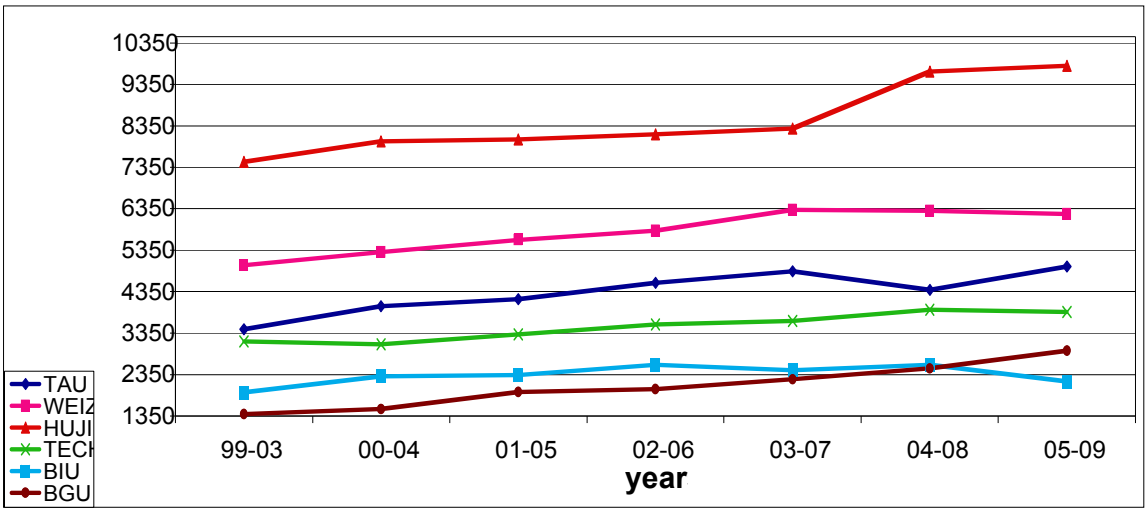


Figure 2: Number of citations in five-year increments for major Israeli institutions

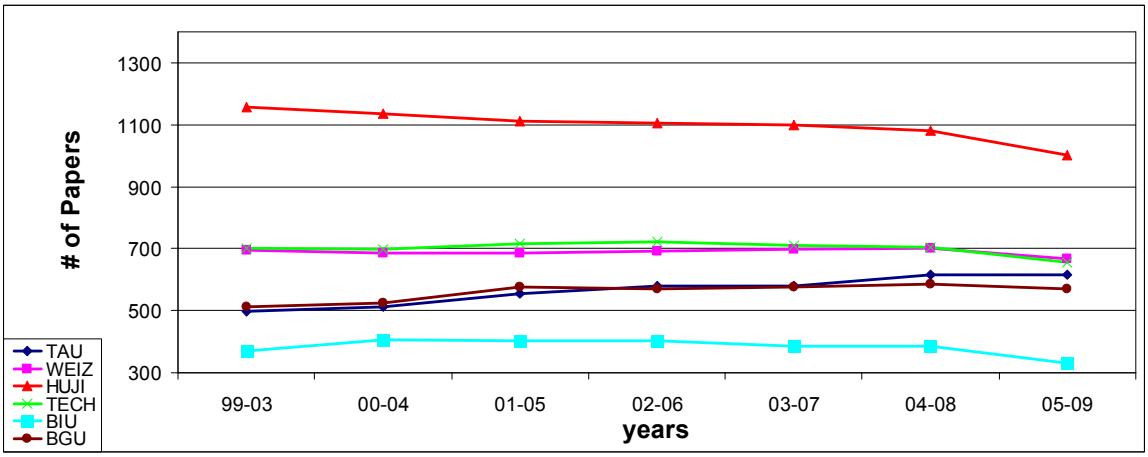


Figure 3: Number of papers in five-year increments for major Israeli institutions

4.3. Ties between the Institute of Chemistry and industry

Over the years, many of the members of the Institute of Chemistry have established fruitful ties with industry in Israeli and internationally. These ties are expressed in the following activities: Start-up initiation, joint research projects, service agreements, licensing agreements, and consulting agreements. Most of our alumni work in the chemical and chemistry-related industries, with a significant number of them reaching the level of top management. Additional reflection of the involvement of the Institute in industrial projects is the exceptionally high number of patent and patent applications which have resulted from the various research activities.

In this chapter the main activities and achievements will be described in the following categories: start-up companies, commercialization and licensing agreements, joint research projects, patents, and our alumni in industry. It should be noted that about one third of the researchers in the Institute of Chemistry are involved in industrial projects in various modes. The information in this chapter is provided without specifying the names of the researchers, and intends to present in general our ties with industry.

Start-up companies: These companies are based on ideas initiated by the researcher or on IP that was created by the researcher. The Institute of Chemistry participates robustly in this type of activity, and companies in a variety of fields have been created: Sol-Gel Technologies, Green Sun, Adumim Chemicals, SyntheMed, Neutralease, Green Clouds, DipTech, PheroCap, Qlight, Nanolayers, and Elutex. Some of these companies are selling worldwide, some are at R&D stages, and other have been closed down. It should be noted that some of these companies already transfer royalties based on their sales to the University and to the inventors. An additional significant benefit of these companies is that usually they employ our Chemistry graduates.

Commercialization and licensing agreements: A large number of licensing agreements were signed with a variety of Israeli and International companies. All agreements are signed through Yissum, the commercialization company of the Hebrew University. Only agreements signed during recent years or those that led to sales will be mentioned here; some are still under development towards commercialization .These agreements are with the following companies: Merck, Kodak, Nestle, ADM, Pepsico, Schering and Plough, Secusystems, Biosensor Applications, Medingo, Dead Sea Labs, Pharma2B, Phoenix Laboratories, DipTech, FMC, Objet, Lycored, and BrightSource. A very recent remarkable achievement that should be noted is a new biomedical product which received FDA approval for clinical use, to prevent cardiac adhesions (REPEL-CV®).

Beyond licensing agreements, there are also many joint research projects with industry, which are at a pre-licensing stage, with national and international companies such as Interactiva, Kinases Biosensors, Lycored, J&J, Medelute, Capella, MicroTech, and Metamorefix.

Service agreements: Numerous service activities are performed by many of the researchers of the Institute. This type of work serves greatly to enhance our ties with the industry, and often leads to research and licensing agreements, due to exposure of our research abilities and specialized instrumentation, to the various companies. Such agreements can be long-term, with no creation of IP, or even occasional measurements performed by our Institute's Service Labs (such as microanalysis, NMR etc.), or by individual researchers using specific instruments that are not available elsewhere in Israel. These companies belong not only to the chemical industry, but to many other industrial sectors, such as microelectronics, solar energy, printing, healthcare, cosmetics, etc. This actually reflects the interdisciplinary nature of the research expertise of many of the researchers in the Institute of Chemistry. The following is a partial list of companies for which service work is performed, in order to

illustrate the scope and extent of such work: Teva, Orbotech, Merck, Joma, HP, CimaNaoTech, Israel Military Industries and Israel Aviation Industries, etc.

Participation in Industry–Academy Consortia: An important manifestation of the close ties between the industry and the researchers in our institute can be found in the very significant participation in Israeli and international academy-industrial consortia.

This participation is important due to the exposure to new market needs and cutting-edge technologies, which enriches our activities. In Israel, the main joint programs that are under the Israeli Ministry of Trade and Commerce are: "Magnet" (a large number of companies and academic researchers, aimed at developing new generic technologies), "Magneton" (one company-one researcher, aimed at development of a joint product or technology) and "Nofar" (one company provides seed money to one researcher, with additional support from the ministry). Our researchers currently participate or have participated in the following **Magnet** programs: NFM (Nano materials), OptiPac (Electrooptics), BMP (Medical Imaging) NES (Nanowires), SES (Solar energy), Mayyim (Biofouling), and DPI (Digital printing).

Magneton programs were performed with the following companies: Elam, Elite, DipTech, Afimilk, and Lextran.

Nofar programs were performed together with the following companies: Dead Sea Labs, Carmel Olefins, Merck (Germany), and Afimilk.

Industrial connections are also on the international level, mainly through the EU programs (**NMP, STREP**), in which our researchers work in close contact with leading international companies, such as Philips, Agfa, BASF, etc.

Patents: As can be expected from the intensive ties between many of the researchers in the Institute and the industry, a large number of patents and patent application have resulted from this type of activity. So far, over 500 patents and patent applications have been filed by members of the Institute of Chemistry. This number corresponds to about one-third of the researchers that are currently active at the Institute. It is difficult to analyze the number of **inventions** that are related to this number of applications, but it is safe to assume that this number actually reflects at least 150 inventions, which is a very high number per researcher, by any standard.

Alumni: Obviously, most of our alumni work in the chemical or chemistry related industries, such as pharma or hi-tec companies. An important point to note is the large number of our alumni, about 40, that at present hold senior positions in the industry, such as CTO, Chief Chemist and CEO.

Chapter 5 - The Self-Evaluation Process, Summary and Conclusions

5.1 Self evaluation at the University level

5.1.1 To what extent do the institution and the parent unit perform self-evaluation on a regular basis? (apart from the evaluation initiated by the Council for Higher Education). If self-evaluation is being performed – please describe and evaluate the way it is carried out and its frequency.

The Hebrew University, together with the Council of For Higher Education (CHI) review and evaluate most of its units at regular intervals (usually each unit is being evaluated every 5-7 years). Those academic units not included in this schedule, are evaluated by in a similar procedure, by committees appointed by the Hebrew University. These committees consist of internationally renowned experts in the reviewed field which are typically supplemented by members from universities in Israel. The mandate of the Committees, as stated in the nomination letter, is to evaluate the unit's academic performance in teaching and research, and its standing within the field, in Israel and internationally. The Committees are asked to identify areas of strength and weakness and to advise the University on ways to improve and develop the unit. To achieve that goal committees examine all aspects of the reviewed unit: the activity of faculty members, in research and teaching, curricula, students' level, infrastructure, and administrative functions.

5.1.2 Has the institution appointed a senior staff member to deal with self-evaluation? If so, please state his name and his past and present position in the institution. State and evaluate the definition of his task as the staff member in charge of quality evaluation in the institution, including the scope of his authority and his method of operation.

The Hebrew University has two vice-rectors. One of them, Professor Yaacov Schul, is responsible for the academic evaluations at the Hebrew University. The other vice-rector, Professor Oded Navon, assists Professor Schul in coordinating and implementing the whole process of the review, which begins with the appointment of the Committee members, and the preparation of material by the reviewed unit. Preparing the material for the Review Committee also gives the unit an opportunity for self-assessment, itself an important stage in the review. The Committee then convenes in Jerusalem in which the Committee members get access to all relevant material and meet with staff, faculty and students. The Committee's report is submitted to the Rector, and its recommendations are carefully studied by the University administration (The President, the Rector, and the Vice-Rectors). The reviewed unit is asked to prepare a response, which is brought, together with the report of the review committee before the University's Committee for Academic Policy. This Committee, chaired by the President and the Rector, discusses all the relevant matters and decides on implementing all, or parts, of the recommendations.

5.1.3 Describe the methods used by the parent unit and the study program in its self-evaluation process, and what are your conclusions with regard both to the methods/the way it was performed and to its results?

See section 5.2.3 below.

5.1.4 Describe the consolidation process of the self-evaluation report, including its preparation and final approval (including a description of the contributions of staff members to the process).

See section 5.2.4 below.

5.1.5 If a mechanism/structure has been decided upon for the future treatment of problematic issues that were highlighted by the self-evaluation activity, specify it while referring to the functionary within the institution who would be responsible to follow up on this activity. Please refer to the question of how the institution and the parent unit intend to deal in the future with quality assessment and its implementation?

Following the discussion and decision by the University's Committee for Academic Policy, the executive summary of the review report is posted on the internet. The Vice-Rector discusses the recommendations and their implementation with the reviewed unit's chairperson. The implementation is monitored by the Implementation Committee.

5.1.6 Are the results of the self-evaluation open, transparent and accessible to staff (academic as well as administrative) and students?

The Hebrew University regards transparency and accessibility of evaluation reports as essential to the usefulness of the self-evaluation process. Following the discussion by the committee for academic policy (see above), the reports are made public and posted on the University's website.

5.2 Self evaluation at the Institute of Chemistry level

5.2.1 Extent of performing self-evaluation on a regular basis

This is the first round of self-evaluation of the Institute of Chemistry. The Council for Higher Education has already evaluated some other institutes at the Hebrew University (Life Science, Mathematics).

5.2.2 The institution appointing a senior staff member to deal with self-evaluation

The Head of the Institute was delegated to coordinate this round of the self-evaluation. He has appointed a committee, the structure of which appears on p. 2 of this report. There was no staff member dedicated to self-evaluation on a routine basis before the current process began.

5.2.3 & 5.2.4 Description of the way that the current self-evaluation process conducted. Description of the consolidation process of the self-evaluation report

The specific steps taken were the following:

- Appointing a steering and operating committee for the self-evaluation process. Special care was taken to appoint a Ph.D. student as a committee member, which turned out to be an excellent decision.
- Deciding on a strict time-table, which was set up to be shorter than the official one.
- Dividing the tasks amongst the committee members, according to their relevance (for instance, the Head of the School of Chemistry was responsible for Section 3).
- Distributing the guidelines to all faculty members to receive initial input and ideas.
- Bi-weekly (and later on even more frequent) meetings of the steering and operating committee, to follow the progress of the self-evaluation, to decide on means for collecting the data, and to discuss issues raised in the guidelines. Drafts of the various sections of the report were exchanged amongst the committee members.
- Specific tasks, such as Sections 4.2, 4.3, 3.6.5, were delegated to faculty members (and to the Head Librarian)

- A special one-day meeting of all the faculty members of the Institute of Chemistry was arranged in a kibbutz outside Jerusalem (in May) for a full day of discussions of the self-evaluation process and of specific topics for which the committee solicited broader input. This initiative was highly informative and useful.
- The final report was distributed to all faculty members for further comments and additions.

It is still too early to reach conclusions about this approach, and certainly the input of the referees will help in that respect. Tentatively, it can be suggested that so far, the mechanism has proven smooth and effective.

5.2.4 See 5.2.3.

5.2.5 Mechanism for future treatment of problematic issues raised by the self-evaluation

As stated, it is too early to reach such decisions. We intend to deliberate that question after the reviewers submit their report.

5.2.6 Are the results of the self-evaluation open, transparent and accessible to staff (academic as well as administrative) and students?

Yes. This has been a general policy of the Institute of Chemistry. Regarding students – we have focused on Ph.D. students; regarding administrative staff, we have focused on the senior, relevant staff.

Chapter 6 – Appendices and table of contents of CD

6.1. Table 1 - the structure of the study program its content, and scope - academic year 2009-10

Table 1.A - Undergraduate

Year in Program	Semester	Course Title	Course Type (oblig./elective/seminar/other)	No. of Credits	Prerequisites for Admission	Weekly Teaching Hours	Weekly Exercise Hours	Weekly Laboratory Hours	No. of Students	Teaching Staff	
										Name of staff member	Employment Degree
1	1	Introduction to Probability and Statistics for Chemistry students	Oblig.	3	-	3	-	-	134	Sarit Agami	Mrs.
		Introduction to Chemistry	Oblig.	7	-	5	2	-	130	Silvio Biali	Professor
		General Physics – Mechanics for Chemistry & Earth students	Oblig.	6	-	4	2	-	151	Jehudah Wagschal	Professor Emeriti
		Mathematics for Chemistry students 1	Oblig.	6	-	4	2	-	157	Itamar Cwik	Mr.
		Introduction to programming in C++	Oblig.	3	-	3	-	-	22	Benjamin Czaczkes	Dr.
	2	Analytical Chemistry A	Oblig.	4	-	3	1	-	149	Eli Grushka	Professor Emeriti
		General Chemistry lab	Oblig.	3	-	-	-	3	116	Menachem Steinberg, Zeev Aizenshtat, Shlomo Magdassi	Professor Emeriti, Professor, Professor
		Organic Chemistry A	Oblig.	6	-	4	2	-	140	Dmitri Gelman	Professor
		Physical Chemistry A	Oblig.	4	-	3	2*	-	141	Uri Raviv	Senior Lecturer
		General Physics – Waves & Electricity for Chemistry & Earth students	Oblig.	6	General Physics – Mechanics for Chemistry & Earth students	4	2	-	158	Omri Gat	Senior Lecturer
		Mathematics for Chemistry students 2	Oblig.	6	Mathematics for Chemistry students 1	4	2	-	151	Itamar Cwik	Mr.
	1 or 2	Information & Library resources for Chemistry students – an online course	Oblig.	0	-	-	-	-	121	Aharon Oren, Elinor Benhakun, Avital Ordan	Professor, Ms., Ms.
		Safety – an online course	Oblig.	0	-	-	-	-	673	-	-

* Including non credential math and physics supplementary, ** 11 weeks, *** 8 weeks, **** 7 weeks, ***** will be given alternately, ******10 weeks

Year in Program	Semester	Course Title	Course Type (oblig./elective/seminar/other)	No. of Credits	Prerequisites for Admission	Weekly Teaching Hours	Weekly Exercise Hours	Weekly Laboratory Hours	No. of Students	Teaching Staff	
										Name of staff member	Employment Degree
2	1	Analytical & General Chemistry lab	Oblig.	6	-	-	-	8**	31	Gil Shoham	Professor
		Physical Chemistry B	Oblig.	6	Introduction to Chemistry, Physical Chemistry A, Mathematics for Chemistry students 2, General Physics – Waves & Electricity for Chemistry & Earth students	4	2	-	91	Daniel Harries	Senior Lecturer
		Inorganic Chemistry	Oblig.	6	Introduction to Chemistry	4	2	-	101	Daniel Mandler	Professor
		Mathematics for Chemistry students	Oblig.	4	Mathematics for Chemistry students 2	3	1	-	73	Yves Godin	Dr
		Organic Chemistry B	Oblig.	6	Introduction to Chemistry, Organic Chemistry A	4	2	-	80	Itamar Willner	Professor
	2	Inorganic Chemistry lab	Oblig.	3	Introduction to Chemistry, General Chemistry lab, Inorganic Chemistry	-	-	5***	28	Daniel Mandler, Edit Tshuva	Professor, Professor
		Introduction to the Chemical Bond	Oblig.	6	Introduction to Chemistry, Mathematics for Chemistry students 2, General Physics – Waves & Electricity for Chemistry & Earth students	4	2	-	107	Roi Baer	Professor
		Physical Chemistry lab	Oblig.	4	Physical Chemistry A, Physical Chemistry B	-	-	4	46	Sanford Ruhman, Uri Banin	Professor, Professor
		Organic Chemistry lab	Oblig.	6	Introduction to Chemistry, Organic Chemistry A, Organic Chemistry B	-	-	6	58	Silvio Biali, Raed Abu-Raziq	Professor, Senior Lecturer
		Molecular Structure Determination by Spectral Studies	Oblig.	3	-	3	-	-	58	Zeev Aizenshtat	Professor

* Including non credential math and physics supplementary, ** 11 weeks, *** 8 weeks, **** 7 weeks, ***** will be given alternately, ******10 weeks

Year in Program	Semester	Course Title	Course Type (oblig./elective/seminar/other)	No. of Credits	Prerequisites for Admission	Weekly Teaching Hours	Weekly Exercise Hours	Weekly Laboratory Hours	No. of Students	Teaching Staff	
										Name of staff member	Employment Degree
3	1	Organic synthetics lab	Oblig.	4	Organic Chemistry B, Organic Chemistry lab	-	-	8****	27	Jochanan Blum	Professor Emeriti
		Introduction to Spectroscopy	Oblig.	4	Introduction to the Chemical Bond	3	1	-	30	Sanford Ruhman	Professor
		Biochemistry of the Cell	Oblig.	6	Organic Chemistry A	4	2	-	93	Isaiah (Shy) Arkin	Professor
		Medicinal Chemistry – Drugs & Drug action	Elective	5	-	5	-	-	143	Amiram Goldblum	Professor
		Crystallization Process	Elective	2	-	2	-	-	30	Nissim Garti	Professor
		Process Development & Scale-up in the Pharma related Industries	Elective	2	-	2	-	-	20	Tom Koevary	Senior Engineer
		Introduction to Chemistry of Materials	Elective	2	-	2	-	-	71	David Avnir	Professor
		Quantum Mechanics of Chemical Processes A	Elective	5	Introduction to the Chemical Bond	4	1	-	22	Ronnie Kosloff	Professor
		Engineering & Managerial Economics	Elective	4	-	4	-	-	29	Beno Zaidman	Dr.
		Introduction to Chemical Engineering: Mass, Momentum & Heat Transfer	Elective	3	-	2	1	-	19	Ovadia Lev	Professor
		Introduction to Reactors & Bio-reactors Theory	Elective	3	-	3	-	-	22	Yoel Sasson	Professor
		Interfacial Phenomena, Micro & Nano Particles	Elective	3	-	3	-	-	40	Shlomo Magdassi	Professor
		Organic Synthetics lab – B	Elective	4	Organic Synthetics lab, Information & Library resources for Chemistry students – an online course	-	-	8****	16	Jochanan Blum	Professor Emeriti
		Introduction to Conventional & Renewable Energies	Elective	2	-	2	-	-	28	Einat Aharonov	Professor
		Waves & Optics	Elective	5	Mathematics for Chemistry students 2, General Physics – Waves & Electricity for Chemistry & Earth students	3	2	-	134	Ami Glasner	Professor
		Quantum Theory II	Elective	7	Introduction to the chemical bond	5	2	-	133	Avraham Schiller	Professor

* Including non credential math and physics supplementary, ** 11 weeks, *** 8 weeks, **** 7 weeks, ***** will be given alternately, ******10 weeks

Year in Program	Semester	Course Title	Course Type (oblig./elective/seminar/other)	No. of Credits	Prerequisites for Admission	Weekly Teaching Hours	Weekly Exercise Hours	Weekly Laboratory Hours	No. of Students	Teaching Staff	
										Name of staff member	Employment Degree
3	2	Seminar in Chemistry for Bsc students	Seminar Oblig.	2	Organic Chemistry B, Physical Chemistry B, Inorganic Chemistry, Introduction to the Chemical Bond, Information & Library resources for Chemistry students – an online course	2	-	-	27	Daniel Cohn, Gil Shoham	Professor, Professor, Professor
		Principles of Polymers Science	Oblig.	3	-	3	-	-	59	Daniel Cohn	Professor
		Electrochemistry	Elective	2	-	2	-	-	29	Daniel Mandler	Professor
		Condensed Matter: Interactions & Supramolecular Assembly	Elective	3	-	3	-	-	12	Uri Raviv	Senior Lecturer
		Mass Spectrometry in Analytical & Bio-analytical Chemistry	Elective	2	-	2	-	-	21	Ovadia Lev	Professor
		Chemistry of Materials – lab	Elective	3	Introduction to Chemistry of Materials / Interfacial Phenomena, Micro & Nano Particles	-	-	4******	18	Shlomo Magdassi, David Avnir	Professor, Professor
		Biological Chemistry of Materials	Elective	4	-	4	-	-	45	Itamar Willner	Professor
		Topics in Biophysics A	Elective	3	-	3	-	-	28	Daniel Harries	Senior Lecturer
		Organic Chemistry C	Elective	4	Organic Chemistry B	4	-	-	22	Roy Shenhar	Senior Lecturer
		Catalysis	Elective	3	Organic Chemistry B, Inorganic Chemistry	3	-	-	37	Yoel Sasson	Professor
		Chiral Drugs	Elective	2	-	2	-	-	8	Israel Agranat	Professor Emeriti
		Organo-metallic Chemistry of the Transition Metals & its application in Homogeneous Catalysis	Elective	2	Organic Chemistry B, Inorganic Chemistry	2	-	-	27	Yoel Sasson	Professor
		Physics lab 1 for Chemistry & Earth students	Elective	3	-	-	-	3	11	Arie Zigler	Professor
	1 & 2	Advance Laboratory in Chemistry	Elective	4	Organic Chemistry lab, Physical Chemistry lab, Inorganic Chemistry lab	-	-	8*****	5	Micha Asscher	Professor
		Seminar Research for Bsc students	Seminar Oblig.	1	-	1	-	-	26	Noam Agmon	Professor
Total				209		134	33	40			

* Including non credential math and physics supplementary, ** 11 weeks, *** 8 weeks, **** 7 weeks, ***** will be given alternately, ******10 weeks

Table 1.B - Graduate

Year in Program	Semester	Course Title	Course Type (oblig./elective/seminar/other)	No. of Credits	Prerequisites for Admission	Weekly Teaching Hours	Weekly Exercise Hours	Weekly Laboratory Hours	No. of Students	Teaching Staff	
										Name of staff member	Employment Degree
1 or 2	1	Chromatography	Elective	3	-	3	-	-	60	Eli Grushka	Professor Emeriti
		Physical Chemistry C	Elective	4	-	3	1	-	12	Robert Benny Gerber	Professor
		Density Functional Theory	Elective	3	-	3	-	-	5	Roi Baer	Professor
		Molecular Physics	Elective	3	Quantum Mechanics of Chemical Processes A	3	-	-	7	Ronnie Kosloff	Professor
		Concepts of Green & Sustainable Chemistry	Elective	4	-	3	1	-	34	Yoel Sasson	Professor
		Geochemistry of Fossil Fuels	Elective	3	-	3	-	-	8	Zeev Aizenshtat	Professor
		Physical Chemistry of Nano-Materials	Elective	4	Introduction to the Chemical Bond	3	1	-	33	Uri Banin	Professor
		Selected topics in Nano-science & Nano-tech	Elective	3	-	3	-	-	23	Danny Porath	Professor
		Polymers in the Solid State	Elective	3	Principles of Polymers Science	3	-	-	15	Gad Marom	Professor
		Surface Tension Emulsifiers & Emulsion Technology	Elective	3	-	3	-	-	44	Nissim Garti	Professor
		Purification & Expression of Recombinant Protein	Elective	3	-	2	-	-	25	Tsafi Danieli, Mario Lebendiker	Dr., Dr.
		Data Processing in Chemistry	Elective	2	-	2	-	-	29	Yair Heppner	Mr.
		Chemical & Geochemical Processes	Elective	2	-	2	-	-	15	Ovadia Lev	Professor

