

The 86th Annual Meeting of the Israel Chemical Society: September 12–13, 2022, David Intercontinental Hotel, Tel Aviv, Israel

<https://doi.org/10.51167/ice000023>

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Introduction

The Annual Meeting of the Israel Chemical Society (ICS) has a long history since its establishment in 1933 and is a well-known event in the scientific landscape of the State of Israel. These colorful gatherings of Israeli chemists usually occur in mid-February, which is the inter-semester break for all Israeli universities. Unfortunately, the Meeting of 2021 fell victim to the global Covid-19 pandemic, forcing a gap of 2.5 years between the 85th Meeting of February 2020 and the 86th Meeting in September 2022.

Following ICS tradition, the chemistry departments of the six major research universities share responsibility for organizing these meetings in a six-year cycle in a constant order: the Hebrew University of Jerusalem, Technion, Tel Aviv University, Bar-Ilan University, Ben-Gurion University of the Negev, and the Weizmann Institute of Science. Thus, looking back at the ICS history of the past two decades, the Technion has taken responsibility for organizing the 68th Meeting (2003), the 74th Meeting (2009), the 80th Meeting (2015), and the 86th Meeting (2022).

Another unique tradition the ICS has followed for more than 25 years is hosting high-profile delegations of distinguished scientists from top academic institutions worldwide to deliver plenary and keynote lectures. This tradition has created outstanding opportunities for many Israeli scientists, particularly graduate students, to interact with world-renowned chemists, thus enhancing the prospects of networking and scientific collaboration. Unfortunately, the large delegation of 10 scientists and 20 graduate students from the Chinese Academy of Sciences and the University of Peking could not participate due to the “zero-Covid policy” of the Chinese authorities and restrictions on international travel.

Nevertheless, it provided an opportunity for a happy gathering of many students and scientists from around Israel, after 2.5 years of restrictions on public meetings, even in

the absence of a foreign delegation. Over 600 participants enjoyed a diverse scientific program that included two plenary lectures. The 18 parallel sessions included 18 keynote lectures, 63 invited lectures, and 31 flash talks. The 240 posters were equally distributed between two poster sessions, and four were selected to receive the best poster prizes, announced at the closing ceremony.

The ten sessions of the first day included Organic and Inorganic Chemistry (organized by Sergey Semenov of the Weizmann Institute), Chemical Biology and Biochemistry (organized by Muhammad Jbara of Tel Aviv University), Materials and Devices (organized by Adi Salomon of Bar-Ilan University), Spectroscopy (organized by Aharon Blank of the Technion), Chemical Education (organized by Sharona T. Levy of Haifa University), Organic and