Year in Program	Semester	Course Title	Course Type (oblig./elective/seminar/other)	No. of Credits	Prerequisites for Admission	Weekly Teaching Hours	Weekly Exercise Hours	Weekly Laboratory Hours	No. of Students	Teaching Staff	
										Name of staff member	Name of staff member
1 or 2	2	Inorganic Chemistry C	Elective	2	Inorganic Chemistry	2	-	-	32	Edit Tshuva	Professor
		Quantum Chemistry	Elective	4	-	3	1	-	8	Robert Benny Gerber	Professor
		Selected Chapters in Advanced Organic Chemistry	Elective	2	-	2	-	-	18	Raed Abu-Reziq	Senior Lecturer
		Introduction to Ultrafast Phenomena	Elective	3	-	3	-	-	3	Daniel Strasser	Senior Lecturer
		Organic Chemistry C	Elective	4	Organic Chemistry B	4	-	-	22	Roy Shenhar	Senior Lecturer
		Engineering Materials for Biomedical Application	Elective	2	-	2	-	-	30	Daniel Cohn	Professor
		Protein Chemistry – Advanced Biophysical Methods	Elective	2	-	2	-	-	30	Assaf Friedler	Senior Lecturer
		Nanostructure Synthesis & Surface Chemistry	Elective	2	-	2	-	-	27	Roie Yerushalmi	Senior Lecturer
		Selected Topics in Modern Inorganic Chemistry	Elective	2	-	2	-	-	19	Avi Bino	Professor
		Surface Phenomena	Elective	2	-	2	-	-	26	Micha Asscher	Professor
		Characterization & Nanofabrication Workshop	Elective	2	-	2	-	-	14	Roie Yerushalmi	Senior Lecturer
		Workshop in Bioinformatics	Elective	4	Biochemistry of the Cell, Introduction to Molecular Biology / General Genetics A	3	-	-	10	Michal Linial	Professor
	1 & 2	Chemistry Research Seminar for Msc students	Seminar Oblig.	1	-	-	-	-	72	-	-
		Seminar for Msc students	Seminar Oblig.	2	-	2*	-	-	59	Shlomo Magdassi, Eli Grushka, Dmitri Gelman, Uri Raviv	Professor, Professor Emeriti, Professor, Senior Lecturer
Total				76		67	4	-			

* will be given alternately

Table 1.C - Undergraduate "service courses" to other programs

Year in Program	Semester	Course Title	Course Type (oblig./elective/seminar/other)	No. of Credits	Prerequisites for Admission	Weekly Teaching Hours	Weekly Exercise Hours	Weekly Laboratory Hours	No. of Students	Teaching Staff	
										Name of staff member	Employment Degree
1	1	General Chemistry for Medicine & Dentistry students	Oblig.	5	-	4	1	-	298	Avi Bino	Professor
		Introduction to Pharmaceutical Chemistry & Drug Analysis	Oblig.	6	-	4	2	-	154	Shlomo Yitzchaik	Professor
		General Chemistry for Biology students	Oblig.	6	-	6*	2*	-	264	Roy Shenhar	Senior Lecturer
	2	Physical Chemistry for Biology students	Oblig.	5.5	-	4**	2	-	72	Noam Agmon	Professor
		General Chemistry lab for the Physics Science program	Oblig.	4	-	-	-	4	14	Zeev Aizenshtat	Professor
		Physical Chemistry for Medicine students	Oblig.	3	-	2	1	-	233	Micha Asscher	Professor
		Physical Chemistry for Pharmacy & Earth students	Oblig.	6	-	4	2	-	246	Danny Porath	Professor
		General Chemistry lab for Biology students	Oblig.	3	-	-	-	5***	128	Gil Shoham	Professor
	1 & 2	Chemistry lab for Medical Science students	Oblig.	2	-	-	-	5****	74	Chaim Gilon, Avi Bino	Professor Emeriti, Professor
		Organic Chemistry for Biology students	Oblig.	5	-	5*	3*	-	274	Assaf Friedler	Senior Lecturer
		Organic Chemistry for Medicine & Dentistry students	Oblig.	6	-	4*****	2*****	-	325	Edit Tshuva	Professor
2	2	Inter-molecular Reactions, not just a matter of Chemistry	Elective	2	-	2	-	-	51	Avinoam Ben-Shaul, Daniel Harries	Professor, Senior Lecturer
		Physical Chemistry lab for the Physics Science program	Oblig.	4	-	-	-	4	14	Danny Porath	Professor
		General Chemistry for Physics students	Oblig.	4	-	3	1	-	34	Ronnie Kosloff	Professor
Total				61.5		33.5	14	13			

* 9 weeks, ** one teaching hour will be given once in two weeks, *** 8 weeks, **** 6 weeks, ***** 14 weeks

6.2. Table 2 - the profile of the program's teaching staff - academic year 2009-10

Table 2.A - Senior Academic Staff Employed

Name of Staff Member			Employment Status	Area of Specialization	Courses taught by the staff member		
					Name of Course	Weekly Hours	Total Weekly Hours for Staff member
First	Family	Title (Dr, Ms, Mr)					
Raed	Abu-Reziq	Dr.	Temporary senior lecturer	Organic Synthesis; Catalysis; Green Chemistry; Nanochemistry	1.Organic Chemistry lab	6	8
					2.Selected Chapters in Advanced Organic Chemistry	2	
Noam	Agmon	Prof.	Professor	Proton mobility in solution and within proteins	1.Physical Chemistry for Biology students	4	6
					2.Seminar Research for Bsc students	2	
Zeev	Aizenshtat	Prof.	Professor	Energy; Fossil-Fuels; Organic-geochemistry; Ecology	1.Geochemistry of Fossil Fuels	3	10
					2.General Chemistry lab for the Physics Science program	4	
					3. Molecular Structure Determination by Spectral Studies	3	
Joseph	Almog	Prof.	Guest Professor	Forensic Chemistry			
Micha	Asscher	Prof.	Professor	Model heterogeneous and photo-catalysis, laser-patterning, solar energy	1.Advance Laboratory in Chemistry	4	8
					2.Surface Phenomena	2	
					3.Physical Chemistry for Medicine students	2	
David	Avnir	Prof.	Professor	Chemistry of materials; Symmetry and chirality	1.Introduction to Chemistry of Materials	2	5
					2.Chemistry of Materials – lab	3	
Roi	Baer	Prof.	Professor	Theory of electronic strucutre of molecules and nanocrystals; Density functional theory; Time-dependent density functional theory	1.Density Functional Theory	3	7
					2.Introduction to the Chemical Bond	4	
Uri	Banin	Prof.	Professor	Nanochemistry: Science and Technology of Nanocrystals	1.Physical Chemistry lab	4	7
					2.Physical Chemistry of Nano-materials	3	
Avinoam	Ben-Shaul	Prof.	Professor	Biophysics of macromolecules, viruses and cells	1. Inter-molecular reactions, not just a matter of Chemistry	2	2
Silvio	Biali	Prof.	Professor	Organic Stereochemistry	1.Introduction to Chemistry	5	11
					2.Organic Chemistry lab	6	
Avi	Bino	Prof.	Professor	Structural Inorganic Chemistry	1.Selected topics in modern Inorganic Chemistry	2	7
					2.General Chemistry for Medicine & Dentistry students	4	
					3.Chemistry lab for Medical Science students	1	
Daniel	Cohn	Prof.	Professor	Biodegradable polymers; Tissue engineering; Biomedical composites; Plasma surface treatments	1.Seminar in Chemistry for Bsc students	2	7
					2.Principles of Polymers Science	3	
					3.Engineering Materials for Biomedical Application	2	
Assaf	Friedler	Prof.	Associate Professor	Peptides, proteins, Medicinal Chemistry, Biophysical Chemistry	1.Protein Chemistry – Advanced Biophysical Methods	2	6
					2.Organic Chemistry for Biology students	4	
Nissim	Garti	Prof.	Professor	Novel liquid architectures; Lyotropic liquid crystals; Liquid delivery vehicles	1.Crystallization Process	2	5
					2.Surface Tension Emulsifiers & Emulsion Technology	3	

Dmitri	Gelman	Prof.	Associate Professor	Organic & Organometallic Chemistry, Catalysis	1.Seminar for Msc students	2	6
					2.Organic Chemistry A	4	
Robert Benny	Gerber	Prof.	Professor	Theoretical and Computational Chemistry	1.Physical Chemistry C	3	6
					2.Quantum Chemistry	3	
Daniel	Harries	Dr.	Temporary senior lecturer	Theoretical and Biophysical Chemistry	1. Inter-molecular reactions, not just a matter of Chemistry	2	9
					2.Physical Chemistry B	4	
					3. Topics in Biophysics A	3	
Ronnie	Kosloff	Prof.	Professor	Quantum dynamics; Coherent control; Quantum thermodynamics	1.Molecular Physics	3	10
					2.General Chemistry for Physics students	3	
					3.Quantum Mechanics of Chemical Processes A	4	
Ovadia	Lev	Prof.	Professor	Environmental Chemistry and Advanced materials	1.Introduction to Chemical Engineering: Mass, Momentum & Heat Transfer	2	6
					2. Mass Spectrometry in Analytical & Bio-analytical Chemistry	2	
					3.Chemical & Geochemical Processes	2	
Shlomo	Magdassi	Prof.	Professor	Colloid and Interface Science	1.Seminar for Msc students	2	11
					2.General Chemistry lab	3	
					3.Interfacial Phenomena, Micro & Nano Particles	3	
					4.Chemistry of Materials – lab	3	
Daniel	Mandler	Prof.	Professor	Analytical & Physical Electrochemistry	1.Inorganic Chemistry	4	9
					2.Inorganic Chemistry lab	3	
					3.Electrochemistry	2	
Gad	Marom	Prof.	Professor	Polymers, composite and nanocomposite materials, molecular structure-property relations	1.Polymers in the Solid State	3	3
Danny	Porath	Prof.	Associate Professor	Molecular Nanoelectronics with DNA and its derivatives & with protein-nanoparticle hybrids, SPM and Biophysics	1.Physical Chemistry for Pharmacy & Earth students	4	11
					2.Physical Chemistry lab for the Physics Science program	4	
					3.Selected topics in Nano-science & Nano-tech	3	
Uri	Raviv	Dr.	Temporary senior lecturer	Structures and intermolecular interactions of Biomolecular self-assemblies	1.Seminar for Msc students	2	8
					2.Physical Chemistry A	3	
					3.Condensed Matter: Interactions & Supramolecular Assembly	3	
Sanford	Ruhman	Prof.	Professor	Ultrafast spectroscopic investigation of photochemistry and photobiology	1.Physical Chemistry lab	8	11
					2.Introduction to Spectroscopy	3	
Yoel	Sasson	Prof.	Professor	Process and environmental catalysis. Green Chemistry & Clean tech	1.Introduction to Reactors & Bio-reactors Theory	3	11
					2.Catalysis	3	
					3.Organo-metallic Chemistry of the Transition Metals & its application in Homogeneous Catalysis	2	
					4.Concepts of Green & Sustainable Chemistry	3	
Sason S.	Shaik	Prof.	Professor	Quantum Chemistry from bonding to catalysis and enzymatic reactivity			Sabbatical
Roy	Shenhar	Dr.	Temporary senior lecturer	Polymer based nanoscience and technology	1.Organic Chemistry C	4	8
					2.General Chemistry for Biology students	4	

Gil	Shoham	Prof.	Associate Professor	X-ray crystallography of proteins	1.General Chemistry lab for Biology students	9	14
					2.Analytical & General Chemistry lab	3	
					3.Seminar in Chemistry for Bsc students	2	
Daniel	Strasser	Dr.	Temporary senior lecturer	Ultrafast Molecular Dynamics; Time Resolved Photo-Fragmentation Imaging	1.Introduction to Ultrafast Phenomena	3	3
Edit	Tshuva	Prof.	Associate Professor	Coordination Chemistry of Biological and Medicinal applications	1.Organic Chemistry for Medicine & Dentistry students	4	9
					2.Inorganic Chemistry lab	3	
					3.Inorganic Chemistry C	2	
Itamar	Willner	Prof.	Professor	Nanobiotechnology; Molecular & Bio-electronics; Supramolecular Chemistry; Artificial photosynthesis	1.Organic Chemistry B	4	8
					2.Biological Chemistry of Materials	4	
Roie	Yerushalmi	Dr.	Temporary senior lecturer	Nanomaterials; Assembly; Surface Chemistry; Catalysis; Energy	1.Nanostructure Synthesis & Surface Chemistry	2	5
					2.Characterization & Nanofabrication Workshop	3	
Shlomo	Yitzchaik	Prof.	Associate Professor	Molecular Bio-opto-electronics	1.Introduction to Pharmaceutical Chemistry & Drug Analysis	4	4 Sabbatical Semester B

* The positions of all members in the institute are full time (100%)

** The employment status in the institution and in the program is identical.

Table 2.B - Junior Academic Staff Employed

Name of staff member			Employment Status	Part of Full Time Position **in** the **Institution** (Per Cent)	Area of Specialization	Courses taught by the staff member		
						Name of Course	Weekly Hours	Total Weekly Hours for Staff member
First	Family	Title						
Liel	Sapir	Mr.	Teaching Assistant M.Sc.	40%	Physical Chemistry	1. General Chemistry for Biology students	5.5	17.5
						2. Inter-molecular Reactions, not just a matter of Chemistry	12	
Ronit	Rom	Ms.	Teaching Assistant M.Sc.	40%	Organic Chemistry	1. Organic Chemistry A	11	16.5
						2. Organic Chemistry for Medicine & Dentistry students	5.5	
Nir	Waiskopf	Mr.	Teaching Assistant M.Sc.	40%	Physical Chemistry	1. Analytical & General Chemistry lab	6	22
						2. Chemistry lab for Medical Science students	4	
						3. General Chemistry lab for Biology students	12	
Adiel	Zimran	Mr.	Teaching Assistant M.Sc.	40%	Physical Chemistry	1. Physical Chemistry lab	16	16
Sigalit	Meker	Ms.	Teaching Assistant M.Sc.	40%	Inorganic Chemistry	1. Analytical & General Chemistry lab	12	18
						2. General Chemistry lab for Biology students	6	
Or	Sela	Ms.	Teaching Assistant M.Sc.	40%	Physical Chemistry	1. General Chemistry for Medicine & Dentistry students	5.5	16.5
						2. Physical Chemistry for Biology students	11	
Yossi	Shemesh	Mr.	Teaching Assistant M.Sc.	40%	Physical Chemistry	1. Physical Chemistry lab	16	16
Meytal	Avisar	Ms.	Teaching Assistant A PhD	33%	Inorganic Chemistry	1. General Chemistry for Physics students	5.5	16
						2. Inorganic Chemistry lab	3	
						3. Physical Chemistry A	7.5	
Meirav	Ben-Lulu	Ms.	Teaching Assistant A PhD	50%	Organic Chemistry	1. Introduction to the Chemical Bond	11	22
						2. General Chemistry for Biology students	11	
Racheli	Ben-Knaz	Ms.	Teaching Assistant A PhD	50%	Organic Chemistry	1. Organic Chemistry for Medicine & Dentistry students	11	22
						2. Inorganic Chemistry	11	
Ronen	Gabizon	Mr.	Teaching Assistant A PhD	25%	Organic Chemistry	1. Physical Chemistry B	11	11
Tamar	Gershon-Stein	Ms.	Teaching Assistant A PhD	50%	Physical Chemistry	1. Physical Chemistry C	2.75	18.5
						2. Quantum Chemistry	2.75	
						3. Advance Laboratory in Chemistry	2	
						4. Physical Chemistry for Pharmacy & Earth students	11	

Judith	Toubiana	Ms.	Teaching Assistant A PhD	33%	Applied Chemistry	1. Engineering & Managerial Economics	6	14
						2. Introduction to Reactors & Bio-reactors Theory	1.4	
						3. Organic Chemistry lab	4	
						4. Catalysis	1.4	
						5. Advance Laboratory in Chemistry	1.2	
Omer	Yehezkeli	Mr.	Teaching Assistant A PhD	40%	Organic Chemistry	1. General Chemistry lab for Biology students	12	17.5
						2. Organic Chemistry B	5.5	
Ophir	Levy	Mr.	Teaching Assistant A PhD	50%	Inorganic Chemistry	1. Inorganic Chemistry lab	12	20
						2. General Chemistry lab for the Physics Science program	8	
Gideon	Livshits	Mr.	Teaching Assistant A PhD	50%	Physical Chemistry	1. Physical Chemistry lab	12	20
						2. Physical Chemistry lab for the Physics Science program	8	
Esteban	Malel	Mr.	Teaching Assistant A PhD	50%	Inorganic Chemistry	1. Inorganic Chemistry lab	6	22
						2. Analytical & General Chemistry lab	12	
						3. Advance Laboratory in Chemistry	4	
Tomer	Noyhouzer	Mr.	Teaching Assistant A PhD	50%	Inorganic Chemistry	1. Analytical & General Chemistry lab	12	20.75
						2. General Chemistry lab for Biology students	6	
						3. Concepts of Green & Sustainable Chemistry	2.75	
Hadas	Friedman	Ms.	Teaching Assistant A PhD	50%	Organic Chemistry	1. Introduction to Chemistry	5.5	22.5
						2. General Chemistry lab	6	
						3. Organic Chemistry for Medicine & Dentistry students	11	
Anna	Kotlyar	Ms.	Teaching Assistant A PhD	12.5%	Inorganic Chemistry	1. Analytical Chemistry A	5.5	5.5
Shlomit	Kraus	Ms.	Teaching Assistant A PhD	50%	Inorganic Chemistry	1. Introduction to Chemistry	14	22
						2. General Chemistry lab for the Physics Science program	8	
Simcha	Shimron	Mr	Teaching Assistant A PhD	50%	Organic Chemistry	1. Physical Chemistry lab	16	22
						2. General Chemistry lab for Biology students	6	
Leora	Shapiro	Ms.	Teaching Assistant A PhD	50%	Organic Chemistry	1. Inorganic Chemistry	7	21.5
						2. Inorganic Chemistry lab	3	
						3. Introduction to Pharmaceutical Chemistry & Drug Analysis	5.5	
						4. General Chemistry lab for Biology students	6	
Clarite	Azerraf	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Organic synthetics lab	8	20
						2. Organic Chemistry lab	12	

Hila	Elimelech	Ms.	Teaching Assistant B PhD	25%	Organic Chemistry	1. Introduction to Chemistry	8	8
Adva	Baratz	Ms.	Teaching Assistant B PhD	50%	Physical Chemistry	1. Introduction to Spectroscopy	11.5	14.25
						2. Quantum Mechanics of Chemical Processes A	2.75	
Olga	Grossman	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. General Chemistry lab	6	22
						2. Organic synthetics lab	8	
						3. Organic Synthetics lab – B	8	
Chaim	Dryzun	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Physical Chemistry lab	12	20
						2. Physical Chemistry lab for the Physics Science program	8	
Chen	Hener-Katz	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. General Chemistry lab	6	20
						2. Advance Laboratory in Chemistry	3.4	
						3. Organic Chemistry for Biology students	10.6	
Eyal	Yoskovitz	Mr.	Teaching Assistant B PhD	25%	Physical Chemistry	1. Physical Chemistry B	11	11
Manuela	Jakob	Ms.	Teaching Assistant B PhD	50%	Physical Chemistry	1. Physical Chemistry B	5	22
						2. Chemistry lab for Medical Science students	4	
						3. General Chemistry lab for Biology students	12	
						4. Advance Laboratory in Chemistry	1	
Liron	Levy	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. General Chemistry for Medicine & Dentistry students	11	11
David	Mocatta	Mr.	Teaching Assistant B PhD	12.5%	Physical Chemistry	1. Introduction to Spectroscopy	5.5	5.5
Cesar	Manna	Mr.	Teaching Assistant B PhD	50%	Inorganic Chemistry	1. Organic synthetics lab	4	20
						2. Organic Chemistry lab	12	
						3. Analytical Chemistry A	2.75	
						4. Advance Laboratory in Chemistry	1.25	
Hili	Marom	Ms.	Teaching Assistant B PhD	25%	Organic Chemistry	1. Organic Chemistry A	11	11
Guy	Nesher	Mr.	Teaching Assistant B PhD	25%	Organic Chemistry	1. Introduction to Chemistry	3	11
						2. Chemistry of Materials – lab	8	
Amit	Sitt	Mr.	Teaching Assistant B PhD	33%	Physical Chemistry	1. General Chemistry for Biology students	11	13.75
						2. Physical Chemistry of Nano-Materials	2.75	

Ward	Said-Ahmad	Mr.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Chemistry lab for Medical Science students	8	22.75
						2. General Chemistry lab	12	
						3. Molecular Structure Determination by Spectral Studies	2.75	
Asaf	Salant	Mr.	Teaching Assistant B PhD	25%	Physical Chemistry	1. Physical Chemistry lab	3	11
						2. Chemistry of Materials – lab	8	
Regina	Politi	Ms.	Teaching Assistant B PhD	25%	Physical Chemistry	1. Introduction to Pharmaceutical Chemistry & Drug Analysis	11	11
Ronit	Freeman	Ms.	Teaching Assistant B PhD	25%	Organic Chemistry	1. Organic Chemistry B	11	11
Elina	Ploshnik	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Organic synthetics lab	8	23
						2. Organic Synthetics lab – B	2	
						3. Advance Laboratory in Chemistry	1	
						4. General Chemistry lab for Biology students	12	
Elizabeth	Penn	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Chemistry lab for Medical Science students	8	22
						2. Organic Chemistry A	14	
Dani	Peri	Mr.	Teaching Assistant B PhD	50%	Inorganic Chemistry	1. Chemistry lab for Medical Science students	4	21.5
						2. Inorganic Chemistry	5.5	
						3. Inorganic Chemistry lab	12	
Ehud	Tsivion	Mr.	Teaching Assistant B PhD	50%	Physical Chemistry	1. Physical Chemistry A	9.5	21.5
						2. General Chemistry lab	12	
Luba	Kaganovsky	Ms.	Teaching Assistant B PhD	25%	Organic Chemistry	1. Organic synthetics lab	8	11
						2. Organic Synthetics lab – B	3	
Katerina	Kogen	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Chemistry lab for Medical Science students	4	12
						2. Organic synthetics lab	4	
						3. Organic Synthetics lab – B	4	
Lev	Kuno	Mr.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Chemistry lab for Medical Science students	4	22
						2. General Chemistry lab	6	
						3. Organic Chemistry lab	12	
Tali	Reingewertz	Ms.	Teaching Assistant B PhD	50%	Organic Chemistry	1. Organic Chemistry for Biology students	8.25	8.25
Ehud	Shaviv	Mr.	Teaching Assistant B PhD	50%	Physical Chemistry	1. Physical Chemistry lab	12	21
						2. Physical Chemistry lab for the Physics Science program	8	
						3. Advance Laboratory in Chemistry	1	

Roni	Turgeman	Ms.	Teaching Assistant C PhD	12.5%	Inorganic Chemistry	1. Analytical & General Chemistry lab	6	6
Yftah	Tal-Gan	Mr.	Teaching Assistant C PhD	50%	Organic Chemistry	1. Organic Chemistry for Biology students	10.6	22.6
						2. Organic Chemistry lab	12	
Anat	Kahan	Ms.	Teaching Assistant C PhD	12.5%	Physical Chemistry	1. Physical Chemistry B	5.5	5.5
Ofrah	Blatt	Ms.	Teaching Assistant M.Sc.	33%	Physical Chemistry	1. Physical Chemistry lab	4	14
						2. Physical Chemistry A	10	
Yael	Ben-Efraim	Ms.	Teaching Assistant M.Sc.	25%	Organic Chemistry	1. General Chemistry lab	12	12
Itay	Gdor	Mr.	Teaching Assistant A PhD	33%	Physical Chemistry	1. Physical Chemistry for Medicine students	5.5	13.5
						2. Physical Chemistry lab	8	
Eyal	Golub	Mr.	Teaching Assistant A PhD	33%	Organic Chemistry	1. General Chemistry lab	12	16
						2. Organic Chemistry lab	4	
Amir	Wand	Mr.	Teaching Assistant A PhD	50%	Physical Chemistry	1. Physical Chemistry A	14	22
						2. Physical Chemistry lab	8	
Maria	Hitrik	Ms.	Teaching Assistant A PhD	40%	Organic Chemistry	1. General Chemistry lab for Biology students	6	18
						2. Physical Chemistry for Biology students	12	
Gil	Toker	Mr.	Teaching Assistant A PhD	40%	Physical Chemistry	1. Physical Chemistry for Medicine students	8.25	18.75
						2. Introduction to the Chemical Bond	10.5	
Yuval	Cohen	Ms.	Teaching Assistant M.Sc.	25%	Applied Chemistry	1. Organic Chemistry lab	12	12
Shani	Larush	Ms.	Teaching Assistant M.Sc.	25%	Inorganic Chemistry	1. Organic Chemistry lab	12	12
Gabi	Menagen	Mr.	Teaching Assistant A PhD	25%	Physical Chemistry	1. Physical Chemistry lab	3	11
						2. Chemistry of Materials – lab	8	
Zecharya	Nairoukh	Mr.	Teaching Assistant M.Sc.	25%	Organic Chemistry	1. Organic Chemistry lab	12	12
Shahar	Sukenik	Mr.	Teaching Assistant A PhD	40%	Physical Chemistry	1. Physical Chemistry lab	8	18
						2. Introduction to the Chemical Bond	10	

Michael	Rona	Mr.	Teaching Assistant A PhD	40%	Applied Chemistry	1. General Chemistry lab	18	18
Lilia	Reytman	Ms.	Teaching Assistant M.Sc.	25%	Inorganic Chemistry	1. General Chemistry lab for Biology students	6	12
						2. Organic Chemistry lab	6	
Hadar	Refaely	Ms.	Teaching Assistant M.Sc.	40%	Organic Chemistry	1. General Chemistry lab for Biology students	18	18
Rony	Schwarz	Mr.	Teaching Assistant M.Sc.	25%	Organic Chemistry	1. Organic Chemistry lab	12	12
Ai	Shinobu	Ms.	Teaching Assistant A PhD	50%	Physical Chemistry	1. Physical Chemistry for Biology students	11	22
						2. Physical Chemistry for Pharmacy & Earth students	11	
Shlomit	Guy	Ms.	Teaching Assistant M.Sc.	25%	Physical Chemistry	1. Physical Chemistry lab for the Physics Science program	11	11

Table 2.C - Senior Academic Staff Emeriti

Name of Staff Member			Employment Status	Area of Specialization	Courses taught by the staff member		
					Name of Course	Weekly Hours	Total Weekly Hours for Staff member
First	Family	Title (Dr, Ms, Mr)					
Israel	Agranat	Prof.	Emeriti	Organic & Medicinal Chemistry; Chiral drugs	1. Chiral Drugs	2	2
Jochanan	Blum	Prof.	Emeriti	Organometallic catalysis; Sustainable Chemistry	1. Organic Synthetics lab	4	8
					2. Organic Synthetics lab – B	4	
Chaim	Gilon	Prof.	Emeriti	Peptides; Drugs; Combinatorial Chemistry; Medicinal Chemistry	1. Chemistry lab for Medical Science students	1	1
Eli	Grushka	Prof.	Emeriti	-	1. Analytical Chemistry A	3	8
					2. Chromatography	3	
					3. Seminar for Msc students	2	
Menachem	Steinberg	Prof.	Emeriti	-	1. General Chemistry lab	3	3

Table 2.D – Junior Academic Staff Emeriti

N/A

6.3. Table 3 - the rankings of the courses from the teaching surveys given in the last 5 years

Important comment: due to computerization problems, the information available is only from the last three years. In addition, due to long strikes in 2007 and 2008, no surveys were taken in the second semester of 2007 and in the entire 2008 academic year.

Range of scores: 1 – 20

Table 3.A - B.Sc. Program

<table>
<tr><th colspan="7">Academic Year 2006-07</th></tr>
<tr><th colspan="2">1st semester</th><th colspan="5">2nd semester</th></tr>
<tr><th>Required</th><th>Electives</th><td colspan="5" rowspan="9">No data available due to a long strike</td></tr>
<tr><td>Inorganic Chemistry B (19.60)</td><td>Biomimetic and Bioorganic Chemistry (19.21)</td></tr>
<tr><td>Introduction to Chemistry (18.19)</td><td>Separation Methods (19.13)</td></tr>
<tr><td>Organic Chemistry B (17.42)</td><td>Electrochemistry (18.75)</td></tr>
<tr><td>Physical Chemistry B (17.07)</td><td>Introduction to Chemistry of Materials (18.33)</td></tr>
<tr><td>Introduction to Spectroscopy (12.65)</td><td>Geochemistry of Fossil Fuels (16.31)</td></tr>
<tr><td rowspan="4"></td><td>Physical Chemistry of Nano-Materials (15.46)</td></tr>
<tr><td>Quantum Mechanics of Chemical Processes A (14.75)</td></tr>
<tr><td>Engineering & Managerial Economics (11.55)</td></tr>
<tr><td>Interfacial Phenomena, Micro & Nano Particles (14.06)</td></tr>
<tr><th colspan="7">Academic Year 2008-09</th></tr>
<tr><th colspan="3">1st semester</th><th colspan="4">2nd semester</th></tr>
<tr><th>Required</th><th>Electives</th><th>Workshops / Laboratories</th><th>Required</th><th>Electives</th><th>Seminars</th><th>Workshops / Laboratories</th></tr>
<tr><td>Physical Chemistry B (20)</td><td>Biomimetic and Bioorganic Chemistry (19.05)</td><td>Organic synthetics lab (18.50)</td><td>Analytical Chemistry A (19.36)</td><td>Topics in Biophysics A (18.85)</td><td>Seminar Research for Bsc students (17.67)</td><td>Organic Chemistry lab (19.23)</td></tr>
<tr><td>Organic Chemistry B (19.51)</td><td>Introduction to Chemistry of Materials (17.67)</td><td>Analytical & General Chemistry lab (14.79)</td><td>Organic Chemistry A (17.79)</td><td>Organo-metallic Chemistry of the Transition Metals & its application in Homogeneous Catalysis (18.26)</td><td>Seminar in Chemistry for Bsc students (17.06)</td><td>Advance Laboratory in Chemistry (18.96)</td></tr>
<tr><td>Introduction to Chemistry (17.58)</td><td>Physical Chemistry C (17.65)</td><td rowspan="3"></td><td>Principles of Polymers Science (15.30)</td><td>Protein Chemistry – Advanced Biophysical Methods (17.87)</td><td rowspan="3"></td><td>Chemistry of Materials – lab (18.21)</td></tr>
<tr><td>Inorganic Chemistry (15.17)</td><td>Concepts of Green & Sustainable Chemistry (17.05)</td><td>Introduction to the Chemical Bond (13.86)</td><td>Biological Chemistry of Materials (17.66)</td><td>Physical Chemistry lab (15.30)</td></tr>
<tr><td>Introduction to Spectroscopy (10.99)</td><td>Physical Chemistry of Nano-Materials (16.39)</td><td>Physical Chemistry A (13.01)</td><td>Statistical Thermodynamics & Applications (17.12)</td><td>Inorganic Chemistry lab (13.68)</td></tr>
</table>

	Interfacial Phenomena, Micro & Nano Particles (16.09)		Molecular Structure Determination by Spectral Studies (10.86)	Electrochemistry (16.42)		General Chemistry lab (13.24)
	Introduction to Chemical Engineering: Mass, Momentum & Heat Transfer (15.31)			Process Development & Scale-up in the Pharma related Industries (14.86)		
	Introduction to Reactors & Bio-reactors Theory (13.76)					
	Engineering & Managerial Economics (13.12)					
	Quantum Mechanics of Chemical Processes A (12.45)					

Academic Year 2009-10						
1st semester			**2nd semester**			
Required	**Electives**	**Workshops / Laboratories**	No data available yet			
Introduction to Chemistry (19.47)	Physical Chemistry C (17.80)	Analytical & General Chemistry lab (19.09)				
Physical Chemistry B (19.08)	Crystallization Process (17.61)	Organic synthetics lab (17.73)				
Organic Chemistry B (14.72)	Introduction to Chemistry of Materials (17.23)	Organic synthetics lab – B (17.08)				
Inorganic Chemistry (14.45)	Process Development & Scale-up in the Pharma related Industries (15.90)					
Introduction to Spectroscopy (6.77)	Concepts of Green & Sustainable Chemistry / Introduction to Reactors & Bio-reactors Theory (15.34)					
	Physical Chemistry of Nano-Materials (15.32)					
	Introduction to Chemical Engineering: Mass, Momentum & Heat Transfer (14.42)					
	Engineering & Managerial Economics (14.36)					
	Interfacial Phenomena, Micro & Nano Particles (12.34)					

Table 3.B - M.Sc. Program

Academic Year 2006-07			
1st semester		**2nd semester**	
Required	**Electives**	No data available due to a long strike	
Concepts of Green & Sustainable Chemistry (12.32)	Stereochemistry of Organic Compounds (19.63)		
	Methods & Techniques of Theoretical Chemistry (18.38)		
	Polymeric Composite Materials (16.71)		
	Mathematics Methods in Chemistry (5) (15.41)		
Academic Year 2008-09			
1st semester		**2nd semester**	
Electives		**Electives**	**Seminars**
Separation Methods (17.96)		History of Chemistry (18.66)	Seminar for Msc students (16.33)
Surface Tension Emulsifiers & Emulsion Technology (16.79)		Forensic Chemistry (18.17)	
Polymers in the Solid State (14.41)		Strategy of High-Tech Companies (16.54)	
Mathematics Methods in Chemistry (5) (10.50)		Engineering Materials for Biomedical Application (15.45)	
		Nanostructure Synthesis & Surface Chemistry (10.43)	
Academic Year 2009-10			
1st semester		**2nd semester**	
Electives		No data available yet	
Chromatography (18.30)			
Polymers in the Solid State (17.72)			
Surface Tension Emulsifiers & Emulsion Technology (16.20)			
Selected topics in Nano-science & Nano-tech (15.50)			
Geochemistry of Fossil Fuels (14.17)			

Table 3.C - Courses to other programs

Academic Year 2006-07		
1st semester	**2nd semester**	
Required	No data available due to a long strike	
General Chemistry for Biology students (17.43)		
Introduction to Pharmaceutical Chemistry & Drug Analysis (14.05)		
General Chemistry for Physics students (9.97)		
General Chemistry for Medicine & Dentistry students (6.19)		
Academic Year 2008-09		
1st semester	**2nd semester**	
Required	**Required**	**Workshops / Laboratories**
General Chemistry for Biology students (17.65)	Organic Chemistry for Biology students (19.55)	Physical Chemistry lab for the Physics Science program (16.94)
Organic Chemistry for Medicine & Dentistry students (15.55)	Physical Chemistry for Biology students (16.72)	General Chemistry lab for the Physics Science program (16.80)
Introduction to Pharmaceutical Chemistry & Drug Analysis (11.92)	Physical Chemistry for Pharmacy & Earth students (16.59)	General Chemistry lab for Biology students (8.65)
General Chemistry for Medicine & Dentistry students (7.89)	General Chemistry for Physics students (12.56)	
Academic Year 2009-10		
1st semester	**2nd semester**	
Required	No data available yet	
General Chemistry for Biology students (18.41)		
General Chemistry for Medicine & Dentistry students (16.83)		
Introduction to Pharmaceutical Chemistry & Drug Analysis (14.97)		

6.4. Brief versions of the faculty CVs (the Extended versions are on the CD)

Faculty & Emeriti

Dr. Raed Abu-Reziq

1. Very short CV: Joined as a faculty member in 2008. The current academic degree is Senior Lecturer. Worked before as senior researcher at Sol-Gel Technologies.
2. Research activities: Development of organometallic catalysts based on carbene ligands; development of organocatalytic systems based on functionalized ionic liquids; Magnetically separable catalytic systems; development of catalytic nanoreactors; development of micro- and nanoencapsulation methods for agrochemical applications.
3. Important publications:
   a. Metal Supported on Dendronized Magnetic Nanoparticles: Highly Selective Hydroformylation Catalysts. R. Abu-Reziq, H. Alper, D. Wang and M. L. Post, *J. Am. Chem. Soc.* 2006, *128*, 5279-5282; *cited 70 times*.
   b. A Three-Phase Emulsion/Solid Heterogenization Method for Transport and Catalysis. R. Abu-Reziq, D. Avnir and J. Blum, *Angew. Chem. Int. Ed. Eng.* 2002, *41*, 4132-4134; *cited 24 times*.
4. No. of students and post-docs (past five years): 8
5. Recognitions: 2008 Ma'of fellowship: Established by the Kahanoff Foundation. The fellowship covers three consecutive years of the university salary and research budget; 2002 Klein Foundation Prize.
6. Scientific-community activity: *Conferences:* Magnetically Separable Catalytic Systems and their Applications in Organic Synthesis, 74th Annual Meeting of the Israeli Society, Tel-Aviv, Feb. 2009; The Use of Magnetically Separable Catalytic Systems in Organic Synthesis, OMC Workshop, Technische Universität Berlin, Berlin, Germany, October 2008; The Use of Silica Micro and Nanoencapsulation in Industry, 73rd Annual Meeting of the Israeli Society, Jerusalem, Feb. 2008.

Prof. Noam Agmon

1. Very short CV: Ph.D. at HUJI (1980, R.D. Levine), post-doctorate at Harvard and Caltech (1981-2). Joined as a faculty member in 1983. Full professor of physical and theoretical chemistry (2000).
2. Research activities: *Current:* Proton mobility in water; Proton wires in proteins; Diffusion influenced reactions; *Earlier:* Excited-state proton transfer; Ligand-binding heme proteins; Bimolecular reactions: theory and simulations.
3. Important publications:
   a. Noam Agmon and John J. Hopfield. Transient kinetics of chemical reactions with bounded diffusion perpendicular to the reaction coordinate: Intramolecular processes with slow conformational changes. *Journal of Chemical Physics*, 78:6947-6959, 1983. PDF Erratum, *ibid.* 80:592 (1984). *294 citations.*
   b. Noam Agmon and John J. Hopfield. CO binding to heme proteins: A model for barrier height distributions and slow conformational changes. *Journal of Chemical Physics*, 79:2042-2053 (1983). *322 citations.*
4. No. of students and post-docs (past five years): 7
5. Recognitions: 1983 The Yigal Allon fellowship for junior faculty members; 1986 The Sarah Wolf award.
6. Scientific-community activity: 2009-present Editorial Board, PMC Biophysics; 2005-2009 Editorial Board, Israel Journal of Chemistry; 1999 Guest Editor (with M. Gutman), special issue of *The Israel Journal of Chemistry* (vol. 39/3,4) on "Proton Solvation and Proton Mobility"; 1994 Guest Editor (with R.D. Levine),

special issue of *Chemical Physics* (vol. 180/2,3 & vol. 183/2,3) on "Dissipative Dynamics"; Seven conference organizations.

Prof. Israel Agranat

1. Very short CV: Appointed to Lecturer in Organic Chemistry, The Hebrew University of Jerusalem, (HUJI) in 1969; Emeritus Professor of Organic Chemistry, HUJI, since April 2005; Visiting Professor, Imperial College, Faculty of Medicine, Division of Biomedical Sciences, London, 1999-2006; Fellow and Director of Research Group on "Chirality of Drugs and Chiral Recognition", The Institute for Advanced Studies at the Hebrew University of Jerusalem, 1995-1996.
2. Research activities: Israel Agranat's research interests include chiral drugs with special emphasis on chiral switches, patentability and enantiomer patents, aromaticity, novel aromatics, large polycyclic aromatic hydrocarbons, overcrowded polycyclic aromatic enes with special emphasis on conformational space, dynamic, stereochemistry and thermochromism, reversible Friedel-Crafts acylations, mechanisms of chiral distinctions, the guanidine entity in drugs.
3. Important publications:
   a. "Putting chirality to work: The strategy of chiral switches". Agranat, I., Caner, H. Caldwell, J. *Nature Rev. Drug Discovery* (2002), *1*, 753-768.
   b. "Trimethylenemethane dianion and the controversial notion of Y-aromaticity". Agranat, I., Skaneke, A. *J. Amer. Chem. Soc.,* (1985) *107*, 867-871.
4. No. of students and post-docs (past five years): 13
5. Scientific-community activity: Chairman (1990-1992), Vice Chairman (1988-1990, 1992-1994), Secretary (1995-1996), European Federation for Medicinal Chemistry; Editor-in-Chief (2000-2002), *Enantiomer: a Journal of Stereochemistry*; Member of the Editorial Board, *Chirality*, (2005-2010); Member of the Editorial Board, *Polycyclic Aromatic Compounds* (2004-2010); Member of the Editorial Committee, *PharmaChem* (2003-2008); Member of the Executive Committee, "Beit Daniel", The Open University, Israel (2001-); UK Trustee of the Pinhas Rutenberg Educational Trust (2008 -); Member of the Academic Committee, The Open University, Israel (1994-2000); Member of the Executive Committee, Israel Association for Medicinal Chemistry (1992-2003).

Prof. Zeev Aizenshtat

1. Very short CV: Joined as a faculty member in 1973. Today, full professor (Emeritus 2010) and Head of the "Moshe Shilo" Minerva Center for Marine Geo-bio-chemistry. Served in various University committees still teaching and consulting in organic geochemistry for industry and national projects.
2. Research activities: *Current:* Stable isotopes in organic chemistry (C,S) and fossil fuels; Improvements in fuels hydrogen formation and metal hydrides storage for vehicles; Sulfur cycle in the geosphere and application to petroleum exploration; Organic compounds analyses in ecological studies and archaeological artifacts; *Earlier and still going:* Solar lake studies for bio-remediation of oil spills; Thermal sulfate reduction, reservoirs deterioration of petroleum; Paleo-thermometry using stable isotopes and alkenones focus on Mediterranean ocean samples.
3. Important publications:
   a. B. Spiro and Z. Aizenshtat, Hypersaline deposition of oil shales, bacterial sulfate reduction and calcite precipitation, *Nature,* **269**, 235-237(1977); *40 citations*.
   b. Kogan, V. Aizenshtat, Z. Popovitz-Biro, R, and R. Newmann. Carbon-carbon and carbon-nitrogen coupling reactions catalyzed by palladium nanoparticles derived from a palladium substituted Keggin-type polyoxometalate *ORGANIC LETTERS* **20** 3529-3532 (2002); *90 citations*.

4. No. of students and post-docs (past five years): 12

5. Scientific-community activity: *Conferences:* Numerous times member of international advisory board of conferences; *University positions:* Head of HELED scientific activities 1975-1984; Head of Energy research Center 1976-1981; Head of Sciences PhD students program 1991-1999; Head of Casali Institute 1994-7; Head of Moshe Shilo Center Minerva Marine geo-bio-chemistry since 2008; Member in numerous university committees.

Prof. Joseph Almog

1. Very short CV: Joined the faculty in 2000 as visiting professor, after 26 year service as head of the Israel Police forensic science division; Ph.D (HUJI, Org. Chemistry) 1973: Post doctoral studies: Imperial College (London), 1972-3, and MIT (Cambridge, Mass.), 1973-4.

2. Research activities: Latent fingerprint visualization; Advanced techniques for detection and identification of explosives; Field tests for crime-scene examination; Nano-technology for forensic analysis; Supramolecular chemistry.

3. Important publications:

   a. J Almog, J.E. Baldwin and J.R. Huff, Reversible Oxygenation and Auto-oxidation of a "Capped" Porphyrin Iron (II) Complex, J. Amer. Chem. Soc., 97. (1975), pp. 227-228; *176 citations*.

   b. F. Dubnikova, R. Kosloff, J. Almog, Y. Zeiri, R. Boese, H. Itzhaky, A. Alt, E. Keinan, Detonation of TATP is an entropic explosion, J. Amer. Chem. Soc., 2005, 127, pp. 1146-1159; *60 citations*.

4. No. of students and post-docs (past five years): 14

5. Recognitions: 1979 Israel Police R&D Award: A Field Device for Fingerprint Development; 1986 Certificate of Invaluable Scientific Service, University of Ghent (Belgium); 1989 Diploma de Gratidao, Republic of Brazil (Scientific Consultation); 2000 US TSWG Appreciation Award “For Invaluable Contributions to the Area of Forensic Science in Counterterrorism”; 2005 Lucas Medal, The American Academy of Forensic Sciences triennial award: "For outstanding achievements in forensic science".

6. Scientific-community activity: *Membership in societies:* Royal Society of Chemistry (RSC), UK; International Association for Identification (IAI); International Association of Crime Laboratory Directors (ASCLD); American Academy of Forensic Sciences (AAFS); Israel Chemical Society; *Journal editorial board:* The Journal of Forensic Sciences (Wiley); *International committees:* IFRG (International Fingerprint Research Group); *National committee:* Head, Scientific committee for counter-terrorism technologies, Israel National Security Council.

Prof. Micha Asscher

1. Very short CV: Faculty member since 1984, Dr. and Mrs. Philip Gotlieb Professor of Physical Chemistry, listed among the “Top 50” Scientific American list for 2004

2. Research activities: laser ablation; nanometer size Pd-Au alloy clusters; morphology; chemical reactivity (catalysis) of the nanoalloys; Optical characterization of gold and silver clusters; surface photochemistry research; Photocatalysis; porous silicon based on electrochemistry in HF solution.

3. Important publications:

   a. Interaction of ethyl chloride with amorphous solid water thin film on Ru(001) and O/Ru(001) surfaces Ayoub, Y., Asscher, M., J. Phys. Chem., **A 113**, 7514-7520 (2009).

   b. Chemical reactivity of Pd-Au bimetallic nano-clusters grown via amorphous solid water as buffer layer Gross, E., Popov, I., Asscher, M., J. Phys. Chem. C., **113**, 18341-18346 (2009).

4. No. of students and post-docs (past five years): 13

5. Recognitions: 2006 Nominated as Dr. and Mrs. Philip Gotlieb Professor of Physical Chemistry; 2004 Selected for the "Scientific American 50" list of top research leaders for 2004; 1986 Bergman Prize for Young Faculty; 1981-84 – Haim Weizmann post doctoral fellow.

6. Scientific-community activity: 2006 Nominated to the International Editorial Board of *Surface Science* journal; 2005-2008 Vice Dean for Research, The Faculty of Mathematics and Natural Sciences, HUJI; 2001-2004 Chairman, The Institute of Chemistry, HUJI; 1998 Guest Editor, Israel Journal of Chemistry: "Surface Science" issue, honoring Wolf Prize recipients G. Somorjai and G. Ertl.

Prof. David Avnir

1. Very short CV: Joined as a faculty member in 1980. Today, full professor and Head of the Institute. Served before as chairman of the school of chemistry. Co-founder of Sol-Gel Technologies, Inc.

2. Research activities: *Current:* Organically doped metals; Continuous symmetry and chirality measures; Sol-Gel materials: basic science and applications; *Earlier:* Various topics in surface and colloid science; Fractal theory and applications in chemistry and physics; Patterns, structures and far-from-equilibrium phenomena.

3. Important publications:

   a. D. Avnir, D. Farin and P. Pfeifer, "Molecular Fractal Surfaces", *Nature*, **308**, 261-263 (1984); *Cited 510 times*.

   b. D. Avnir, "Organic Chemistry within Ceramic Matrices: Doped Sol-Gel Materials", *Acc. Chem Res*., **28**, 328-334 (1995); *Cited 435 times*.

4. No. of students and post-docs (past five years): 21

5. Recognitions: 1982 The M. Richter Award; 1989 The E. D. Bergmann Award; 1996 Fellow of the American Association for the Advancement of Science; 1998 Kaye Award for Applied Research; 1998 The First Mehrotra Foundation Lecture; 1998 Award Lecture of the Div. of Colloid and Surface Chem. of the Chemical Society of Japan; 2003-7 Chairman of the International Sol-Gel Society; 2004 The Kolthoff Award of the Technion; 2007 The Benjamin H. Birstein Chair in Chemistry; 2009 Special issue of *J. Sol-Gel Sci. Tech*., honoring Prof. Avnir (*J Sol Gel Sci Tech* (2009) **50**:127); 2009 Member of the Academia Europaea (Formerly the European Academy of Sciences, Humanities and Arts, Cambridge).

6. Scientific-community activity: *Editorial activities:* 1992-1997 Founder and Editor-in-Chief, Heterogeneous Chemistry Reviews; 1989 Co-Editor of a Special issue of Coll. Surf. on “Recent Aspects of Adsorption”; 1996 Guest Editor (with S. Braun) of a special issue of *J. Sol Gel Sci. Tech.* on Biochemical Applications of Sol Gel Science and Technology; Member of the Editorial Board of the following journals/series: *J. Sol-Gel Sci. Tech., Chem. Mater*. (until 2002*), Discrete Dynamics in Nature and Society, Molecules, J. Surface Sci. Tech., J. Photoscience, Prog. Theor. Chem., Int. J. Molec. Sci., J. Math. Chem*.; *The International Sol-Gel Society:* 2003 – 2008 Founder and Chairman of the Board; *Conferences:* Numerous times member of international advisory board of conferences; *University positions:* 1990-1993: Chairman, School of Chemistry; 2008- Head, Institute of Chemistry; Member in numerous university committees.

Prof. Roi Baer

1. Very short CV: Faculty member since 1 Oct 1998; current academic degree: Full Professor.

2. Research activities: Research Activity: The study of electronic structure, dynamics of molecules, clusters and nanocrystals and Molecular Electronics. This is theoretical work. We develop new methods that extend the scope and accuracy of the theory. We also have applications in the fields of: molecular electronics, molecule-metal surface reactions, charge transfer excited electronic states, degenerate states, biexciton generation in semiconductor nanocrystals and in carbon nanotubes, molecule-laser interaction high harmonic generation and Coulomb explosion.

3. Important publications:

   a. R. Baer and D. Neuhauser, J. Am. Chem. Soc. 124, 4200 (2002).

   b. R. Baer, Y. Zeiri, and R. Kosloff, Phys. Rev. B 55, 10952 (1997).

4. No. of students and post-docs (past five years): 10

5. Recognitions: 1995 Wolf Foundation prize for Ph.D. students; 1996 The Fritz Haber research center prize; 2000 The Josepha and Leonid Olschwang prize, Israel Academy of Science.

6. Scientific-community activity: Guest Editor of Special Issue on Computational Chemistry; Israel Journal of Chemistry; Editorial Advisory Board "Physical Chemistry-Chemical Physics"; Member of the Fellowships Committee of Minerva Steiftung in the Max Planck Society; Member of Editorial Committee of Annual Reviews of Physical Chemistry; Guest Editor of "Physical Chemistry Chemical Physics", Issue on Molecular Electronics (2010); Guest Editor of "Chemical Physics", Special Issue on Time Dependent DFT (2010).

Prof. Shalom Baer

1. Very short CV: Dept. Physical Chemistry, HU, since Jan 1957; Professor 1986-1998; Emeritus 1999.

2. Research activities: Statistical mechanics of condensed matter; intermolecular forces; structural and motional correlations in liquids and amorphous solids; dielectric response and absorption spectra in condensed matter; quantum atomic liquids.

3. Important publications: S. Baer; Structure - entropy relationship in condensed matter; *Condensed Matter Physics: Liquid and Solid States*, Editors: S.K. Srivastava, K. Furukawa, S. Baer (INDIAS, 2000) 101-131.

4. No. of students and post-docs (past five years): 1

Prof. Uri Banin

1. Very short CV: Joined as a faculty member in 1997. Today, full professor. Founding director of the Krueger Family Center for Nanoscience and Nanotechnology (2001-to date). Recently –scientific founder of Qlight Nanotech, Inc.

2. Research activities: Science and technology of nanocrystals; Synthesis and characterization of novel semiconductor and hybrid nanocrystals; Self assembly of nanocrystals; Size, shape and composition dependent optical and electronic properties of nanocrystals; Single nanostructure microscopy and spectroscopy including optical and transport studies; Non linear optical properties of nanocrystals; Alternative energy solutions incorporating Nanoparticles; Optical devices and lasers based on colloidal semiconductor nanostructures; Biological, medical and sensing applications of nanocrystals.

3. Important publications:

   a. Nir Tessler, Vlad Medvedev, Miri Kazes, ShiHai Kan, and Uri Banin "Efficient 1.3□m Light Emitting Diodes Based On Polymer-Nanocrystal Nanocomposite" *Science* **295**, 1506-1508 (2002); *Cited 445 times*.

   b. Taleb Mokari, Eli Rothenberg, Inna Popov, and Uri Banin, "Selective Growth of Metal Tips onto Semiconductor Quantum Rods and Tetrapods", *Science* **304** (5678), 1787-1790 (2004); *Cited 240 times*.

4. No. of students and post-docs (past five years): 26

5. Recognitions: 1986: Hebrew University, Faculty of Science dean's prize; 1987: Hebrew University, Faculty of Science dean's prize; 1988: Hebrew University Rector's prize; 1989: Hebrew University, Faculty of Science dean's list; 1989 - 1990: Golda Meir Memorial Foundation Fellow; 1991: Sara Wolf Prize (for Physical Chemistry graduate students); 1992: Seadia Amiel Prize (for outstanding teaching); 1992: Intel - Dean's Award, for a graduate student in the Faculty of Science at the Hebrew University of Jerusalem, Israel; 1993: Prize for graduate student, awarded by the Israel Chemical Society on behalf of the Wolf prize winners Professor J. Jortner, and Professor R.D. Levine; 1994-1995: Rothschild postdoctoral fellowship; 1994-1996:

Fulbright postdoctoral fellowship; 1997-2000: Yigal Alon fellowship for young faculty; 1997: Bergmann grant for young recipients of the B.S.F research grants; 1998: Award of the Ulshwang fund, for research proposal in the framework of the Israel Science foundation; 2000: The Hebrew University Presidential young investigator award, named after Prof. Yoram Ben-Porat; 2001: Israel Chemical Society award for young chemist; 2005: Kaye Innovation Award for applications of semiconductor nanocrystals; 2006: Hebrew University Rector Prize for excellence in research and teaching; 2006: Wilstaeter Lectureship awarded by the German Chemical Society; 2007-2010: Michael Bruno Memorial Award from Yad Hanadiv; 2008: Klachky award for the advancement of the frontiers of science.

6. Scientific-community activity: *Editorial activities:* Guest Co-Editor of special issue of the Israel Journal of Chemistry on the topic: "Nanochemistry" (Volume 41, issue 1, 2001); Editorial board of the journal 'Nanotechnology'; *Committee member:* "Nanoscience and Nanotechnology in Israel": committee nominated by the TELEM forum for research and development policy in Israel; *Conferences:* 2001: Co-chair of the James-Franck annual international meeting 2000, "From clusters to nanosystems" Jerusalem; 2005: Co-organizer of session at the American Chemical Society international meeting in San Diego, USA; 2009: Chairman of the Scientific Committee and co-chairperson of the international conference "Nano Israel 2009", Jerusalem, Israel; Served on various international advisory boards of conferences; *University positions:* 2001-present: Founding director, Hebrew University Center for Nanoscience and Nanotechnology; 2006-present: Director of the Hebrew University program under the TELEM Israel National Nanotechnology Initiative; 2005-2008: Yissum technology transfer company of the Hebrew University. Member of the board of directors; 2005-present: Member of the Executive Committee of the Hebrew University.

Prof. Arieh Ben-Naim

1. Very short CV: Oct 2006 to Oct 2007 Visiting scholar, Center of Theoretical Biological Physics, University of California San Diego (UCSD), La Jolla CA; Oct 2007 to June 2008 Visiting researcher, National Institute of Standards and Technology (NIST), Maryland, USA; July 2008 to June 2009 Division of Physical Chemistry, Stockholm University, Stockholm, Sweden; Present: The Hebrew University of Jerusalem, Givat Ram, Jerusalem, Israel.

2. Research activities: Theoretical and experimental aspects of the structure of water, aqueous solutions and hydrophobic hydrophilic interactions; General theory of liquids and solutions; Theoretical problems in biochemistry and biophysics; Theoretical Biology and theory of evolution; Entropy and Information Theory.

3. Important publications:

   a. Ben-Naim, *Cooperativity and Regulation in Biochemical Systems*, Kluwer/Plenum Publ. New-York 2001.

   b. Ben-Naim, *Molecular Theory of Solutions*, Oxford University Press (2006).

Prof. Avinoam Ben-Shaul

1. Very short CV: 1974 - Senior Lecturer (Weizmann), 1975 – Hebrwe University, 1984 – professor ("full"). Significant other events: (i) 5+ grand-children since 2004, and (ii) severe Health problems (cancer, chemo etc.) since 2002.

2. Research activities: Membrane biophysics. Membrane-protein interactions. DNA and RNA packaging in viral capsids. Novel Monte-Carlo simulations schemes, Actin polymerization and cell locomotion. Theory of RNA folding and dimensions – random vs. viral RNA. Theory of cell-cell adhesion, tissue development, with particular emphasis on cadherin mediated adhesion.

3. Important publications:

a. Harries, D; May, S; Gelbart, WM, et al.; Structure, stability, and thermodynamics of lamellar DNA-lipid complexes; **BIOPHYSICAL JOURNAL**, Volume: **75**, Issue: **1**, Pages: **159-173**, Published: **JUL 1998**; *times Cited: 150.*

b. BENSHAUL, A; SZLEIFER, I; CHAIN ORGANIZATION AND THERMODYNAMICS IN MICELLES AND BILAYERS .1. THEORY; **JOURNAL OF CHEMICAL PHYSICS**; Volume: **83**; Issue: **7**; Pages: **3597-3611**; Published: **1985**; *times Cited: 154*.

4. No. of students and post-docs (past five years): 5

5. Recognitions: 2006 Landau Prize for Physics of Membranes, Polymers and Biomaterials; 1995 Ludwig Scaeffer Scholar, Biophysics, Columbia University.

6. Scientific-community activity: Membership in Editorial Boards: Chemistry and Physics of Lipids. PMC-Biophysics.

Prof. Silvio Biali

1. Very short CV: Date of start as faculty member: 1987. Academic degree: Ph.D. Current position: Professor.

2. Research activities: Synthesis Methylene-functionalized calixarenes; Multiple isotopic perturbation of conformational equilibrium in substituted calixarenes.

3. Important publications:

a. Stable Simple Enols. 3. Static and Dynamic NMR Behavior of Crowded Triarylethenols and Related Compounds. Three-Ring Flip as the Threshold Mechanism for Enantiomerization of Crowded Triarylvinyl Propellers. By S. Biali and Z. Rappoport, *J. Am. Chem. Soc. 106,* 477-496 (1984).

b. Partially OH-Depleted Calixarenes. By F. Grynszpan, Z. Goren and S. Biali, *J. Org. Chem. 56,* 532-536 (1991).

4. No. of students and post-docs (past five years): 5

5. Scientific-community activity: Member of the Executive Board of the Israel Chemical Society (2005-2008).

Prof. Avi Bino

1. Very short CV: Joined as a faculty member in 1979. Today, full professor. Head of the Institute 2004-2007.

2. Research activities: *Current:* Nano-alloys; Organic free radicals in aqueous solution; Energetic materials; *Earlier*: Polynuclear metal complexes; Bio-inorganic chemistry; Metal cluster chemistry.

3. Important publications:

a. Bino, A.; Cotton, F.A.; Franwick, P.E. Preparation of Tetraammonium Octaisothiocyanatodimolybdenum(II) and Structural Characterization of Two Crystalline Hydrates, *Inorg. Chem*., 1979, 18, 3558-3562; *cited 331 times*.

b. Bino, A; Cotton, F.A.; Dori, Z. A Trinuclear Molybdenum(IV) Cluster Compound Having an Unusual Structure and Unusual Stability, *J. Am. Chem. Soc.*, 1978, 100, 5252-5253; *cited 122 times*.

4. No. of students and post-docs (past five years): 5

5. Scientific-community activity: 1985-1988 General Secretary, the Israel Chemical Society; 1985-2002 Advisory Board: Inorganica Chimica Acta; 1986-1989 Editorial Board: Israel Journal of Chemistry; *Conferences:* Organizing Committee ICCC 2008; *University positions:* 1991-1999: Chairman, Department of Inorganic and Analytical Chemistry; 2004-2007 Head, Institute of Chemistry; Member in numerous university committees.

Prof. Jochanan Blum

1. Very short CV: Born 4.9.1933 in Bautzen, Germany; Nov. 1964, joined the staff of the Department of Organic Chemistry B as a Lecturer; 1968-1972 Senior Lecturer; 1972-1978 Associate Professor; 1978 – Promoted to Full Professor. Since 2005 – Emeritus Professor.

2. Research activities: Catalysis by the late transition metal compounds with emphasis on sustainable chemistry. Conversion of homogeneous catalyts into recyclable polymer-bound and sol-gel entrapped species. Application of the immobilized catalyst (i) to hydrogenation, hydroformylation, double bond isomerization and C-C coupling reactions of industrial importance; (ii) to the detoxification of environmental pollutants; (iii) to the performance of multi-step one-pot reactions of opposing chemical nature. Studies on the replacement of the harmful organic solvents in catalytic and in stoichiometric processes by environmentally favored water (including the application of this technique to water insoluble hydrophobic substrates). Stereochemical control of the Heck coupling. Studies on the involvement of metallic nanoparticles in catalytic processes.

3. Important publications:

   a. Dichlorotris(triphenylphosphine)ruthenium-Catalyzed Hydrogen Transfer from Alcohols to Saturated and α,β-Unsaturated Ketones. Y. Sasson and J. Blum, *J. Org. Chem*., **40**, 1887-1896 (1975); *times cited: 180*.

   b. A Novel $PtCl_4$-Catalyzed Cyclorearrangement of Allyl Propynyl Ethers to 3-Oxabicyclo-[4.1.0]heptenes. J. Blum, H. Beer-Kraft and Y. Badrieh, *J. Org. Chem*., **60**, 5567-5569 (1995); *times cited: 73*.

4. No. of students and post-docs (past five years): 13

5. Recognitions: 1996 the Kolthoff Award of the Technion.

The late Prof. Victoria Buch
(passed away on June 21st, 2009)

1. Very short CV: Hebrew University of Jerusalem: Senior Lecturer: 1992-96; Tenured at Hebrew University: 1995; Associate Professor: 1996; Full Professor beginning 2000; Deceased: 21 June 2009.

2. Research activities: The research activities of Victoria Buch were in computational and theoretical chemistry. *A.* Ice particles, water droplets, amorphous and crystalline phases of ice; large clusters of water/ice and the relation to condensed phases; Structural and thermodynamic properties of ice and water, from clusters to interfaces and to condensed phases; Models and computational approaches to the spectroscopy of ices and of liquid water. *B.* Molecular adsorbates at the ice/air interface, and at liquid water surfaces; Solvation in water, and ionization of acids at water surfaces; Mobility of adsorbates in ice molecule-water interaction potentials. *C.* Simulations methods of many-particle systems; On-the-fly Molecular Dynamics simulations of condensed phases using potentials from Density Functional Theory (Car-Parrinello simulations). Applications of many-particle simulations to nucleation processes. *D.* Aggregation and coalescence of molecular aerosol particles. *E.* Quantum simulations of many particle systems; Rigid-molecule approaches for Diffusion Quantum Monte Carlo for ground state simulations of many-molecule systems; Feynman Path Integral Quantum Monte Carlo Methods; Applications to clusters at very low temperatures.

3. Important publications:

   a. R.B. Gerber, V. Buch and M.A. Ratner; Time-Dependent Self-Consistent Field Approximation for Intramolecular Energy Transfer. I. Formulation and Application to Dissociation of van der Waals Molecules; *J. Chem. Phys.* 77, 3022-3030 (1982); *Cited 293 times*.

   b. J. Devlin, N. Uras, J. Sadlej, V. Buch; *Nature* 417, 269-71 (2002); *Cited 92 times*.

4. No. of students and post-docs (past five years): 4

5. Recognitions: B.Sc. (Chemistry), with Distinction – Hebrew University (1974); M.Sc. (Chemistry), with Distinction – Hebrew University (1979); Landau Award for Ph.D. Research – Hebrew University (1984); Weizmann Postdoctoral Fellowship (1984); Camille and Henry Dreyfus Teacher-Scholar Award (USA) (1990).

6. Scientific-community activity: Member, Advisory Editorial Board, *Journal of Chemical Physics*, 2004-07 (approx. dates); Member, Advisory Committee of *Faraday Discussions of the Chemical Society, Royal Society of Chemistry,* 2007-08; Member of the Israel Chemical Society; Member of the American Chemical Society; Member of the American Physical Society.

Prof. Daniel Cohn

1. Very short CV: Joined as a faculty member in 1983. Today, Full Professor and Head of the School of Chemistry. Served previously as Director of the Casali Institute, Chairman of Studies of the Casali Institute of Applied Chemistry, and Chairman of Studies of the School of Applied Science and Technology. Chief Scientist of SyntheMed Inc. Developed two FDA-approved implantable biomedical products.

2. Research activities: **Biomedical polymers** - Synthesis, characterization and biological interactions of implantable polymeric biomaterials; **Biodegradable polymers** - Design, synthesis and development of new biodegradable polymeric systems; ***In situ* generated implants** - Development of novel polymeric systems for the *in situ* generation of biomedical implants; **Smart biomedical polymers** – Development of polymeric systems tailored to display sharp property changes, in response to minor chemical, physical or biological stimuli, focusing mainly on reverse thermo-responsive polymers; **Tissue engineering** - Engineering polymeric scaffolds for the regeneration of functional human tissue, especially arterial reconstruction; **Smart medical devices** – Design and engineering of medical devices that have an additional functional dimension, such as being environmentally responsive; **Biomedical composites** - Fiber reinforced polymers, especially for soft tissue implants; **Plasma surface treatments** - Surface modification of biomedical polymers by means of polymerization or functionalization under plasma conditions and further derivatization; **Smart nano-sized biomedical systems** – Design and synthesis of nanometric thermo-responsive polymeric constructs; **Nano-sized polymeric fibrous biomedical structures** - Engineering of nano-fibrous constructs, such as scaffolds for tissue regeneration, using various techniques, primarily electro-spinning.

3. Important publications:

   a. COHN, D; YOUNES, H; BIODEGRADABLE PEO/PLA BLOCK COPOLYMERS; JOURNAL OF BIOMEDICAL MATERIALS RESEARCH Volume: 22, Issue: 11, Pages: 993-1009 Published: NOV 1988; *Times Cited: 149*.

   b. YOUNES, H; COHN, D; PHASE-SEPARATION IN POLY(ETHYLENE GLYCOL) POLY(LACTIC ACID) BLENDS; EUROPEAN POLYMER JOURNAL Volume: 24 Issue: 8 Pages: 765-773 Published: 1988; *Times Cited: 67*.

4. No. of students and post-docs (past five years): 30

5. Recognitions: 1991 Awarded the E.D. Bergman Special Grant, for research on Molecular design of high performance bioerodible polymers for biomedical applications; 1992 Awarded the E.D. Bergman Special Grant, for research on Molecular design of high performance bioerodible polymers for biomedical applications; 2008 Kaye Award for Applied Research (First price).

6. Scientific-community activity: *Editorial activities:* Member of the Editorial Board of Clinical Materials Journal; Member of the Editorial Board of *Biomaterials - Living System Interactions* Journal; Editor, Special Issue of the *Clinical Materials* Journal on: "Biomedical polymers: from molecular design to clinical applications", 1991; Founder member of the International Organizing Committee of the "Frontiers on Biomedical Polymers Symposia", 1994; Associate Editor, Frontiers in Biomedical Polymer Applications, Volume 1, Technomic, U.S.A., 1998; Associate Editor, Frontiers in Biomedical Polymer Applications, Volume 2, Technomic, U.S.A., 1999; Associate Editor, Frontiers in Biomedical Polymer Applications, Volume 3,

Kluwer Press, Italy, 2001; Member of the International Advisory Board of the Journal of Applied Biomaterials and Biomechanics; Co-Editor, "Polymer Based Systems on Tissue Engineering, Replacement and Regeneration", NATO-Advanced Studies Institute, Kluwer Press, 2002; Scientific Advisory Board of Journal of Biomaterials Science, 2007-present; Conferences: Organizer of several scientific meetings in Israel; Organizer of various Mini-Symposia held within International Conferences held abroad (Washington DC, Porto, Singapore); Numerous times member of International Advisory Board of conferences; University positions: 1984-1987 Chairman of Studies at the Casali Institute of Applied Chemistry; 1995-1999 Chairman of Studies at the School of Applied Science and Technology; 1995-1999 Member of the Studies Committee of the Faculty of Science; 1999-2000 Chairman of Studies at the Casali Institute of Applied Chemistry; 2000-2004 Director of the Casali Institute of Applied Chemistry; 2007-2010 Head of the School of Chemistry; 2007-2010 Member of the Studies Committee of the Faculty of Science; Member of numerous university committees.

Prof. Jehuda Feitelson

1. Very short CV: Studies at Hebrew University, Postdoc. Cambridge University, UK; Joined faculty at Chemistry Institute 1956, Full professor 1972; Chairman: Studies Committee, Faculty of Sciences; Visiting Professor: Harvard U. Princeton U. Rockefeller U; Retired 1992.
2. Research activities: *Previous:* Polyelectrolytes; Energy transfer by fluorescence (Forster mech); Photosynthesis; *Lately:* Photooxidation by Singlet Oxygen (Photoacouistics).
3. Important publications: Y. Pinchasova, D. Kotliarovsky, Z. Dubinsky, D. Mauzerall and J. Feitelson; Photoaccoustics as a diagnostic tool for probing the phusiological status of phytoplankton; *Israel Journal of Plant Sciences*, 51, pp 1-10, 2005.

Prof. Assaf Friedler

1. Very short CV: Joined as a faculty member in 2004. Today, Associate Professor.
2. Research activities: Biophysical studies of protein-protein interactions; Using peptides to shift the oligomerization equilibrium of proteins for therapeutic purposes; Using peptides to study protein – protein interactions; Peptide chemistry; Peptide inhibitors of theHIV-1 integrase protein; Apoptosis pathways: the p53 and ASPP2 interaction networks; Natively unfolded proteins.
3. Important publications:
   a. **Friedler A.,** Hansson L.O., Veprintsev D.B., Freund S.M.V., Rippin T.M., Nikolova P.V., Proctor M.R., Rüdiger S. and Fersht A.R. (2002) A peptide that binds and stabilises p53 core domain: chaperone strategy for rescue of oncogenic mutants, Proc. Natl. Acad. Sci. USA 99, 937-942 *(cited 99 times).*
   b. Hayouka Z, Rosenbluh J, Levin A, Loya S, Lebendiker M, Veprintsev DB, Kotler M, Hizi A, Loyter A and **Friedler A** (2007) Inhibiting HIV-1 integrase by shifting its oligomerization equilibrium; Proc Natl Acad Sci USA*, 104(20):8316-21 (cited 53 times)*.
4. No. of students and post-docs (past five years): 16
5. Recognitions: 1993 Dean prize for B.Sc. students, the Hebrew University of Jerusalem; 1994 Dean prize for B.Sc. students, the Hebrew University of Jerusalem; 1995 Rector prize for M.Sc. students, the Hebrew University of Jerusalem; 1996 Rector prize for M.Sc. students, the Hebrew University of Jerusalem; 1998 Wolf Foundation prize for excellent Ph.D students; 1999 Intel/dean award for excellent Ph.D students at the Hebrew University of Jerusalem; 1999 Awarded Marie Curie post-doctoral fellowship from the EU (declined 7/00 when switched to the Human Frontier fellowship); 2000 Post-doctoral fellowship in the UK, in frame of the program for exchange of scientists between Israel and the UK, The Israeli Academy of Sciences and the British Royal Society; 2000 Long-term post-doctoral fellowship by the Human Frontier Science Program Organization; 2004 Career development award by the Human Frontier Science Program

Organization; 2004 Alon fellowship for young scientists, awarded by the Israeli council for higher education; 2004 Equipment award from the UK friends of the Hebrew University, London, UK; 2006 Excellence award from the Israel Cancer Association; 2007 Outstanding teacher at the Hebrew University for teaching the course" organic chemistry for biology students"; 2007 ERC starting grant from the EU (this 5-year starting grant was awarded to ~300 out of 9167 applicants); 2009 Israeli Chemical Society Excellent Young Scientist Prize. Awarded the prize for "For his ground-breaking studies on protein-protein interactions and for the development of molecules with therapeutic potential based on improved understanding of such interactions"; 2009 IUPAC young chemist award; 2009 Outstanding teacher at the Hebrew University for teaching the course" organic chemistry for biology students".

6. Scientific-community activity: *Editorial activities:* 2007 Member of the Editorial board of the journal "Protein Engineering, Design and Selection (PEDS)"; 2007 Editor, "Central European Journal of Chemistry", in charge of the biochemistry and biological chemistry topics; *University positions:* 2005-2009 Head of the undergraduate integrated chemistry-biology program; 2005-present Member of the Prizes committee, school of chemistry; 2006-2009 Member of the teaching committee, faculty of science; 2007-present Member of the teaching committee, school of chemistry; 2005-2008 Advisor for M.Sc. students in the school of chemistry; *Other activities:* 2004 Referee for the following journals: Biochemistry, FEBS journal, Nucleic Acid Research, Journal of Virological Methods, Current Pharmaceutical Design, Biopolymers (peptide Science), Molecular Pharmacology, Pure and Applied Chemistry, Journal of Molecular Recognition; 2005 Referee for the following funding bodies: ERC (European Research Council), DFG (German Science Foundation), Cyprus Research Promotion Foundation, Internal Hebrew University funds, GIF (German – Israeli foundation), BSF (US-Israel Binational Science Fund), The Israel Cancer Association, ISF (Israel Science Foundation); 2005 Referee for MSc and PhD theses from the Hebrew University, Weizmann Institute and Tel Aviv University; 2006-2007 Advisor, SimeTRA Pharm Ltd; 2006-2009 National representative of Israel in the physical and biophysical division of IUPAC (International Union for Pure and Applied Chemistry); 2009 Young observer in the 42nd IUPAC congress, Glasgow, UK; 2010-2013 Titular member in the physical and biophysical division of IUPAC (Division 1).

Prof. Nissim Garti

1. Very short CV: Joined as a faculty member in 1976. Full professor since 1991. Served as director of the Casali Institute and head of the school of applied science and technology. Co-founder of Adumim Chemicals, Menpile and Nutralease. Provide consulting services to international companies.

2. Research activities: *Current:* Lyotropic liquid crystals and drug delivery; Microemulsions for enhanced solubilization of bioactives; Interfaced crystallization; Interfacial reactivity; *Earlier:* Emulsion stabilization; Double emulsion as delivery vehicles; Proteins and hydrocolloids as emphiphiles; Crystallization in bulk of fats and olis- polymorphism.

3. Important publications:

   a. Mechanism of transport of charge carriers in the sodium bis(2-ethylhexyl) sulfosuccinate-water-decane microemulsion near the percolation temperature threshold. Journal of Physical Chemistry (1996), 100 (9) 3745-3748; *Cited 85 times.*

   b. Solubilization in oil/water food grade microemulsions in the presence of polyols and ethanol. Journal of Agricultural and Food Chemistry (2001), 49 (5) 2552-2562; *Cited 73 times.*

4. No. of students and post-docs (past five years): 17

5. Recognitions: **2009: Chung Award of the American Oil Chemistry Society** for the Lifetime Achievement in Lipid Research; the only Israeli Scientist to receive the award during the 100 years of the society; **2009: The Israel Food Industry Society Award**- Lifetime Achievement Award for Outstanding Contribution to the Food in Israel; awarded during the "Food in the New Era" conference; **2009: The French Government Award** for the Promotion of Outstanding Scientists; **2008, The Israeli President Award -** One of the 60 Most

Innovative Future Technologies of Israel (Nutralease**)**, "Facing Tomorrow" - The Israeli Presidential Conference, Jerusalem, May 13-15, (awarded in the presence of the American President - George W. Bush); **2007, International Food Technology (IFT) Annual Award for the Food Expo Innovation Award** granted to Prof. Garti from NutraLease Ltd./Adumim Food Ingredients/P.L. Thomas for their NutraLease Nanoencapsulation Technology; **2007, The Tnuva Institute Award** granted to Prof. Garti for its outstanding research Activities on lyotropic liquid crystals as delivery vehicles, Tel Aviv, January; **2005**, **The Most Innovative Israeli Nanotechnology Award Winner of the CMNC Society**, "Food Goes Nano- Liquid Nano Vehicles for Nutraceuticals solubilization and delivery", Chicago, USA; **2005,** 1st Prize Award on Best Oral Presentation of the 94th AOCS meeting, "Enzymatic Hydrolysis of Lecithins to Lysolecithins at Water-in-Oil Microemulsion Interfaces. Part II. Structure —Reactivity Relationship", Salt Lake City, Utah, USA; **2004**, **Rockefeller Foundation Award**, "Best Contribution to Humanity" on "Food Goes Nano", Bellagio, Italy; **2004,** 1st Prize on: "Best Presentation" of the 95th AOCS meeting, "New Dispersed Mesophases of Ill-Defined Cubic Structured Microemulsions", Cincinnati, Ohio, USA; **2003, The Japanese Award for the Promotion of Senior Foreign Scientists**, Hiroshima University, Hiroshima, Japan; **2003,** The 1st Prize **Kaye Award** of the Hebrew University on Inventions and Innovations, "Development of Self-Assembled Nanosized Liquids (NSSL) for Solubilization of Nutraceuticals", Jerusalem.

6. Scientific-community activity: Membership on the editorial board of international journals and reviews: Co-editor of Current Opinion in Colloid and Interface Science (COCIS), Journal of the American Chemists Society (JAOCS), Colloids and Surfaces B., J. Colloids and Interfacial Science (JCIS), Journal of Surface Science and Technology (JSST), J. Dispersion Science and Technology (JDST).

Prof. Dima Gelman

1. Very short CV: 2004-2009 Senior Lecturer in Organic and Organometallic Chemistry, Institute of Chemistry, the Hebrew University of Jerusalem, Israel; 2010-present Associate Professor in Organic and Organometallic Chemistry, Institute of Chemistry, the Hebrew University of Jerusalem, Israel.

2. Research activities: My research mainly addresses the design of novel catalytic systems toward organic synthetic applications. In particular, we are involved into the development of practical catalysts capable of activation and functionalization of inert carbon-hydrogen bonds via cross-coupling and hydrogen transfer reactions. We also investigate basic organometallic chemistry of a new class of the electron-rich carbometalated (pincer) transition metal complexes. Additionally, my group is exploring the implementation of the new pincer compounds to the synthesis of conducting and photoactive organometallic polymers in collaboration with Prof. E. E. Nesterov (LSU, USA) and Prof. K. Rueck-Braun (TU Berlin, Germany).

3. Important publications:

   a. Gelman, D. and Buchwald, S. L. (2004) "A General and Efficient Copper-Free Protocol for Palladium-Catalyzed Coupling of Alkynes and Aryl Chlorides" *Angew. Chem. Int. Ed.* 42:5993-5996 *(141 citations)*, *Among the TOP10 CAS most requested articles in Jan-March 2004*.

   b. Grossman, O. and Gelman, D. (2006) "Novel Trans-Spanned Palladium Complexes as Efficient Catalysts in Mild and Amine-Free Cyanation of Aryl Bromides under Air" *Org. Lett*. 8:1189-1191 *(26 citations)*.

4. No. of students and post-docs (past five years): 10

5. Recognitions: 1997 Kenat Prize; 2001 Porath Foundation Prize; 2001 Klein Foundation Prize; 2002 Diploma summa cum laude.

6. Scientific-community activity: Member of the organizing committee for the 73d annual meeting of the Israel Chemical Society, 2007; Refereeing for international journals: *Journal of Organic Chemistry*, *Organic Letters, Inorganic Chemistry*, *Organometallics*, *Tetrahedron Letters, ChemCommun, Coordination Chemistry Reviews,* etc; Refereeing for funding agencies: Israel Science Foundation (ISF), German-Israeli Foundation

for Scientific Research and Development (GIF) and U.S.-Israel Binational Science Foundation (BSF); Professional memberships the Israel Chemical Society and the American Chemical Society.

Prof. Benny Gerber

1. Very short CV: 1969-1976: Senior Researcher, Weizmann Institute of Science, Rehovot, Israel; 1976-1980: Associate Professor, Hebrew University of Jerusalem; 1980-Present: Professor, Hebrew University of Jerusalem; 1989-Present: Saerree K. and Louis P. Fiedler Chair in Chemistry, Hebrew University of Jerusalem; 1990-Present: Professor of Chemistry, University of California at Irvine, CA, USA.

2. Research activities: My research is in theoretical and computational chemistry. The work involves development of approximation methods and algorithms, as well as applications to systems of experimental interest. Cooperation with experimental groups in which we provide interpretation of the experimental results, or in cases try to predict *a priori* the outcome of the experiments, is a major direction in the work of my research group; The main chemical topics we are exploring at the present time include: The mechanisms and rates of atmospherically-relevant molecular reactions: Reactions at water and ice surfaces are a specific subject of interest. Examples include thermal reactions of NOx species and photochemical reactions of peroxides at the surfaces; Vibrational spectroscopy of biological molecules: We developed the presently-leading method for calculation of high-resolution vibrational spectroscopy of large molecules; we continue to develop it and apply it to unravel properties of biological molecules, including determination of conformational structures and of conformational transitions; New molecules of the noble gases: We predicted novel molecules of the noble gases, with focus on new motifs of chemical bonding. Examples of impact on the field of noble-gas chemistry include HXeCCH (1-hydro xenon acetylide) and HXeOXeH ("di-xenon water). We continue to explore properties of these molecules, to examine their possible existence in nature (planetary and terrestrial environments), and to pursue both predictions of new molecules and strategies for their preparation.

3. Important publications:

   a. E.M. Knipping, M.J. Lakin, K.L. Foster, P. Jungwirth, D.J. Tobias, R.B. Gerber, D. Dabdub and B.J. Finlayson-Pitts; Experiments and Molecular Dynamics Kinetics Simulations of Ion-Enhanced Interfacial; *Chemistry on Aqueous NaCl Aerosols Science* 288, 301-306 (2000) *(cited 303 times).*

   b. G.M. Chaban, J.O. Jung and R.B. Gerber; Ab Initio Calculation of Anharmonic Vibrational States of Polyatomic Systems: Electronic Structure Combined with Vibrational SCF; *J. Chem. Phys.* 111, 1823-1829 (1999) *(cited 216 times)*.

4. No. of students and post-docs (past five years): 30

5. Recognitions: Graham Senior Scholarship, Pembroke College, University of Oxford, elected 1966; Senior Mathematical Prize for outstanding research Thesis, University of Oxford, 1968; Fellow of the American Physical Society, elected 1989; Saerree K. and Louis P. Fiedler Chair in Chemistry, Hebrew University, from 1989; Michael Milken Prize for long-standing excellence in teaching Hebrew University, 1990; Recipient of the Max-Planck Research Award (given by the Alexander von Humboldt Foundation, Federal Republic of Germany), 1991; Recipient of the I.M. Kolthoff Prize in Chemistry (given by the Technion – Israel Institute of Technology) 1992; Recipient of the Medal of the University of Helsinki and Rector's invited lecturer, University of Helsinki, Finland, 1993; Michael Milken Prize for long standing excellence in teaching, Hebrew University, 2003; Israel Chemical Society Prize for the year 2004; Medal of the Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences, 2006; Foreign Member of the Finnish Academy of Science and Letters, elected 2007; Festschrift for R.B. Gerber, a Special Issue of The Journal of Physical Chemistry, J. Phys. Chem. A, Vol. 113, Issue 26 (2009). Guest Editors: A.B. McCoy, A.I. Krylov, V. Buch.

6. Scientific-community activity: *Editorial Boards:* Member, Editorial Board, Isr. J. Chem., 1980-85; Member, Editorial Board of Molecular Physics (Europhysics Journal based in England), 1980-88; Member, Editorial

Board of Laser Chemistry (International Journal based in France), from 1985-95; Member, Editorial Board of Advances in Physical Chemistry, 1995-1998; Member of Editorial Board of Computational Materials Science (and International Journal published by Elsevier) 1992-2007; Associate Editor "Advanced Series in Physical Chemisry", Review Series World Scientific Press, 1992-96; Member of the Editorial Board, Berichte der Bunsengesellschat f. Physikalische Chemie (an International Journal based in Germany) 1994-98; Member of the Editorial Board, Phys. Chem. Comm. (an electronic journal published by the Royal Society of Chemistry, U.K.) 2000-2005; Member of the Editorial Board, The Journal of Chemical Physics, 2001-2004; Member of the Editorial Board, Chemical Physics (an International Journal published by Elsevier) from October 1996; Advisory Editorial Board Member, Chemical Physics Letters, 2010-2012; *Membership in Societies:* Member of the Israel Chemical Society; Member of the American Chemical Society; Elected Fellow of the American Physical Society; *International Committees*: Member of the International Advisory Board of the Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences; Member of the International Selection Committee of the IOCB AS CR (2008); *Public Lectures/Articles:* Article on developments in noble-gas chemistry in "Pur la Science", a popular science French magazine; Interview on developments in noble-gas chemistry (RTL (German TV), in 2006.

Prof. Chaim Gilon

1. Very short CV: Date of start as faculty member: 1976; Current academic degree: Professor Emeritus; Born: 17-11-1937.

2. Research activities: My group is developing and applying technologies for the conversion of bioactive peptides and active regions in proteins into drugs. Over the years we have developed technologies such as: Backbone Cyclization, Cycloscan, Combinatorial Cycloscan and Helix Walk. These technologies are based on the design and synthesis of libraries with conformational diversity based on a parent active peptide or active region in protein and screening them for their biological activity, metabolic stability and bioavailability. From these libraries we select the most active, selective, metabolically stable and orally bioavailble drug lead. Few recent examples for the application of these technologies: (1) discovery of a noval mocrocyclic, orally available, potent inhibitor of HIV-1 replication in cells, a drug lead for AIDS (2) potent orally available, mimetic of a-MSH that inhibits weight gain in mice (3) in-vivo active inhibitor of the GPCR CC2 receptor dimerization which is the key protein in multiple sclerosis (4) potent substrate inhibitor of PKB, a key protein in the signal transduction of many cancers. In addition we have developed new chemical methods for the preparation of (1) aza-amino acids and their incorporation into peptides and (2) peptoid scaffold for targeted affinity labeling of proteins.

3. Important publications:

   a. Gazit, A.; Yaish, P.; **Gilon, C.**; Levitzki, A., (1989) Tyrphostins I: synthesis and biological activity of protein tyrosine kinase inhibitors, *J Med Chem*, **32**, 2344-52; *543 citations.*

   b. Yaish, P.; Gazit, A.; **Gilon, C.**; Levitzki, A., (1988) Blocking of EGF-dependent cell proliferation by EGF receptor kinase inhibitors, *Science*, **242**, 933-5; *490 citations*.

4. No. of students and post-docs (past five years): 14

5. Recognitions: 1977 Bergman Award, National Academy of Sciences, Israel; 1996 Kaye Innovation Award, Hebrew University, Jerusalem, Israel; 2001 Humboldt Award , Government of Germany.

6. Scientific-community activity: 1996-2001 Member, Scientific Board, DA'AT Consortium, Ministry of Industry and Commerce; 1997-2002 Head, Scientific Advisory Board, Peptor Ltd. Rehovot, Israel; 1999-2002 Scientific Advisor, Insightec LTD, Haifa, Israel; 2000-present Co-Founder and Vice President of the Israeli Combichem Society; 2000-2007 Head of the Safety Committee, the Hebrew University of Jerusalem, Israel; 2000-2008 Member of the Life Science Committee for promotion to Full Professor rank, The Hebrew University of Jerusalem, Israel; 2001 Co-Organizer of the 2ed Symposium of the Israeli Combichem Society, Rehovot, Israel; 2001-2007 Head of the Department of Organic Chemistry; 2001-2006 Member, Scientific

Board, Pharmalogica Consortium, Ministry of Industry and Commerce; 2002-2004 Scientific Advisor Vectabiotic Ltd, Or-Yehuda; 2002-2004 Scientific Advisor Keryx Ltd, Jerusalem and USA; 2002-2004 Scientific Advisor DermatoLayzer Ltd, Tel-Aviv; 2004 Co-Organizer of the 3ed International and 28th European Peptide Symposium, Prague, Chech Republic; 2004-Present Member of the Executive of the European Peptide Society; 2004-Present Member of the Executive of the European Combichem Society; 2006-2007 Scientific Advisor BiolineRX Ltd, Jerusalem; 2006-2007 Scientific Advisor Intec Pharm Ltd, Jerusalem; 2006-2007 Scientific Advisor SimetraPharm Ltd, Kiriat-Shmone; 2008 Co-founder of the startup company Active P (with Prof. A. Hoffman and Dr. S. Hess); 2008 Present Head of the Department of Pharmaceutical Engineering, Jerusalem College of Engineering, Jerusalem, Israel.

Prof. Eli Grushka

1. Very short CV: 1969-1978: Professor of Chemistry at SUNY/Bufallo; Joined Hebrew University as a faculty member in 1976. Today, professor (full) emeritus; Served as the head of the Chemistry Institute 1991-1994.
2. Research activities: *Current:* Using Linear Free Energy Relationships to decipher chromatographic interactions; Measurements of lipophilicity using liquid chromatography; Tailor-made chromatographic columns through dynamic coating; *Earlier:* The understanding and usage of chromatographic system peaks; Separation of eneatiomers using reversed phase liquid chromatography; Optimization of chromatographic resolutions using time normalization techniques; The effect of experimental conditions on the separation efficiency in capillary electrophoresis.
3. Important publications:
   a. H.D. Durst, M. Milano, E.J. Kikta, S.A. Connelly and E. Grushka, Phenacyl Esters of Fatty-Acids via Crown Ether Catalysts for Enhanced Ultraviolet Detection in Liquid-Chromatography, ANAL. CHEM. **47**, 1797-1801, **(1975**); *Times Cited: 358.*
   b. E. Grushka, R.M. McCormick, and J.J. Kirkland, Effect Of Temperature-Gradients On The Efficiency Of Capillary Zone Electrophoresis Separations, ANAL. CHEM., **61,** 241-246, (1989); *Times Cited: 207.*
4. No. of students and post-docs (past five years): 16
5. Recognitions: 1976 I.M. Kolthoff Fellow of Analytical Chemistry, Hebrew University of Jerusalem; 1979 M. Tswett Chromatography Medal, Given by the U.S.S.R Academy of Science; 2006-2010 President of the Israel Society for Analytical Chemistry; 2007 The Csaba Horvath Award given by The Connecticut Separation Science Council.
6. Scientific-community activity: *Editorial activities:* Editor: (1975-1990) Separation and Purification Methods (Marcel Dekker, Publisher); Guest Editor: Separation Science and Technology Special issue on Preparative Chromatography, 22(8-10), 1987; Guest Editor: Israel Journal of Chemistry 30 (3), 1990 Special issue on Advances in Separation Science; *Editorial Board (Past and Present):* Chromatographia; Journal of Chrmoatographic Science; Journal of Liquid Chromatography; Separation Science Technology; Analytical Letters; BioChromatography; *Conferences:* Numerous times member of international advisory board of conferences; *University positions:* 1990-1993 Head, Institute of Chemistry; Mid 1990s Chairman of the Promotion Committee of the Faculty of Natural Sciences; Member in numerous university committees.

Prof. Yehuda Haas

1. Very short CV: Joined as a faculty member in 1975. Today, retired as full professor (2009). Served before as Vice President for Research and Development of the Hebrew University. Headed the Academic Committee for Establishment of the Academic Technology College in Jerusalem (now the Jerusalem College of Engineering).
2. Research activities: *Current:* Role of conical intersections in photochemistry; New high energy density materials (HEDM); Laser initiation of HEDM; Solar energy utilization; *Earlier:* Spectroscopy and photochemistry in supersonic jets and cryogenic matrices; Multiphoton infrared photochemistry.
3. Important publications:
   a. Y. Haas and G. Stein, "Pathways of radiative and radiationless transitions in Europium(III) solutions – the role of solvents and anions", *J. Phys. Chem*., **75**, 3668-3676 (1971); *Cited 201 times*.
   b. S. Zilberg and Y. Haas, "Ab-initio study of styrene and beta-methyl styrene in the ground state and in the 2 lowest lying excited singlet states", *J. Chem. Phys*, **103**, 20-36 (1995); *Cited 62 times*.
4. No. of students and post-docs (past five years): 16
5. Recognitions: 2001 Vielberth-Lecture, Regensburg University.
6. Scientific-community activity: *Editorial activities:* 2001-2009 Associate Editor, Photochemical and Photobiological Sciences; 2000 Co-Editor of a Special issue of Chem. Phys. on "Conical Intersections"; *Conferences:* Numerous times member of international advisory board of conferences; *University positions:* 1984-8 Vice Dean for Research, Faculty of Science; 1989-1992 Vice President for R&D, Hebrew University; 2001-2004 Head, Center of Science Education; 2004-2006 Vice Dean for Teaching, Faculty of Science; Member in numerous university committees.

Dr. Daniel Harries

1. Very short CV: Joined as a faculty member in 2006. Currently, a senior lecturer at the Institute of chemistry and member of the Fritz Haber Center.
2. Research activities: Theoretical coarse-grained dynamic methods of macromolecules; Measuring and modeling forces between biological macromolecules; Effects of osmotic stress on interactions between biological molecules; Confinement effects on molecular and granular scales.
3. Important publications:
   a. Harries, D. May, S. Gelbart, W.M. and Ben-Shaul, A. (1998). Structure, Stability and Thermodynamics of Lamellar DNA-Lipid Complexes. Biophys. J. 75, 159-73; *Cited 150 times.*
   b. May, S. Harries, D. and Ben-Shaul, A. (2000). Lipid Demixing and Protein-Protein Interactions in the Adsorption of Charged Proteins on Mixed Membranes. Biophys. J. 79:1747-1760; *cited 83 times.*
4. No. of students and post-docs (past five years): 5
5. Recognitions: 2007, 2009 Noted excellent teacher in the Science Faculty; 2006 Alon fellowship for young scholars; 2002-2005 NIH visiting fellow award; 2002 Schlomiuk prize; 2001 Rothschild fellowship; 2001 Fulbright postdoctoral fellowship; 2001 Ph.D. Summa cum Laude; 1998 Clore scholarship; 1997 Katzir scholarship; 1996 Rector's award for M.Sc. students; 1996 Wolf prize for M.Sc. students; 1995 B.Sc. Summa cum Laude; 1993-1995 University scholarship for students in honors class; 1994 Dean's honors list; 1993 Dean's honors award; 1992 Amirim (honors class) scholarship.
6. Scientific-community activity: *Peer review activities:* Served as peer-review referee for: PNAS, Biophysical J., JACS, J. Phys. Chem. B, J. Chem. Phys., Phys. Rev. Lett., Phys. Rev. E, Langmuir, Euro. Phys. J.; *Representative for Israel* in the EU COST Action D43 on biocolloids, 2007-present; *Conferences:* 6-session symposium on

"Bio-colloids" at the 227th ACS meeting in Anaheim, CA, March 2004 (with Profs. D. Danino and S. Wrenn). Also, guest editor (with Profs. D. Danino and S. Wrenn) for Macromolecular Symposia, issue devoted to symposium proceedings; Organizing Committee (with Drs. A. Friedler and U. Raviv) one day mini-symposium on Biophysics (Hebrew U), Feb 2007; Organizing committee (with Prof. D. Andelman and Prof. W.M. Gelbart) "From Macromolecular to Cell Biophysics", a 2 day symposium in Jerusalem, June 2008; Organizing committee (with Drs. Masha Niv, Koby Levy and Dan Major) "Biomolecular Modeling and Simulations", Safed 13-16 September 2009; *University positions:* 2006-present Member in several committees at the school of chemistry; 2009-present Head of the Chemistry-Biology study program.

Prof. Ronnie Kosloff

1. Very short CV: Joined as a faculty member in 1980. Currently, full professor. Served as chairman of the school of chemistry and the Fritz Haber center for molecular dynamics. Head of exact science and technology section in Israel Science Foundation.
2. Research activities: Ultracold chemistry: light induced processes; Coherent control and coherent chemistry; Dynamical processes on surfaces; Quantum Thermodynamics; Computation and teaching methods.
3. Important publications:
   a. Ronnie Kosloff; *Time Dependent Methods in Molecular Dynamics;* J. Phys. Chem., **92**, 2087-2100 (1988); *Cited 1204 times.*
   b. Dan Kosloff and Ronnie Kosloff; *A Fourier Method Solution for the Time Dependent Schrödinger equation as a Tool in Molecular Dynamics;* J. Comp. Phys., **52**, 35-53 (1983); *Cited 913 times.*
4. No. of students and post-docs (past five years): 12
5. Recognitions: 1995 Feher Prize for distinguished research in science; 1999 Member of the International Academy of Quantum Molecular Science; 2003 Kolthoff Prize in Chemistry, Technion; 2007 Prize for Excellence of the Israel chemical Society.
6. Scientific-community activity: *Editorial activities:* Advisory Editorial Board, *Chemical Physics Letters*; Advisory Editorial Board. *Computer Physics Communications;* Editorial Advisory, *Journal of Computational Chemistry*; Editorial Board, *Physical Chemistry Chemical Physics* Journal; Editorial Board, *Advances in Chemical Physics; Conferences (last 3 years):* February 2008 Batsheva de Rothschild Seminar on Ultrafast-Ultracold Processes Organizers: Ronnie Kosloff C. Koch; December 2007. Winter school 25th Winter School in Theoretical physics: Condensed Matter Physics and Quantum Information with Cold Atoms. Organizers Ronnie Kosloff, Peter Zoller; May 2008. First Symposium on Improvised Explosives. Rosh Hanikra Organizers Ronnie Kosloff, Udi Keynan, Yehuda Zeiri Yossi Almog; August 2007 Safed Workshop on Cooling and Thermodynamics of Systems Organizers: David Tannor, Ronnie Kosloff and T, Mor; August 2009 Gordon Research conference on Coherent Control, Chair Yaron Zilberberg, Vice Chair Ronnie Kosloff Gustav Gerber (Chair in 2011); June 2007 The Fritz Harer Double-Day Symposium on Conduction in Molecular Dynamics. Organizers: Roi Baer, Ronnie Kosloff; *University positions:* 2002-2007 Chairman, School of Chemistry; 1990-1999 Head of Fritz Haber Center for Molecular Dynamics; 2005-2008 Head Amirim program of excellence for undergraduate students.

Prof. Mordecai Kremer

1. Very short CV: Lecturer 1962; Senior Lecturer 1967; Assoc. Professor 1976; Emeritus 1998.
2. Research activities: Ever since its postulation more than 70 years ago by Haber and Weiss, the essential role of OH and HO_2 radicals in the Fenton reaction (of H_2O_2 with Fe^{2+}) has been universally accepted. Moreover, reactions of important constituents in biological systems with these radicals have been assumed to be responsible for various pathological and degenerative phenomena, including aging. An examination of the experimental foundation on which the free radical theory of the Fenton reaction was based revealed

that it lacked an essential element, namely data on the rate of O_2 evolution during the reaction. By devising a spectrophotometric method to measure this quantity, in conjunction with the following of the disappearance of Fe^{2+}, the experimental foundation on which a model of the reaction is to be based, could be considerably extended. Experiments conducted with very low $[H_2O_2]$ ($< 10^{-4}$ M) revealed the presence of an optically absorbing species the formation of which could not be accounted for by the free radical theory. On the basis of the new data a mechanism of the reaction was suggested based. Instead of free radicals, it assumes ferryl ions (FeO^{2+}) to be the active intermediates. The model accounted satisfactorily for both the old and new experimental data. Additional studies were able to clarify: 1. The source of the dependence of the rate of the Fenton reaction on pH; 2. The promotion effect of Cu^{2+} ions on the rate of the reaction; 3. The mechanism of oxidation of ethanol by Fenton's reagent. The last study has direct relevance to the mode of action of Fenton's reagent as an oxidizing agent in chemical and biological reactions and also in many industrial applications such as waste water remediation and the disposal of industrial effluents.

3. Important publications:

   a. Kremer M.L.; Mechanism of the Fenton reaction. Evidence for a new intermediate. Physical Chemistry Chemical Physics, 1, 3595-3605 (1999); *cited 77 times.*

   b. Kremer M.L. and Stein G.; The catalytic decomposition of hydrogen peroxide by ferric perchlorate. Transactions of the Faraday Society, 55, 959-973 (1959); *cited 70 times.**

   *Last count before registering citations of articles published before 1965 was discontinued by ISI.

Prof. Ovadia Lev

1. Very short CV: Joined the Hebrew University in 1988. Served as head of the Division of Environmental Sciences. Full professor since 2001.

2. Research activities: *Current:* Micropollutants and organic compounds in aquatic systems; Sol-Gel materials: Electrochemistry of sol-gel materials, electro-sensors and biosensors; *Earlier:* Patterns, structures and far-from-equilibrium phenomena; Sulfur chemistry in aquatic systems, polysulfides, volatile sulfur compounds; Water treatment, Disinfection, Photodegradation, Specialized research.

3. Important publications:

   a. D. Avnir, S. Braun, O. Lev and M. Ottolenghi, "Enzymes and Other Proteins Entrapped in Sol-Gel Materials", Chem. Mater., 6, 1605-1614 (1994); *cited 522 times.*

   b. O. Lev, Tsionsky M, Rabinovich, L., Glezer, V., Sampath, S., Pankratov, I, Gun, J., Organically Modified Sol-Gel Sensors, Analytical Chemistry, 67, A22-A30, 1995; *cited 314 times.*

4. No. of students and post-docs (past five years): 22

5. Recognitions: *Visiting Professor:* 2007-2008 Visiting Professor, Foschungszentrum, Julich, Germany; *Awards:* 1978 Israel Chem. Eng. Soc. Award, Best Undergraduate Final Research, Awarded by the Israel Chemical Engineering Society; 1983 Gutwirth Prize, Awarded by the Technion, Israel Institute of Technology; 1986 Fulbright Fellowship, Awarded by the American Education Foundation; 1988 Kaufman Lectureship, Awarded by the Hebrew University of Jerusalem; 1989 AAAS/EPA Fellowship, Awarded by the American Association for the Advancement of Science; 1989 Robert C. Barnard Fellowship, Awarded by the American Association for the Advancement of Science; 1998 Kaye Award for Innovative Research, Awarded by the Board of Governors of The Hebrew University; 2008 Fellow of the International Society of Electrochemistry, ISE, Awarded by the ISE.

6. Scientific-community activity: Member of a Government Appointed Committee for the Promotion of the Water Industry (Selected by the Israel National Academy of Sciences) 2009-present; National Representative for the International Society of Electrchemistry since 2007; Chairman of the chemical committee for updating of the drinking water regulations of Israel 2005-2007; Member of the research

committee of the Faculty of Science 2008-present; Member of the Advisory Committee of the National Academy of Sciences and Humanities for the Promotion of Environmental Research 1998-2001; Member of the board of the Israel Analytical Chemistry Society 2005-present; Member of the board of the Israel Metrology Society 2006-present; Member of the scientific advisory committee of the German Israel Water Technology Research Program 1998-2006; Member of the Research Committee of the Grand Water Institute, 2003-present; Chairman of the Hebrew University committee for appointment and promotion of teachers in the exact science faculties 2001-2005; Consultant to the USEPA for setting the Guidance Manual for Surface Water Treatment (Coauthor of a chapter in the Guidance Manual for Compliance with the Surface Water Treatment Rule); *Journal Advisory Boards:* Microchimica acta: 01/2003; Guest Editor, Special Issue of the Israel Journal of Chemistry (2006); Guest Editor, Special Issue of the Israel Journal of Chemistry, in Honor of Dr. A.J. Bard (in preparation, 2010); *University positions:* Chairman of the Division of Environmental Science (1996-1997); Member in numerous university committees (currently member of, the authority of graduate students, Research Committee of the Exact Science faculty, Research committee of the Faculty of Natural Sciences).

Prof. Haim Levanon

1. Very short CV: Joined as a faculty member in 1972. Full professor since 1984, Emeritus since 2007. Served before as Director of the Farkas Center for Light-Induced Processes ('90-'99) as well as Head of the Department of Physical Chemistry ('92-'95).

2. Research activities: *Current:* Time-resolved EPR; Model photosynthesis and light-driven intra- and intermolecular electron transfer; Liquid crystals; Electron spin polarization; Structure-function relationships in corroles bearing various central metals and ligands; Photoinduced electron and energy transfer in rotaxanes and catenanes; *Earlier:* Photophysics and photochemistry of fullerenes; Polarized electrons in photolyzed solutions of alkali metals; Microwave devices based on electron spin polarization.

3. Important publications:

   a. Jakob M, Levanon H, Kamat PV, "Charge Distribution Between UV-Irradiated TiO_2 and Gold Nanoparticles: Determination of Shift in the Fermi Level", *Nano Letters*, 3(3), 353-358 (2003); *Cited 110 times.*

   b. Keren N, Berg A, VanKan PJM, Levanon H, Ohad I, "Mechanism of Photosystem II Photoinactivation and D1 Protein Degradation at Low Light: the Role of Back-Electron flow", *Proceedings of the National Academy of Sciences of the United States of America*, 94(4), 1579-1584 (1997); *Cited 106 times.*

4. No. of students and post-docs (past five years): 7

5. Recognitions: 1992 Recipient (with Prof. K. Möbius) of the 1992 Max-Planck Research Award; 1994 Willstätter Lecturer, Germany. Key lecture at the 150th Anniversary of the Frankfurt Chemical Society, University of Frankfurt; 1998 International Symposium honoring the 60th birthday of H. L. Adventures in Photochemistry and Paramagnetism. September 11, 1998, Argonne National Laboratory, USA; 2000 Recipient of the Japanese Society of Promotion of Science (JSPS) Scholarship; 2002 Recipient of the Alexander von Humboldt Award; 2004 Elected President of the Humboldt Club in Israel.

6. Scientific-community activity: 1984-1987 President, Israel Chemical Society; 1988-2009 Editor-In-Chief, The Israeli Journal of Chemistry; 1996-2000 Board of Directors, Israel Chemicals Research Center (TAMI); 1998-2001 Chairman, Board of Directors, Israel Oceanographic and Limnological Research; Editorial Board - Research of Chemical Intermediates; Editorial Board - Applied Magnetic Resonance; Member of the Board of the German-Israel Foundation, G.I.F.

Prof. Raphael D. Levine

1. Very short CV: Initial appointment at HUJI: January 1968; Current appointment at HUJI: Retired July 2006 as Professor Emeritus.

2. Research activities: Towards theoretical systems chemistry we seek to provide a description of molecular - e.g., kinase-signaling networks that is intermediate between biochemical components and a global view and that highlights predictive ability. It is desired to present not only a steady state but also a time evolving portrayal of the network dynamics. The approach inherently allows for the inevitable cellular fluctuations and offers different levels of coarse graining -e.g., proteins, pathways, networks - of the description. At each level we provide the minimal set of informative constraints that recover the state of the components. Such quantitative insight into the state of diseased cells is intended to aid the development of effective diagnostics and tailored intervention. As a practical consideration, the input takes advantage of the large volumes of data produced by the current methods of systems chemistry. A secondary objective of this program is the use of signal transduction networks as models for robust and error correcting concatenated logic networks. An independent research component is attochemistry: the sub-fs evolution of molecular systems as is made possible by few cycle ultra high field lasers.

3. Important publications:

   a. Iachello F, Levine RD; Algebraic Approach To Molecular Rotation-Vibration Spectra .1. Diatomic-Molecules; *Journal Of Chemical Physics,* Volume: 77, Issue: 6, Pages: 3046-3055, Published: 1982.

   b. Levine RD, Bernstein RB; Energy Disposal And Energy Consumption In Elementary Chemical Reactions - Information Theoretic Approach; *Accounts Of Chemical Research,* Volume: 7, Pages: 393-400, Published: 1974.

4. No. of students and post-docs (past five years): 11

5. Scientific-community activity: Member Israel Chemical Society; Member American Chemical Society; Member American Physical Society; Member of the German Max Planck Society; Member of the Scientific Board of the Israeli-German James Franck Program; Member of the Scientific Board of the Infometrics Institute, American University; Member of the Editorial Board, Chinese Journal of Chemistry; Member of the Editorial Board, European Journal of Physics; Israel's representative at the Board of the International Society for Theoretical Chemical Physics; Member of the International Organizing committee, Dynamical Stereochemistry conference.

Prof. Assa Lifshitz

1. Very short CV: Faculty member in the Department of Physical Chemistry at The Hebrew University of Jerusalem from 1963, full professor from 1977, Prof. Emeritus from 2005.

2. Research activities: Professor Lifshitz's research activities are centered around the study of high temperature gas phase reactions using shock tube techniques, and computer simulation of complex reaction systems. He is also engaged in quantum chemical calculations of potential energy surfaces, reaction pathways, transition state theory calculations, intersystem crossing etc... He has published numerous articles on high temperature combustion processes and the chemical kinetics mechanisms of thermal isomerizations, decompositions, ring expansions and ignitions.

3. Important publications:

   a. Lifshitz, A., Scheller, K., Burcat, A. and Skinner, G.B. Shock tube investigation of ignition in methane-oxygen-argon mixtures. *Combust. & Flame*, 1971, *16*, 311-321; *Cited 111 times.*

   b. Burcat, A., Scheller, K. and Lifshitz, A. Shock tube investigation of comparative ignition delay times for C_1-C_5 alkanes. *Combust. & Flame*, 1971, *16*, 29-33; *Cited 103 times.*

4. Recognitions: A certificate of a Fellow of the International Shock Wave Institute in recognition of an "outstanding research in shock waves".

5. Scientific-community activity: Chairman of the Department of Physical Chemistry at The Hebrew University of Jerusalem in 1979-1982; Chairman of the Institute of Chemistry, in 1982-1986; Chairman of the Israeli association of Combustion Research and the Israeli section of the Combustion Institute in 1992-1995; Chairman of the faculty association of the Hebrew University in 1994-1999; Chairman of the coordinating council of the faculty associations at the universities in Israel in 1999-2003; Member of the Israel Chemical Society and the Combustion Institute; Member of the International Advisory Board of the biennial symposia on Shock Tubes and Waves; Member of the International Advisory Board of The Asian Pacific International Symposia on Combustion and Energy Utilization; Membership in Editorial Boards of International Journals: Progress in Energy and Combustion Science; International Journal of Chemical Kinetics; Book editing: Lifshitz, A. and Rom, J., Editors. Shock Tubes & Waves, Proceedings of the 12th International Symposium on Shock Tubes and Waves, (1979), The Magnes Press, The Hebrew University, 1980, (ISBN-965-223-350-1); Lifshitz, A., Editor. Shock Waves in Chemistry, Marcel Dekker, Inc., New York, 1981, (ISBN 0-8247-1331-1); Lifshitz, A., Guest Editor, Chemical reactions in shock waves Israel J. Chem., 1996, 36(3); Lifshitz, A. Guest Editor, Handbook of shock waves III, 2001, Academic Press, (ISBN-0-12-086433-9); *Organizing international Symposia:* Chairman of the 12th international symposium on Shock Tubes and Waves held in Jerusalem in 1979; *Plenary Lectures in International Symposia:* 1980 - NATO Advanced Study Institute, a symposium on "Fast Reactions in Energetic Systems" (Preveza beach, Greece); 1983 14th International Symposium on Shock Tubes and Waves (Sydney, Australia); 1993 2nd International Symposium on Combustion and Energy Utilization (Beijin, China); 1996 MOLEC XI, 11th European Conference on Dynamics of Molecular Collisions (Nyborg, Denmark); Four plenary lectures in the annual meetings of the Israeli section of the Combustion Institute; Lecture in the frame of "MADUA" to the public on the subject "supersonic booms, shock waves, explosions and combustion".

Prof. Aharon Loewenschuss

1. Very short CV: HUJI appointment since 1971; Professor, Emeritus.

2. Research activities: Molecular vibrational spectroscopy in the infrared and Raman ranges with emphasis on cryogenic temperatures and matrix isolation methods. Spectroscopy of species of atmospheric interest centered on ices, carbon monoxide, nitrogen oxides, sulfur oxide and sulfuric acid related species. Spectroscopic manifestations of hydrogen bonding.

3. Important publications:

   a. Andrews, L; Prochaska, Es; Loewenschuss, A; Resonance Raman and Ultraviolet-Absorption Spectra of the Triiodide Ion Produced by Alkali Iodide Iodine Argon Matrix Reactions; **Inorganic Chemistry**, Volume: **19**, Issue: **2**, Pages: **463-465**, Published: **1980**; *times Cited: 80.*

   b. Rozenberg, M; Loewenschuss, A; Marcus, Y; An empirical correlation between stretching vibration redshift and hydrogen bond length; **PHYSICAL CHEMISTRY CHEMICAL PHYSICS**, Volume: **2**, Issue: **12**, Pages: **2699-2702**, Published: **2000**; *times Cited: 62.*

4. Recognitions: Bath Sheva de Rothschild award (1969); Alexander von Humboldt Fellowship (1982 + three reinvitations); EERO (European Environmental Research Organization) fellowship (1984).

5. Scientific-community activity: Israel Chemical Society, member; Scientific Board of EUCMOS (European Molecular Spectroscopy); Expert Panel of COST (European Cooperation in the fields of Scientific and Technological Research).

Prof. Shlomo Magdassi

1. Very short CV: Joined as a faculty member in 1986. Today, full professor.
2. Research activities: Formation and stabilization of Nanoparticles; Coatings, Inks and digital printing; Diagnostics and imaging; Microencapsulation; Surface activity of proteins; Emulsion and dispersion technology; Printed electronics and solar devices; Colloidal systems and surface active agents; Drug targeting and delivery.
3. Important publications:
   a. A.Kamyshny, M.Ben-Moshe, S.Aviezer and S.Magdassi , Ink-jet printing of metallic nanoparticles and microemulsions. **Macromol. Rapid. Commun**. 26: 281-288 (2005); *Cited 52 times.*
   b. Miller OJ, Bernath K, Agresti JJ, Amitai G, Kelly BT, Mastrobattista E, Taly V, Magdassi S, Tawfik DS, Griffiths AD , Directed evolution by in vitro compartmentalization , **Nature Methods** ,3 , 561-570,(2006); *Cited 49 times.*
4. No. of students and post-docs (past five years): 34
5. Recognitions: 1987 The M. Richter Award; 2005 Kaye Award for Applied Research.
6. Scientific-community activity: *Editorial activities:* S. Magdassi,(ed), Colloids and Surfaces A: Special issue, 164, 2000; 2000-2003 Member of the Editorial Board of J. Colloids Interface Science*; Conferences:* 1998-2007 Member of the Standing Committee for the European Chemistry at Interfaces Conference (ECIC); 1998 Chairman, 15th European Chemistry at Interfaces Conference, Israel; Numerous times member of international advisory board of conferences; *University positions:* 1989-1992 Chairman of studies in Management of Technology; 1989-1992 Chairman of studies in Applied Chemistry; 2001-2002 Chairman of studies in Applied Chemistry; 2000-2003 Research committee, Faculty of Science; 2000-2003 "Kamea" committee (HU immigrant scientists); 2004-2008 Head, Casali Institute of Applied Chemistry.

Prof. Daniel Mandler

1. Very short CV: Joined as a faculty member in 1990. Today, full professor and the head of a research group of 15 students and workers. Served as chairman of the school of chemistry. Major research activity lies in the field of electrochemistry.
2. Research activities: *Current:* Scanning electrochemical microscopy (SECM); Electroanalytical chemistry by self-assembled monolayers (SAMs); Electroassisted deposition of sol-gel materials; Photothermal coatings; *Earlier:* Corrosion; Chiral monolayers.
3. Important publications:
   a. F. Malem and D. Mandler, Self Assembled Monolayers in Electroanalytical Chemistry: Application of ω-Mercapto Carboxylic Acid Monolayers for the Electrochemical Detection of Dopamine in the Presence of a High Concentration of Ascorbic Acid. **Anal. Chem.** 1993, *65*, 37-41; *Cited 273 times.*
   b. Turyan and D. Mandler, Selective Determination of Chromium by a Self-Assembled Monolayer Based Electrode. **Anal. Chem.**, 1997, *69*, 894-897; *Cited 159 times.*
4. No. of students and post-docs (past five years): 21
5. Recognitions: 1981 Amos de Shalit scholarship, Weizmann Institute of Science, Rehovot; 1983 Rector's award, the Hebrew University of Jerusalem; 1985 Award in the name of Sara Segal Dubrov, the Hebrew University of Jerusalem; 1988 Chaim Weizmann fellowship for post graduate scientists, the Weizmann Institute of Science, Rehovot; 1989 Schmidt award, the Weizmann Institute of Science, Rehovot; 1989 Award in the name of Aharon Kazir, the Hebrew University of Jerusalem; 1993 Award in the name of E. D. Bergmann, the National Academy of Sciences, Jerusalem; 1998 The Richard Willstätter lecture -

Gesellschaft Deutscher Chemiker; 2007 The Vigevani Lecture award; 2010 Recepient of Raices-Mistein fellowship, Argentina.

6. Scientific-community activity: *Editorial activities:* 2008-present Co-editor of the Journal of Solid State Electrochemistry; Several times Co-editor of special issues of Isr. J. Chem.; *Conferences:* Numerous times member of international advisory board of conferences. Chairman of Isranalytica 2009; *University positions:* 2003-2006 Chairman of the School of Chemistry; Member in numerous university committees.

Prof. Yizhak Marcus

1. Research activities: The research activity concerns the equilibrium properties of liquids and solutions. The activity devolves around the summarization and re-interpretation of results from the literature (I have no access to a laboratory). Some of this is included in review articles and chapters in books, another part results in original research based on new calculations and insights. The main topics dealt with in recent years include: Supercritical fluids in general and supercritical water in particular. Molten salts, their heat capacities and cohesive energies. Preferential solvation in mixed solvents, based on the Kirkwood-Buff integrals and on (my own) quasi-lattice quasi-chemical approach. Ionic volumes in solution, electrostriction, and related topics. Tetraalkylammonium ions in aqueous and nonaqueous solutions. The effects of ions on the structure of water: structure breaking and –making. Theoretical background of the Hofmeister series.

2. Important publications:

   a. Ben-Naim and Y. Marcus; Solvation thermodynamics of nonionic solutes; Journal of Chemical Physics, Volume: **81,** Issue: **4**, Pages: **2016-2027**, Published: **1984**; *times Cited: 543.*

   b. Y. Marcus; The properties of organic liquids that are relevant to their use as solvating solvents; Chemical Society Reviews, Volume: **22**, Issue: **6**, Pages: **409-416**, Published: **DEC 1993**, *times Cited: 320.*

3. Recognitions: 1971 Senior Alexander von Humboldt Fellowship, made use of intermittently 1971-1991; 1985 R. Freund award for popular scientific writing; 1992 N.S. Kurnakov medal for physicochemical analysis of the Russian academy of Sciences; 1993 Royal Society Visiting Research Professorship at Leicester University; 1998 Royal Society of Chemistry, International Authors Grant.

4. Scientific-community activity: Member, Israel Chemical Society, 1955-present; Member, American Chemical Society, 1955-present; Member, New York Academy of Science 1994-1999; *International Union of Pure and Applied Chemistry (IUPAC):* 1963-1979 member of IUPAC Commission V.5, Equilibrium Data (chairman 1965-1969); 1979-1987 member of IUPAC Commission V.3, Electroanalytical Chemistry; 1983-1991 member of the IUPAC Analytical Chemistry Division Committee; 1991-1999 member of the IUPAC Commission on the Teaching of Chemistry; Federation of European Chemical Societies (FECS), Task-group for Analytical Chemistry (TAC): 1978-1995 Representative of Israel as observer, 1995-1999 full member; 1985-1993 Member, International Steering Committee of the International Conferences on Solution Chemistry; 1993-2002 Member, International Steering Committee of the International; Conferences on Solvent Extraction Chemistry (ISEC); 1992-present Member, International Advisory Board of the Eurasia Conferences on Chemical Sciences; 2006-present Member, International Organizing and Scientific Committee of the International Symposia on Solubility Phenomena; 1965-1975 Editorial board of Israel Journal of Chemistry; 1966-1974 Radiochimica Acta; 1974-1979 Editorial board of Analytical Letters; 1974-1988 Editorial board of Journal of Chromatography; 1979-1988 Editorial board of Analusis; 1972-present Editorial board of Reviews of Analytical Chemistry; 1982-1993 Editorial board of Reactive Polymers; 1990-1998 Editorial board of Journal of the Chemical Society, Faraday Transactions; 2005-present Editorial board of Journal of Solution Chemistry; 2009-present Editorial board of Journal of Molecular Liquids.

Prof. Gad Marom

1. Very short CV: Date of start as faculty member – 1.10.1972; Current academic degree – Full Professor since 1985; Dean, Faculty of Science – since 2008.
2. Research activities: Composite materials and hybrids, nanocomposites, polymers and biomedical composites, encompassing: microstructure-property relation; morphology of bulk crystallinity, transcrystallinity and confined nanostructures; fracture mechanisms and failure modes; mechanical and physical property testing & evaluation; calorimetric, thermal, thermomechanical and thermophysical properties; biomedical composites for soft tissue prostheses; intercalated carbon nanoparticle based composites of conductive polymers.
3. Important publications:
   a. D. Cohn, H. Younes and G. Marom, "Amorphous and crystalline morphologies in glycolic acid and lactic acid polymers", *Polymer*, **28 (**1987) 2018-2022; *cited 66 times.*
   b. A. Teishev, S. D. Incardona, C. Migliaresi and G. Marom, "Polyethylene fibers - polyethylene matrix composites: preparation and physical properties", *J. Appl. Polym. Sci.*, **50** (1993) 503-512; *cited 58 times.*
4. No. of students and post-docs (past five years): 27
5. Recognitions: Appointed *Fellow of the Society of Plastics Engineers 2004*.
6. Scientific-community activity (in the past 5 years): Member of the International Scientific Committee of the Fracture of Composite Materials, EUROMECH 473, October 27-29th,2005, Porto, Portugal; Member of the Organizing Committee of the 9th Israel Symposium on Composite Materials & Structures, November 8, 2005, The Technion, Haifa; Member of the International Scientific Committee of the 3rd International Conference on Science and Technology of Composite Materials, COMAT 2005, 11-14 December 2005, Buenos Aires, Argentina; Member of the Organizing Committee of the 10th Israel Symposium on Composite Materials & Structures, October 31, 2006, The Technion, Haifa; Member of the International Scientific Committee of the International Conference on Structural Analysis of Advanced Materials (ICSAM – 2007) September 2-6, 2007 Patras, Greece; Member of the Organizing Committee of the 11th Israel Symposium on Composite Materials & Structures, November 7, 2007, The Technion, Haifa; Member of the International Scientific Committee of the 4th International Conference on Science and Technology of Composite Materials, COMAT 2007, 9-12 December 2007, Rio de Janeiro, Brazil; Member of the Organizing Committee of the 13th Israel Materials Engineering Conference; IMEC-13, Haifa, Israel, December 16-19, 2007; Member of the Program Advisory Committee of The 73rd annual meeting of the Israel Chemical Society, February 4-5th 2008, Jerusalem, Israel; Member of the Organizing Committee of the 12th Israel Symposium on Composite Materials & Structures, November 4, 2008, The Technion, Haifa; Member of the Organizing Committee of the 13th Israel Symposium on Composite Materials & Structures, November 3, 2009, The Technion, Haifa; Member of the International Scientific Committee of the 5th International Conference on Science and Technology of Composite Materials, COMATCOMP 2009, 7-9 October 2009, San Sebastian, Spain; Member of the International Scientific Committee of The International Conference on Structural Analysis of Advanced Materials, ICSAAM – 2009, 7-10 September 2009, Tarbes, France; Member of the Organizing Committee of the 10th International conference on Polymers for Advanced Technologies, PAT 2009, October 11-14, 2009, Jerusalem, Israel; Member of the Steering Committee of the 14th Israel Materials Engineering Conference IMEC-14, Tel-Aviv, Israel, December 13-14, 2009.

Prof. Isaac Peter Mayer

1. Very short CV: Professor Emeritus at the Institute of Chemistry, Department of Inorganic and Analytical Chemistry, The Hebrew University of Jerusalem, Jerusalem, Israel; Hebrew University, Jerusalem M.Sc. 1956; Hebrew University, Jerusalem Ph.D. 1960; Polytechnic Institute of Brooklyn, NY Post.doc. 1960/61; Rensselear Polytechnic Institute, Troy, NY sabbatical 1966/67; National Bureau of Standards, Washington, D.C. sabbatical 1972/73; National Bureau of Standards, Washington, D.C. sabbatical 1977; Eastman Dental Center, Rochester, NY sabbatical 1981; Universite Louis Pasteur, Strasbourg, France sabbatical 1985; Universite Louis Pasteur, Strasbourg, France sabbatical 1991.
2. Research activities: Solid state chemistry. Synthesis, chemistry and structural properties of inorganic biological phosphates (apatites).
3. Scientific-community activity: 1987/91 Head of Chemistry Division, Hebrew University; Israel Chemical Society; Israel Association for Crystallography; International Centre for Diffraction Data, Pa., USA.

Prof. Michael Michman

1. Very short CV: 1937. Joined as a faculty member in 1968. Ret. 2007. Today, professor emeritus Served before as chairman Science studies in the School of pre-academic studies of the HU, and as chairman of the school of chemistry the HU.
2. Research activities: *Current:* Consultation to Industry, scientific writing: Project leader on catalysis (A Government project -Yissum); Catalytic treatment of biogas in small units.(A study for start-up)*;* In the writing: science subjects for none professionals, (Personal initiative); *Earlier:* Organometallic chemistry; Organic Electrochemistry, Electrocatalysis; Solventless systems; Organometallic CVD.
3. Important publications:
    a. Chemical Vapour Deposition (CVD) and Characterization of ZrO_2 Films from Organometallic Compounds. M. Balog, M. Schieber, M. Michman and S. Patai, *Thin Solid Films,* 47, 109-120, (1977).
    b. The Characteristics of Growth of Films of Zirconium and Hafnium Oxides by the Thermal Decomposition of Zirconium and Hafnium b-Diketonate Complexes. M. Balog, M. Schieber, M. Michman and S. Patai, *J. Electrochem. Soc.*, 126, 1203-1207, (1979).

Prof. Danny Porath

1. Very short CV: Joined as a faculty member in 2001; Today, Associate professor.
2. Research activities: *Current:* Investigation of the morphology, electrical properties and energy spectra of DNA, G4-DNA, M-DNA and PC-DNA by atomic force microscopy and related methods, by scanning tunneling microscopy and spectroscopy (STM/STS) and by direct electrical transport measurements; Development and investigation of new DNA-based nanowires and nanodevices using the above methods and above candidates in collaboration with other groups; Development of ultra dense memory arrays and nanoelectronic wires and networks made of SP1-nanoparticles hybrids in collaboration with other groups; Measurement of electrical transport upon stretching of single molecules; Investigation of a critical stage in the HIV life cycle: the integration of viral DNA into the host DNA, by AFM on the single molecule level; *Earlier:* A first measurement and confirmation of the theoretical predictions for the discrete tunneling level spectrum of a single C_{60} molecule; STM measurements and demonstration of Coulomb blockade phenomena on the so far smallest quantum dot (C_{60}), ~8 Å in diameter, at cryogenic temperatures and at room temperature; Measurement of a quantum dot (using STM) at a new regime where the level separation is comparable to the charging energy; STM measurement of the discrete tunneling level spectrum of single CdSe nanoparticles and the effect of the cluster size on the level separation; STM Characterization, theoretical analysis and simulation of the surface morphology evolution of thin gold films during annealing processes.

3. Important publications:

   a. "Direct Measurements of Electrical Transport Through DNA Molecules", D. Porath, A. Bezryadin, S. de Vries and C. Dekker, **Nature 403**, 635 (2000); *Cited 931 times.*

   b. "Direct Measurement of Electrical Transport through Single DNA Molecules of Complex Sequence", Hezy Cohen, Claude Nogues, Ron Naaman and Danny Porath, *PNAS* **102**, 11589 (2005); *Cited 89 times.*

4. No. of students and post-docs (past five years): 22

5. Recognitions: *Honors and awards:* 2000 Excellent postdoctoral award of the Americal Vacuum Society Meeting, Boston 2000; 2007 The Israel Chemical Society Prize for the Outstanding Young Scientist for 2007; 2009 Postdoc work ("Direct measurement of electrical transport through DNA molecules", Nature 403, 635 (2000)) selected as "Classics of Science" by Thomson Reuters following ~900 citations: http://sciencewatch.com/dr/cc/09-febcc/, http://sciencewatch.com/inter/pod/; 2009 Erasmus Mundus research scholar for Nanosciece and Nanotechnology; *Honors and awards by my group:* 2002 The Chemistry Institute prize for excellent poster, Faculty day 2002; 2003 Lady Davis Scholarship; 2003 Phantoms grant for graduate students TNT2003, Salamanca, Spain; 2003 The Estermann prize for excellent poster, 22nd annual conference of The Israeli Vacuum Society, 2003; 2004 Lady Davis Scholarship; 2004 Phantoms grant for graduate students TNT2004, Segovia, Spain; 2004 The Faculty prize for excellent poster, Faculty day 2004; 2005 Waldman polymer award from the Chemistry Institute; 2005 The Rudolph Graf award for excellent students, Nanoscience and Nanotechnology Center, The Hebrew University of Jerusalem, Israel; 2005 MRS Fall Meeting Graduate Student Silver Medal Award; 2006 The Intel prize for excellent poster, 25th annual conference of The Israeli Vacuum Society, 2006; 2007 Phantoms grant for graduate students TNT2007, San Sebastian, Spain; 2007 The Rudolph Graf award for excellent students, Nanoscience and Nanotechnology Center, The Hebrew University of Jerusalem, Israel; 2007 The IVS prize for excellent poster, 26th annual conference of The Israeli Vacuum Society, 2007; 2008 Phantoms grant for graduate students TNT2008, Oviedo, Spain; 2009 Lady Davis Scholarship; 2010 Jortner-Levine Prize for excellent work of an outstanding student of the Israeli Chemical Society.

6. Scientific-community activity: *Duties at HUJI:* Member of the assistants appointment committee of the chemistry school; Founder and in charge of the Nanoseminar - seminar of the HUJI Center for Nanoscience and Nanotechnology; Organizer of two HUJI Nanocenter workshops; Organizer of the Joint meeting between HUJI Institute of Chemistry and TU-Berlin; Advisor for MSc students in direction of Physical Chemistry; Initiator and organizer of the Joint meeting between HUJI Nanocenter and Academia Sinica, Taipei, leading to joint projects funded by $ 475,000 from AS to HUJI; *Other activities:* Initiator, organizer and scientific coordinator of EU FET project: "G4-DNA-Based Nanowires"; Initiator, organizer and scientific coordinator of EU FET project: "DNA-Based Nanowires"; Initiator, organizer and scientific coordinator of EU FET project: "DNA-Based Nanodevices"; *Member of the organizing committee of 5 conferences: "SPM and Charge Transport Measurements Through single DNA Molecules",* DNA-based Nanowires: On the Way from Biomolecules to Nanodevices, Modena, Italy, October 2005; Israel Vacuum Society annual meeting – November 2005; Israel Chemical Society annual meeting – February 2006; RBNI winter school – Topics in nanoscience and nanotechnology – Dead Sea, February 2007; Israel Chemical Society annual meeting – February 2008; *Referee for:* Nature Materials, Nature Nanotechnology, Nano Letters, Phys. Rev. Lett., Adv. Mat., Biophys. Jou., Jou. Amer. Chem. Soc., Phys. Rev. Lett., Phys. Rev. B, J. Phys. Chem. B, Appl. Phys. Lett., Europhys. Lett., Jou. Phys.: Cond. Mat., Phys. Chem. Chem. Phys., ChemPhysChem, Jou. of Phys. A, Jou. Appl. Phys., Jou. Phys. D, Faraday Discussions, Rev. Mod. Phys., Electroanalysis and more…

Prof. Joseph Rabani

1. Very short CV: Faculty member since 1965. Today, full professor (Emeritus since 2003) Served before as Head of the Energy Research Center. Co-founder of Atlantium Technologies, Inc. and its Chief Scientist (2003-2007).

2. Research activities: *Current:* Photochemistry of nano-particles; Pulse radiolysis; Thermal and Photo catalysis; *Earlier:* Pulse radiolysis; Radiation chemistry; Solar Energy conversion and storage; Environmental chemistry.

3. Important publications:

   a. Acid dissociation constant and decay kinetics of perhydroxyl radical, Author(s): BEHAR, D; CZAPSKI, G; RABANI, J, et al.; **JOURNAL OF PHYSICAL CHEMISTRY**, Volume: **74**, Issue: **17**, Page **3209 (1970);** *times cited: 522.*

   b. Direct demonstration of catalytic action of superoxide dismutase through use of pulse radiolysis, KLUG, D; FRIDOVIC.I; RABANI, J; **JOURNAL OF BIOLOGICAL CHEMISTRY**, Volume: **247**, Issue: **15**, Page **4839 (1972);** *times cited: 408.*

4. Recognitions: 1970 Honorary member of the Scandinavian Chemical Society; 1982 Chairman of the IPS-4; 1982 Guest Editor of Israel Journal of Chemistry; 1996 Distinguished Scientist Award from Riken institute, Tokyo.

5. Scientific-community activity: *Conferences:* Member of a number of international organizing committees of conferences; *University positions:* 1978- 1988 (?) Head of the Energy Research Center; Member in a number of Review Committees and University Committees at different universities and institutes

Prof. Zvi Rappoport

1. Recognitions: Winner of the Israel Prize in Chemistry, 2006.

2. Scientific-community activity: Editor of "Patai Series: The Chemistry of Functional Groups" (Wiley, Chichester).

Dr. Uri Raviv

1. Research activities: We have a new state-of-the-art solution small angle and wide angle x-ray scattering (SAXS/WAXS) lab. The focus of our research group is the characterisation of hierarchical self-assembled systems, using solution x-ray scattering methods, osmotic stress and imaging methods (optical & TEM). Currently research interests include: the assembly of cytoskeletal proteins related to brain diseases and cell division, analysis of both equilibrium structures and time-resolved processes of self-assembled protein polymers, using 3rd generation synchrotron sources, viral particle assembly and the interactions of synthetic charged and zwitterionic lipid bilayers with various ions and the diffusion of ions confined between charged bilayers. The group is now developing a user friendly program that can fully analyze solution x-ray scattering data of biological self-assembled systems.

2. Important publications:

   a. **U. Raviv**, P. Laurat and J. Klein (2001). Fluidity of water confined to sub-nanometer gaps. Nature, 413, 51-54. (204).

   b. **U. Raviv** and J. Klein (2002). Fluidity of bound hydration layers. Science, 297, 1540-1543. (106).

3. No. of students and post-docs (past five years): 9

4. Recognitions: *1993* Rector award - Hebrew University; *1993* Intel - Dean Award - Hebrew University and Intel Ltd; *1993* Israeli Parliament undergrad student honorary distinction; *1994* Dean award - Hebrew University; *1995* Rector award - Hebrew University; *2000, 2001* Eshkol fellowship for Ph.D. students - The

Israeli Ministry of Science; *2002* The Elchanan E. Bondi Memorial Prize – The Feinberg Graduate School of the Weizmann Institute of Science; *2002/3* European Molecular Biology Oraganization Long-Term Fellowship for post-doc; *2003–5* The International Human Frontier Science Program Organization (HFSPO) - Long-Term Fellowship for post-doc; *2003/4* Materials Research Laboratory Executive Vice Chancellor fellowship; *2006* HFSPO - Career Development Award; *2007* Golda Meir Lecturer Fellowship, The Hebrew University of Jerusalem; *2007* Alon Fellowship award for young faculty members.

5. Scientific-community activity: *4/2001*: Organizing committee of The 4th Minerva Student School on Molecular, Interfacial and Bilogical Aspects of Mesostructures, Weizmann Institute of Science, Rehovot and The Ben-Gurion University of the Negev, Beer-Sheva, Israel; *12/2006*: Founder (together with Drs. Daniel Harries and Assaf Friedler) of the biophysics interest group of the Hebrew University and its webpage.*; 2/2007*: Organizing committee of the 1st Biophyics Mini-Symposium at the Hebrew University of Jerusalem; *5/2008–present*: Member of the Israel biophysical society committee; *6/2009*: Organizing committee of Israel Science Foundation (ISF) international conference: Soft matter at interfaces: from self-assembly to nanoconfinement; *2009–2010*: member of the ISF biophysics professional committee; Membership in the American Biophysics society, Israel chemical society, Israel physics society, Israel biophysics society, American chemical society, American physics society and American material research society (few years in each); Review of papers for the following professional journals. Journal of the American Chemical Society, Physical Review Letters, Biophysical Journal, Soft Matter, Langmuir, Macromolecules, Physical Chemistry B, European Physical Journal E, Biochemistry, Annals of Biomedical Engineering, The FEBS Journal, Physical Review E, Central European Journal of Chemistry; Review of Ph.D. and M.Sc dissertations; Review of research proposals for ISF, BSF and the French National Research Agency (ANR) as well as Ph.D. thesis proposals; *2008- present*: Volunteer at the non-profit Basha'ar science outreach organization - Academic Community for Israeli Society; *2003-2006*: Volunteer at the UCSB Materials research lab ScienceLine outreach program; Member of the Nanocenter of the Hebrew University; Member of the Farkash center for light induced processes at the Hebrew University; A member of the electron microscopy professional committee at the Hebrew University Nanocenter; *2008- present*: Member in the SEASME synchrotron (in Jordan) project committee; *2006–Present*: Organizer of the Physical Chemistry weekly seminars; *2009–Present*: Organizer of the Safra fellow meetings.

Prof. Renata Reisfeld

1. Research activities: The research includes: Sol-Gel Science and Technology; Luminescent Solar Concentrators; Rare Earth in glasses – preparation, characterization, theory and practical applications; Tunable dye lasers and glasses; Nanosize particle of semiconductors in glasses; Nobel metal nanoparticles in glasses and in solid films, the study includes preparation, spectroscopy characterization (Absorption, Fluorescence, Lifetime ets.) and characterization by SEM, TEM, XRD; The porosity of glasses studies by adsorption method and positron annihilation method.

2. Important publications:

   a. R Reisfeld, CK Jørgensen; Lasers and excited states of rare earths, Berlin; *Springer-Verlag,* 1977, 226; *cited 496 times.*

   b. D. Avnir, D. Levy and R. Reisfeld; The Nature of Silica Cage as Reflected by Spectral Changes and Enhanced Photostability of Trapped Rhodamine 6G; *J. Phys. Chem*., 88, 5956-5959 (1984); *cited 646 times.*

3. No. of students and post-docs (past five years): 4

4. Recognitions: 1993 Doctor Honoris Causa from the University of Lyon, France; 1998 Doctor Honoris Causa from the University of Bucharest, Romania; 2005 Professor Honoris Causa from the Polish Academy of Science, Wrocław, Poland.

5. Scientific-community activity: Member of Editorial board of Ceramic International ISSN: 0272-8842; Co-editor of Optical Materials ISSN: 0925-3467, Volume 30, Issue 11, July 2008;

Prof. Sanford Ruhman

1. Very short CV: I joined the faculty in 1989. Full professor since 1999, and Head of the Farkas Minerva center for light induced processes. I served as chairman of physical chemistry department as well.
2. Research activities: Applying cutting edge ultrafast laser methods to: Primary events in retinal proteins; CTTS dynamics in molecular liquids; Exciton dynamics in nanocrystals; Pulse shaping effects on ultrafast spectroscopy.
3. Important publications:
   a. U.Banin and S.Ruhman, 'Ultrafast photodissociation of I_3^- ; coherent photochemistry in solution', *J. Chem. Phys.*, **98**, 4391-4403 (1993); *cited 153 times.*
   b. S.Ruhman, L.R.Williams, A.G.Joly, B.Kohler and K.A.Nelson, 'Nonrelaxational inertial motion in CS_2 liquid observed by Impulsive Stimulated Scattering', *J. Phys. Chem.*, **91**, 2237-2240 (1987); *cited 122 times.*
4. No. of students and post-docs (past five years): 10
5. Recognitions: 1981 Giora Yashinsky prize for Graduate Students; 1984-1986 Chaim Weizmann Post - Doctoral fellow; 1989-1991 Yigal Allon fellowship for young faculty; 1990 Bergmann grant for young recipients of B. S. F. research grants; 1992 Bergmann prize in chemistry; 1997 Sabbatical fellow, Physics, U.Mich. Ann Arbor; 2006 JSPS fellow, RIKEN, Wako City, Japan.
6. Scientific-community activity: *Editorial activities:* Served several times on the technical committee of Ultrafast Phenomena conference; 1998 Co Guest Editor of a Special issue of Chem. Phys. on “Coherence in chemical dynamics”; *University positions:* 2000-2003: Chairman, Physical Chemistry; Member in numerous university committees.

Prof. Yoel Sasson

1. Very short CV: Joined the HU as faculty member in 1976. Professor since 1988. Incumbent of the Lester Aronberg Chair in Applied Chemistry since 1991. Vice President of R&D in Makhteshim Chemical Works, Beer Sheva 1994-2005.
2. Research activities: Our field of research is Environmental and Process Catalysis. We focus on green and sustainable chemistry and CleanTech; *Major projects currently in progress:* Advanced technologies for the cleansing of flue gas from combustion engines such as coal fired power stations and diesel engines on ships. We developed methods for abatement of mercury, NOx and SOx from flue gas using novel catalytic systems; Prevention of biofouling and removal of pollutants and toxicants from water using photocatalysis and advanced oxidation methods; Hydrogen and energy storage using the catalytic formate bicarbonate cycle (FBC); Microencapsulation using novel polyurea based materials. Typical examples: encapsulation of metallic nanocrystals for novel catalytic applications, encapsulation of lipophilic quaternary ammonium salts for phase transfer catalysis and encapsulation of near IR materials for security printing. (the latter in cooperation with Professor Aizenshtat).
3. Important publications:
   a. Handbook of Phase Transfer Catalysis (1997); *cited 204 times.*
   b. J. Org. Chem. (1975) **40**, 1887; *cited 182 times.*
4. No. of students and post-docs (past five years): 36

5. Recognitions: Appointed to the Lester Aronberg Chair in Applied Chemistry in 1991 (Hebrew University); Nominated to the Golden Jubelee Visiting Fellowship in UDCT (University of Mumbai).

6. Scientific-community activity: Chairman of the 73rd Annual Meeting of the Israel Chemical Society. Jerusalem 2008.

Prof. Henry Selig

1. Very short CV: Professor Emeritus at the Institute of Chemistry, Department of Inorganic and Analytical Chemistry, The Hebrew University of Jerusalem, Jerusalem, Israel; University of Chicago, BSc., 1948; University of Chicago, MSc., 1950; Carnegie Institute of Technology, PhD, 1954; Associate Chemist, Argonne National Laboratory, 1953-1967; Visiting Professor, Hebrew University, 1967-1968; Professor of Chemistry, Hebrew University, 1968-1995; Professor Emeritus, Hebrew University, 1995; Head of Department of Inorganic & Analytical Chemistry, 1970-1971, 1973-1976, 1978-1981; Sabbatical at Hebrew University, 1962-1963; Research Associate at Bell Laboratories, 1976-1977; S.E.R.C. Senior Visiting Research Fellow; University of Leicester, England, 1981-1982; Visiting Professor at ETH, Zürich, 1988-1989.

2. Important publications: A Lifetime of Fluorine Chemistry. H.Selig, J.Fluor.Chem. 130, 771 - 774 (2009).

3. Recognitions: Rosenberger Medal, University of Chicago, 1964; Award of the American Chemical Society for Creative Workin Fluorine Chemistry, 2009.

4. Scientific-community activity: American Chemical Society, Fluorine Division.

Prof. Sason Shaik

1. Very short CV: 1979 Lecturer, Ben-Gurion University; 1988 Professor, Ben-Gurion University; 1992-present Professor, The Hebrew University; 1997-present Director The Lise Meitner-Minerva Center for Computational Chemistry.

2. Research activities: My research fields range from the nature of the chemical bond to materials and all the way to metalloenzymes. As such, the research includes novel chemical bonding types, investigation of clusters, excited states, reactivity of organic and organometallic molecules, catalysis and catalytic, and enzymatic structure and reactivity. Achievements include: the development of a theory for organic reactions of the triplet state, the development of a general model of chemical reactivity, a generalized theory of the behavior of p-electrons in conjugated systems, two-state reactivity in heme enzymes and in bond activation catalysts, exchange-enhanced reactivity in nonheme catalysts, a theory of catalytic cycles, theory of charge-shift bonding and of no-pair bonding – new bonding paradigms.

3. Important publications:

   a. Pross and S.S. Shaik, "A Qualitative Valence Bond Approach to Organic Reactivity", Acc. Chem. Res. 16, 363-370 (1983); *356 citations.*

   b. Meunier, S.P. de Visser and S. Shaik, "The Mechanism of Oxidation Reactions Catalyzed by Cytochrome P450 Enzymes", Chem. Rev. 104, 3947-3980 (2004); *320 citations.*

   * Paper [b] has appeared in the list of HOT Papers of the ACS journals for September-October 2006

4. No. of students and post-docs (past five years): 25

5. Recognitions: 1973 The Israel Chemical Society Award for B.Sc. students; 1973 The Bar-Ilan University Award for M.Sc. students; 1974-9 Israel - United-States Educational Foundation, Fulbright Fellow; 1980 Deutscher Akademischer Austauschdienst, DAAD Fellow; 1984-5 CNRS (France), "Poste Rouge"; 1985 NSERC (Research Council of Canada), International Exchange Award; 1985 Rothschild Foundation (Geneva), Fellowship for writing a monograph; 1988 The 1988 Israel Chemical Society Medal Award for the Outstanding Young Chemist; 1995 Lise Meitner-Alexander von Humboldt Senior Research Award; 1995 The A. D. Bergman Prize, Given by The Academy of Sciences and Humanities in Israel; 2001 The Israel

Chemical Society Prize for the year 2000 ("*for his seminal work in chemical reactivity and bonding")*; 2001 The Kolthoff Prize for the year 2000/2001 (*"for his seminal contribution to the understanding of the chemical bond, reaction mechanisms and electron transfer processes in organic chemistry"*); 2002 Elected as member of the Scientific Board of WATOC; 2003 Elected Fellow of the AAAS (American Association for the Advancement of Science); ("*for distinguished contributions to the field of valence bond theory, contributing new ideas and thought-provoking models that have helped to rechart the mental map of chemistry*"); 2004 Selected, by the University of Köln, as the Kurt-Alder Lecturer (for "*ground-breaking in theoretical and computational chemistry, aiming at the understanding of chemical and biochemical reactivity, in particular with respect to the revolutionary concept of multistate reactivity in organometallic chemistry and catalysis*"); 2005 Selected by the University of Georgia, Athens, as The Charles Coulson Lecturer; 2006 Selected by the University of Heidelberg, Germany, as The Christmas Lecturer of the Graduate School of Chemistry; 2007 Selected by the Institute of Organic Chemistry and Biochemistry in Prague as the IOCB Lecturer for May 2007; 2007 The Schrödinger Medal "for the outstanding computational chemist in the world who has not previously been awarded this honor" (The medal is awarded to S. Shaik for "*his outstanding contributions to the understanding of the chemical bond, reaction mechanisms in organic chemistry, and enzymatic reactivit*y"); 2007 As a recipient of the Schrödinger Medal, I became also a WATOC Fellow.

6. Scientific-community activity (in the past 5 years): *Public Lectures:* "Chemistry: A Central Pillar of Human Culture" – a lecture given to the public in the framework of "Madua"; "Chemistry, Love, and the Price of Diamonds" – a public lecture give often in Israel; "The Nature of the Chemical Bond: from Covalent and Ionic to Charge-Shift Bonding" – a lecture given to chemistry teachers; *Memberships in Societies:* Member of the American Chemical Society, The Israel Chemical Society, The Alexander von Humboldt Fellows Alumni Organization, The World Association of Theoretical and Computational Chemists (WATOC), A Board Member in WATOC; *Editorial Boards:* Journal of Molecular Structure (THEOCHEM)*;* Journal of Computational Chemistry*;* Theoretical Chemistry Accounts*;* Journal of Physical Organic Chemistry*;* Journal of Inorganic Biochemistry*;* Wiley Interdisciplinary Reviews*;* Israel Journal of Chemistry (New)*; Advisory Boards:* 2009-present A member of the International Advisory of the "State Key Laboratory of Physical Chemistry of Solid State Surfaces", in the University of Xiamen, Xiamen, China; *Directorship:* 1997-present Director of the Lise-Meitner Minerva Center for Computational Quantum Chemistry; *Committees:* 1991-present Council Member, "The Association for Promotion of Research, Literature and Art (founded by Jews from Iraq)"; 2001-2007 Member of the Institutional Promotion Committee; 2005-2008 Elected Senator; representative of the faculty of sciences in the Senate; 2007-present Head of the Institutional Selection Committee; *Committees in International Meetings:* 1997-2009 Organized the Lise Meitner Symposia of the Lise Meitner-Minerva Center for Computational Quantum Chemistry (on average ever 1.5 year); 2008-9 Member of the Organizing Committee of ESOR 12 (the 12th European Symposium on Organic Reactivity); 2008-9 Member of the Organizing Committee of Malta Conferences (Science and Education in the Middle East).

Dr. Roy Shenhar

1. Very short CV: Education: B.Sc. in Chemistry and Computer Science, Hebrew University, 1995; Ph.D. in Chemistry, Hebrew University of Jerusalem, 2002; Postdoctoral Research: Department of Chemistry, University of Massachusetts – Amherst, MA, 2002-2004; Faculty of Electrical Engineering, Technion, 2005; Joined the Institute of Chemistry: 2006.

2. Research activities: Our research is centered on the development of self-assembly strategies based on polymer scaffolds for future technologies. We focus particularly on block copolymers as assembly platforms, since they feature a variety of periodic nanoscale morphologies, both in the bulk and in thin films, which are accessible in a highly controlled fashion through a spontaneous process of phase separation. Such polymers can be used to template the organization of nano-objects as well as to perform chemistry in confined spaces. Within this framework, our research is divided into four main directions: 1.

Nanoparticle organization on surfaces using structured polymer films as templates. 2. Controlled synthesis of inorganic nanoparticles inside hierarchical templates formed by block copolymer/amphiphile systems. 3. Synthesis of a new family of structured, environmentally responsive polymers based on supramolecular polymers. 4. Surface nano-chemistry: employment of phase separated thin films of block copolymers for the performance of surface chemistry in spatially defined locations with nanometric resolution. Our main achievements so far have been: the discovery of hierarchical two-dimensional surface structures of inorganic nanorods when co-assembled with block copolymers in ultrathin films; the dynamic templating of gold nanoparticles onto hyper-branched films of crystalline polymers through coupling between the patterning dynamics and the crystalline polymer dissolution rates; the formulation of a theoretical model for the orientation of block copolymer domains in ultrathin films during solvent annealing; the creation of quasi-block copolymers consisting of a conventional and a supramolecular block, featuring both nanoscale structured micelles and environmental responsiveness; the first utilization of the supramolecular dimerization between highly charged polycyclic aromatic hydrocarbons for the creation of a supramolecular polymer.

3. Important publications:

   a. Roy Shenhar, Tyler B. Norsten, and Vincent M. Rotello; "Polymer-Mediated Nanoparticle Assembly: Structural Control and Applications", *Adv. Mater.* **2005**, *17*, 657-669.

   b. Roy Shenhar, Eunhee Jeoung, Sudhanshu Srivastava, Tyler B. Norsten, and Vincent M. Rotello; "Cross-Linked Nanoparticle Stripes and Hexagonal Networks Obtained Via Selective Patterning of Block Copolymer Thin Films"; *Adv. Mater.*, **2005**, *17*, 2206-2210.

4. No. of students and post-docs (past five years): 8

5. Recognitions: 2009 David Eisenberg: Best poster award, The 13th International Symposium on Novel Aromatic Compounds (ISNA13), Luxemburg, Luxemburg, July 2009; 2004 Zeff Postdoctoral Fellowship; 2001 Fulbright Postdoctoral Fellowship.

6. Scientific-community activity: Member of the Israel Chemical Society; Member of the American Chemical Society; Reviewer for the *Journal of Organic Chemistry*, *Macromolecules*, *Chemistry of Materials, Journal of Materials Chemistry*, *ACS Nano*, and others; Member in the Teaching Assistant Committee of the Institute of Chemistry; M.Sc. Counselor in the Organic Chemistry and Biological Chemistry M.Sc. track; Member of the review committee of Fulbright's Doctoral Dissertation Scholarship Program; responsible for the fields of Natural Sciences and Engineering (a three year nomination); Member of the Hebrew University Center for Nanoscience and Nanotechnology (HUCNN); Member of the organizing committee of the Annual Conference of the HUCNN; Responsible for purchasing a combined glovebox/evaporator system ($350,000) for the HUCNN, including the design for the evarpoator system (supplied in June 2009); Produced the first two versions of the HUCNN brochure (6,000 distributed copies); Member of the Lise Meitner-Minerva Center for Computation Quantum Chemistry; Member of the organizing committee of the annual symposium of the Center; Guest Lecturer at "Scientists' Night" (24.9.2009), an outreach event supported by the European Union taking place simultaneously in all Universities and Science Museums throughout Israel, targeted at exposing the public to the scientific activities by open lectures, science performances, street experiments, and visits in research labs; Wrote a popular science article entitled "Block Copolymers and their Utilization in Nanotechnology" to the High School Chemistry Teachers Bulletin ("Al-chemistry").

Prof. Gil Shoham

1. Very short CV: PhD at Harvard University, USA. Joined the Hebrew University as a faculty member in 1984. Served as head of the department of Inorganic Chemistry 1999-2008.

2. Research activities: *Current:* 3D structure of macromolecules; Structure and function of metallo-enzymes; Mode of action of DNA-repair enzymes; *Earlier:* Structure-function relationships of biological peptides; Specificity and selectivity of metal-binding cyclic chelates; New methodologies for protein crystallization.

3. Important publications:

   a. Gilboa, R., Zharkov, D. O., Golan, G., Fernandes, A. S., Gerchman, S. E., Matz, E., Kycia, J. H., Grollman, A. P. and **Shoham, G.** - "Structure of formamidopyrimidine-DNA glycosylase covalently complexed to DNA", *J. Biol. Chem.*, (2002), **277**, 19811-19816; *cited 106 times*.

   b. Greenblatt, H. M., Almog, O., Maras, B., Spungin, A., Barra, D., Blumberg, S. and **Shoham, G.** - "*Streptomyces griseus* Aminopeptidase: X-ray crystallographic structure at 1.75 Å resolution", *J. Mol. Biol.*, (1997), **265**, 620-636; *cited 82 times*.

4. No. of students and post-docs (past five years): 8

5. Scientific-community activity: 1991-1992 Director, The National Center for Structural Biochemistry; 1993-1995 Member of the ISF Grants Evaluation Committee; 1998-2003 Chairman, The Israeli Crystallographic Association; 1999-2008 Head, Department of Inorganic Chemistry; 2001-2006 Member of the Hebrew University R&D Committee; 2002-2004 Member of the SESAME International Steering Committee; 2006-2007 Member of the EC Grants Evaluation Committee.

Dr. Daniel Strasser

1. Very short CV: Faculty member of HUJI since 10/2009 (actually arrived on 7/2009); Ph.D., Weizmann Institute of Science, Department of particle physics, “Dissociative Recombination of Polyatomic Ions”, supervised by D. Zajfman; Post-doctoral researcher at UC Berkeley, Departments of chemistry and physics, “femtosecond extreme-UV pump probe project”, with S. R. Leone

2. Research activities: The focus of research of my group is on developing novel approaches to extend the range of ultrafast reaction dynamics that can be investigated by time resolved pump probe spectroscopy. In particular, we are going to address the intrinsically non-Born-Oppenheimer ultrafast dynamics of superexcited states that can not be addressed by “conventional” lasers from neutral ground state molecules. To achieve this goal we will photo-initiate dynamics, not from neutral ground state molecules, but from specially prepared fast beams of ionic or neutral metastable species. In addition to state-of-the-art femto-second laser techniques, our group will use advanced fast beam fragment imaging techniques to obtain information about the competition between electronic dynamics and of nuclear motion dynamics on the relevant ultrafast time scales. We are currently in the stage of lab-space renovations, in preparation for the installation of the ultrafast laser and fast ion beam systems

3. Important publications:

   a. **D. Strasser**, L. Lammich, S. Krohn, M. Lange, H. Kreckel, J. Levin, D. Schwalm, Z. Vager, R. Wester, A. Wolf and D. Zajfman, *Two- and three-body kinematical correlation in the dissociative recombination of H_3^+*. Physical Review Letters, 2001. **86**(5): p. 779-782. *cited 41 times.*

   b. **D. Strasser**, F. Goulay, M.S. Kelkar, E.J. Maginn and S.R. Leone, *Photoelectron spectrum of isolated ion-pairs in ionic liquid vapor.* Journal of Physical Chemistry A, 2007. **111**(17): p. 3191-3195; *cited 16 times.*

4. Recognitions: 2002 Clore Scholarship; 2003 Israel Physical Society graduate student prize; 2004 Rothschild post-doctoral Fellowship award.

Prof. Edit Y. Tshuva

1. Very short CV: Joined as a faculty member in 2003 as a Senior Lecturer. Promoted to the current degree of Associate Professor in 2009.

2. Research activities: Ti(IV) compounds with cytotoxic activity: design, preparation, study of reactivity and mechanism of action; Cu(I) complexes of small ligands and short peptides as models for the active sites of metallochaperone proteins: structural analysis and oxidation activity studies; Development of delivery encapsulating entities based on metal-ligand interactions; Development of polynuclear metal complexes of potential medicinal applications.

3. Important publications:

   a. Tshuva, E. Y., Goldberg, I., and Kol, M. (2000) Isospecific Living Polymerization of 1-Hexene by a Readily Available Non-Metallocene C_2-Symmetrical Zirconium Catalyst. J. Am. Chem. Soc. 122:10706-7; *cited 236 times.*

   b. Tshuva, E. Y. and Lippard, S. J. (2004) Synthetic Models for Non-Heme Carboxylate-Bridged Diiron Metalloproteins: Strategies and Tactics. Chem. Rev. 104:987-1011 *cited 195 times.*

4. No. of students and post-docs (past five years): 12

5. Recognitions: 1998-01 The Buchmann Scholarship; 2000 The Wolf Award for Graduate Students; 2000 The Intel Award; 2001 The Jortner Award of the Israeli Chemical Society to Graduate Students; 2001 The Fulbright Fellowship for Postdoctoral Students; 2003 The Schmidt Award for Thesis Work; 2003 The Allon Fellowship for Young Faculty; 2009 The Safety Award of the Hebrew University; 2009 The European Research Council (ERC) Young Investigator Award.

6. Scientific-community activity: *The Israel Chemical Society:* Member 1999 – 2001; 2003 – 2010; *Conferences:* Organizing Committee of an International Conference in 'Metal Containing Anticancer Agents', Jerusalem, April 2007; Organizing Committee of the 2nd European Conference in Inorganic Chemistry, to be held in Jerusalem, 2013; *University positions:* Member in several school and university committees including assistants committee, teachers-students committee, school awards committee, school teaching committee, committee for promotions in the parallel academic route; Member of the Senate of the Hebrew University, as a representative of the general assembly.

Prof. Itamar Willner

1. Very short CV: Professor. Joined the Institute of Chemistry in 1981; Acted as Head of the Institute, 1997-2000.

2. Research activities: Bioelectronics and biosensors; Amplified biosensing through catalytic label and replication processes; Metal nanoparticles and semiconductor quantum dots; chemical modification and applications; Optobioelectronics, photoswitchable biomolecules; Molecules and biomolecules for logic operations and computing; Functional self-assembled monolayer on electrodes; Applications for sensing, controlling surface wettability, design of optoelectronic systems; Polymer hybrid systems; Molecular and biomolecular machines; Photoinduced electron transfer and artificial photosynthesis; Photoelectrochemical systems; Biofuel cells and photo-biofuel cells.

3. Important publications:

   a. A.N. Shipway, E. Katz and I. Willner, Nanoparticle Arrays on Surfaces for Electronic, Optical and Sensoric Applications. *ChemPhysChem*, **1**, 18-52 (2000); *cited 901 times.*

   b. Y. Xiao, F. Patolsky, E. Katz, J.F. Hainfeld and I. Willner, "Plugging into Enzymes": Nanowiring of Redox Enzymes by a Gold Nanoparticle. *Science*, **299**, 1877-1881 (2003); *cited 398 times.*

4. No. of students and post-docs (past five years): 52

5. Recognitions: 1986 Bergmann Award; 1991 Honorary Professor, Osaka University; 1993 Kolthoff Award; 1996 AAAS (American Association for the Advancement of Science) Fellow; 1997 Sandoz-Novartis Award; 1998 The Kaye Innovations Award; 1998 Max Planck Research Award for International Cooperation; 2001 Israel Chemical Society Award; 2002 Israel Prize in Chemistry; 2002 Member of The Israel Academy of Sciences; 2003 The Klachky Family Prize for the Advancement of the Frontiers of Science; 2004 Member of the European Academy of Sciences and Arts; 2004 The Kaye Innovations Award; 2005 Honorary Guest Professorship, Tsinghua Univesity, Beijing, China; 2007 Honorary Professor, East China University of Science and Technology, Shanghai, China; 2008 Rothschild Prize in Chemistry; 2008 EMET Prize in chemistry (under the auspices of the Prime Minister of Israel); 2009 Fellow of the Royal Society of Chemistry (FRSC), UK; 2009 Member of the German National Academy of Sciences Leopoldina.

6. Scientific-community activity: *Editorial boards of journals*: 1999-2004 Journal of the American Chemical Society (ACS); 1999-present Langmuir (ACS); 2000-present Molecules; 2002-2008 Organic & Biomolecular Chemistry (RSC); 2002-present International Journal of Nanotechnology; 2002-present Israel Journal of Chemistry; 2003-2007 Sensor Letters; 2003-present Journal of Electroanalytical Chemistry; 2004-present ChemPhysChem (Wiley-VCH); 2004-present Small (Wiley-VCH); 2004-present Current Analytical Chemistry; 2005-2007 Journal of Biomedical Nanotechnology; 2005-present Electroanalysis; 2005-present Fuel Cells – From Fundamental to Systems; 2007-present Wiley Interdisciplinary Reviews: Nanomedicine; 2008-present Wiley Nanoscience and Nanotechnology Series; 2008-present Nano Research (Springer); *Conferences:* Numerous times a member of organizing committees or international advisory boards of conferences; *University positions:* 1997-2000 Chairman of the Institute of Chemistry; 2005-present Chairman of the University Committee for Scientific Infrastructure; *International academic positions:* 2009-present Chairman of the Scientific Advisory Board at the Max Planck Institute for Metal Research in Stuttgart; 2009-present Member, IUPAC Bureau (representative of Israel).

Prof. Shmuel Yariv

1. Very short CV: Born in 1934 in Israel. From 1954 studied chemistry and geochemistry at the Hebrew University of Jerusalem. In 1956 started to work in research in the Department of Inorganic and Analytical Chemistry at the Hebrew University under the supervision of Prof. B. Kirson. In 1969-1977 served as Senior Lecturer in the Department of Geology. In 1980 Joined the Institute of Chemistry. Since 2003 professor Emeritus at the Institute of Chemistry.

2. Research activities: *Current:* The use of organo-clay complexes in the purification of waste water; Thermal reactions of organo-clay complexes; Mechanochemistry of clay minerals; *Earlier:* Various topics in surface and colloid properties of clay minerals; Synthesis of organo-clay pigments; Synthesis of double halide salts by mechanochemical techniques.

3. Important publications:

   a. Z. Grauer, D. Avnir and S. Yariv: "Adsorption characteristics of Rhodamine 6G on montmorillonite and Laponite, elucidated from electronic absorption and emission spectra", *Canadian Journal of Chemistry*, **62** (1984)1889-1894 (1984); *cited 50 times.*

   b. S. Yariv: "The role of charcoal on DTA curves of organo-clay complexes. An overview", *Applied Clay Science,* **24** (2004) 225-236; *cited 44 times.*

4. No. of students and post-docs (past five years): 3

5. Recognitions: 1991 The Kurnakow-Medal of the Moscow Institute of Chemistry of the Soviet Academy of Science; 1996 A special ICTAC Certificate in recognition of long and outstanding service as Secretary of ICTAC; 2000 The ICTAC Distinguish Service Award; 2003 Special issue of the *Journal of Thermal Analysis and Calorimetry*, honoring Prof. Yariv for its outstanding contribution to the journal's constant development on the occasion of his retirement from teaching at the Hebrew University (*J Therm. Anal.*

(2003) **Volume 71,** Number 3. Guest Editor, Prof. Shlomo Shoval, pp. 685-1038); 2004 The Robert Mackenzie Memorial Lecture Award.

6. Scientific-community activity (since 2000): *Editorial activities: Special issues of the Journal of Thermal Analysis and Calorimetry* (Guest Editor: S. Yariv), Vol. 69, No. 1, 2002 (dedicated to Prof. György Liptay); Vol. 82, 2005 (dedicated to the 35th Anniversary of the journal and to the founder of the journal and the Editor-in-Chief Prof. Judit Simon); *Conference Proceedings: Member in Editorial Boards:* 1990-2009 Member of the Editorial Board of the Journal of Colloid and Polymer Science. *Israeli and International activities:* 1993-present Councilor of Israel in the Council of the International Confederation for Mechanochemistry (INCOM); 1998-2006 Councilor of Israel in the Council of the Organization of Mediterranean Countries for Calorimetry and Thermal Analysis; 2000-2008 Councilor of Israel in the Council of the International Confederation for Thermal Analysis and Calorimetry (ICTAC); *Conferences:* Numerous times member of international advisory board of conferences.

Dr. Roie Yerushalmi

1. Very short CV: 2006-2008 UC-Berkeley Postdoctoral Studies; 2008-present Hebrew University Senior Lecturer.

2. Research activities: Our research focus on the synthesis of nanostructures and understanding of unique reactivity characteristics related to the nanoscale. Our work combines synthetic methods for the formation of nanostructures with controlled chemical composition and the large scale deployment and assembly of the nanostructures. The large scale assembly of ordered arrays is essential for applying a large arsenal of analytical methods for the characterization and study of chemical reactivity at nanostructured interfaces. This includes: Hybrid Nanostructure synthesis: Formation of nanostructures consisting of inorganic and an organic part. Study of reactivity and optical properties; Bottom-up synthesis and assembly of nano architectures: Nanostructures with controlled dimensions and composition. Non-lithographic methods for the formation of large scale ordered structures featuring nanometric building blocks; Catalytic properties of nanostructure arrays: Study of surface interactions at nanostructure interfaces in the context of catalysis.; Interactions of biological molecules at nanostructured interfaces: Understanding of the dimension related aggregation of fibrous structures.

3. Important publications:

   a. Roie Yerushalmi, Avigdor Scherz, and Milko van der Boom. Enhancement of molecular properties in thin films by controlled orientation of molecular building blocks. J Am Chem Soc, 2004, 126, 2700-2701. *Journal Impact factor: 8.091; cited 31 times.*

   b. JC Ho, R Yerushalmi, ZA Jacobson, Z Fan, RL Alley, and A Javey. Controlled nanoscale doping of semiconductors via molecular monolayers. Nature Materials, ***2008***, 7, 62-67. (JCH and RY equal contribution). *Journal Impact factor: 23.132; cited 19 times; *Featured in C&EN, Nov 2007.*

4. No. of students and post-docs (past five years): 4

5. Recognitions: 2008 Career Development Award. Human Frontier Science Program Awardee, Starsbourg; 2006 *Kennedy Prize*, Weizmann Institute of Science. Rehovot, Israel; 2005 Post Doctoral Research Fellowship. Human Frontier Science Program Awardee, Starsbourg; 2000 The Feinberg Graduate School *Distinction Prize*. Weizmann Institute of Science. Rehovot, Israel; 1998 B.Sc., Chemistry witn distinction – *Magna cum laude*. Tel-Aviv University. Tel-Aviv, Israel; 1998 The Faculty of Exact Sciences Dean's annual prize for distinction. Tel-Aviv University. Tel-Aviv, Israel; 1997 The Faculty of Exact Sciences Dean's annual prize for distinction. Tel-Aviv University. Tel-Aviv, Israel, 1996 Fellowship of distinction. The Amos De-Shalit Summer Program for *Selected Students* in Chemistry. The Amos De-Shalit Foundation, Weizmann Institute of Science.

6. Scientific-community activity: I am an active member of the Harvey M Kruger Center for Nanoscience and Nanotechnology. Since joining the faculty I am involved in identifying needs for new equipment capacities and their integration in the Nano Center. The Nano Center has two sub units: the unit for nano-characterization (UNC) and the unit for nano-fabrication (UNF). The Nano Center is equipped with state-of-the art capabilities; Reviewer for Journal of the American Chemical Society, and nano letters.

Prof. Shlomo Yitzchaik

1. Very short CV: Current academic degree Associate Professor; Date of start as faculty member: October 1st, 1995.

2. Research activities: Our lab is involved mainly in surface chemistry and bioactive interfaces: (a) Studies of the molecular electronic tuning of semiconductors surfaces have demonstrated direct and enhanced effects on surface potential. Our understanding of the molecular shielding and depolarization effects in these interfaces was implemented to silicon-based transistors to be used in biosensing (neurotransmitters) and neuroelectronic applications (membrane potentials); (b) A new synthetic method was introduced by us, Molecular Layer Epitaxy (MLE), that have led to organic quantum-confined structures as useful optoelectronic materials (OLED & OFET); (c) We have discovered a new class of smart gels, poly(4-vinylpyridine) (PVPy) swollen with pyridine (Py), that emits the three primary colors, following excitation with different wavelengths. These photo-excitations also induced large reversible changes in pH, SHG and electrical conductivity; (d) We have demonstrated a new approach for assembling monolayers of conducting polymers on 2D surfaces; 1D molecular wires such as DNA and CNTs and to meso-porous Si; and (e) In our interdisciplinary effort to develop neuroelectronic hybrid we have succeeded to make a highly sensitive sensor for neurons electrical and chemical signaling. Additionally, a novel photonic sensor for ACh was developed, based on synthetic receptor and fluorescent probes. Finally, novel neuroelectronic devices containing micro-nails functionalized with phagocytotic promoting peptides induced neuron engulfment and resulted in a better cell to electrode electrical coupling.

3. Important publications:

   a. **Yitzchaik, S.** and Marks, T.J., "Chromophoric self-assembled superlattices" *Acc. Chem. Res.* **1996**, *29*, 197-202. .

   b. Burtman, V.; Zelichenok, A.; **Yitzchaik S.**, "Organic Quantum-Confined Structures *via* Molecular Layer Epitaxy" *Angew. Chem. Int. Eng. Ed.* **1999**, *38*, 2041-2045.

4. No. of students and post-docs (past five years): 18

5. Recognitions: 2009 The Gesellschaft Deutscher Chemiker (German Chemical Society) award with the *Richard-Willstätter-Lecture*; 2002 Applied Materials Research Excellence Prize for outstanding achievements in the field of surface chemistry science and technology (IVS, Israel Vacuum Society); 2002 The Kaye Innovation Award at the Hebrew University of Jerusalem for the invention of Molecular Layer Epitaxy (MLE); 2000 The Braun-Roger-Siegl Foundation prize (by the Israel Science Foundation, ISF) for the research achievements in the field of organic nano-electronics; 1999 *The Outstanding Young Scientist Award of the Israel Chemical Society* (ICS) – Awarded for the achievements in materials science, surface chemistry research, and the investigation of the interactions of light with mater and their implementation in novel electro-optic devices; 1999 *The John van Geuns* Lectureship - on the interaction of light with mater; 1997-99 Golda Meir Fellowship, young faculty award; 1993 The Gerhard M.J. Schmidt prize for an outstanding Ph.D. thesis in solid state organic chemistry; 1992 The Feinberg Graduate School of the Weizmann Institute of Science award for excellence in graduate research; 1990 The Katzir Katchalsky Award for attending the "First International Summer School of Supramolecular Chemistry".

6. Scientific-community activity: Israel's representative at the International Union for Vacuum Science, Technique, and Applications [IUVSTA]; Member of the Israel Science Foundation's professional committee (in the field of materials science); Guest Editor (with A. Ulman and D. Davidov) of the *Israel Journal of*

Chemistry; Member of: The Israel Chemical Society; the American Chemical Society; the Materials Research Society; and American Association for the Advancement of Science.

KAMEA Researchers

Dr. Alexander Kamyshny (Prof. Shlomo Magdassi)

1. Very short CV: Joined as a faculty member in 1993. Today, KAMEA Program Fellow, rank A.
2. Research activities: Formation and stabilization of organic and inorganic Nanoparticles; Coatings, inks and digital printing; Diagnostics and imaging; Microencapsulation; Surface activity of proteins; Emulsion and dispersion technology; Printed electronics; Colloidal systems and surface active agents; Drug targeting and delivery.
3. Important publications:
   a. Kamyshny A., Ben-Moshe M., Aviezer S., Magdassi S., Ink-jet printing of metallic nanoparticles and microemulsions, **Macromol. Rapid. Commun**. 26, 281-288, 2005, **Cited 58 times**.
   b. Magdassi S., Bassa A., Vinetsky, Kamyshny A., Silver nanoparticles as pigments for water-based ink-jet inks, **Chem. Mater.** 15, 2208-2217, 2003, **Cited 50 times**.
4. No. of students and post-docs (past five years, **together with Prof. Shlomo Magdassi**): 3
5. Recognitions: The project "New medicine Atherolysin for prevention and treatment of atherosclerosis" (co-author P.Rabinovich) was awarded with diploma and bronze medal at Internation Exhibition "Ideas, Inventions and Innovations" (Nuremberg, Germany, 2002).
6. Scientific-community activity: Member of International Association of Colloid and Interface Scientists; Member of European Colloid and Interface Society; Member of the Organizing Committee of 15th European Chemistry at Interfaces Conference (ECIC), Jerusalem, Israel, October 18-22, 1998; Member of the Editorial Board of "Nanoscience: Colloidal Backgrounds", Taylor&Francis Group, UK.

Dr. Rimma Shelkov (Prof. Ovadia Lev)

1. Very short CV: Joined the Hebrew University in February 2000 as a Shapira researcher. KAMEA researcher (degree א) since February 2006.
2. Research activities: *Current:* Environmental Chromato-Mass Spectrometry; Chlorinating pesticides in aquatic systems, derivatization, analysis, quantitative evaluation at low concentration; Quantitative analysis of different phthalates and nitrosamines in non- aquatic systems, using *GS-MS/MS; Earlier:* Sulfur chemistry in aquatic systems: investigation of the reactions of chlorinated hydrocarbons with mono- and polysulfides, using *GC-MS;* Pharmaceuticals: steroids, hormones, phenols and other organic wastewater contaminants – detecting and quantitating at low concentrations, using *GC-MS;* Acylation of elementorganic compounds – synthesis, mechanisms, application in medicine.
3. Important publications:
   a. R.Shelkov, M.Nahmany, A.Melman, "Acylation through ketene intermediates", **Journal of Organic Chemistry, 67,** 25, 8975-8982 (2002); *cited 24 times*.
   b. R.Shelkov, M. Nahmany, A. Melman, "Selective esterifications of alcohols and phenols through cabodiimide couplings", **Organic& Biomolecular Chemistry, 2,** 3, 397-401 (2004); *cited 13 times.*

Prof. Shmuel Zilberg (Prof. Yehuda Haas)

1. Very short CV: Senior Scientist in the Institute of Chemistry since 1999.
2. Research activities: Quantum Chemistry, Photochemistry.

Dr. Faina Dubnikov

1. Very short CV: Researcher in framework of Shapiro and Giladi program for new repatriates from 1996, Senior lecturer, position "bet" (Kame'a program) from 2000, position "aleph" from 2008.

2. Research activities: Doctor Dubnikov research activities are in the field of the quantum chemical calculations of reaction pathways and the chemical kinetics mechanisms of thermal isomerizations, decompositions, ring expansion, identification of high energy materials. Investigations in the field of transition state theory, intersystem crossing calculation etc.

3. Important publications:

   a. Dubnikova, F.; Kosloff, R.; Almog, J.; Zeiri, Y.; Boese, R.; Itzhaky, H.; Alt, A.; Keinan, E.; "Decomposition of Triacetone Triperoxide Is an Entropic Explosion" *J. Am. Chem. Soc.* 2005, *127*, 1146-1159.

   b. van Duin, A. C. T.; Zeiri, Y.; Dubnikova, F.; Kosloff, R.; Goddard III, W. A. *"*Atomistic-scale simulations of the initial chemical events in the thermal initiation of triacetonetriperoxide (TATP)*" J. Am. Chem. Soc*., 2005, *127*, 11053-11062.

6.5. Table of contents of CD

A. Folder 'A_HUJI_EvaluationReport_31_07_2010':

The full report (including all the appendices).

B. Folder 'B_HUJI_YearBook&RegistGuide_31_07_2010':

The School of Chemistry yearbook and the registration guide **(in Hebrew)**.

C. Folder 'C_HUJI_Rules&Procedures_31_07_2010':

Relevant rules and regulations, e.g. code of study, code of discipline, ethical code, procedure for termination of studies, examination procedures and procedure of appeal, rules applying to tuition fees and financial assistance, and code of appointments **(in Hebrew)**.

D. Folder 'D_HUJI_Syllabi_31_07_2010':

Detailed syllabi, including the name of the lecturer, the requirements of each course, its subject and bibliography, and how the course grade is composed, for each of the study programs under evaluation. Only syllabi of the courses that are taught in the academic year during which the quality assessment is taking place or in alternate years appear in this section **(in English).**

E. Folder 'E_HUJI_CV_31_07_2010':

Extended versions of the faculty CVs, as well as additional publications (for some of the retirees, the CV may be brief). In addition, the researchers of the KAMEA program are listed. This program has been a special effort of the Israeli government in the 1990's to absorb scientists from the ex-USSR, who then affiliated themselves with existing research groups.

Each faculty member has the following information in his/hers extended CV:

- A short CV
- A short description of the research activities
- Specialized research infrastructure
- Publications
- Funding over the last five years
- Students and post-doctoral fellows (past five years)
- Prizes, awards and other recognitions (anytime)
- Scientific-community activity
- Current research collaborations in Israel and abroad
- Involvement of undergraduate students in research
- List of courses taught over the last five years
- The use of information technology in teaching

F. Folder 'F_HUJI_MSc&PhDTheses_31_07_2010':

Examples of M.Sc. and Ph.D. theses [there are no other final projects (such as Dissertations) in our institute].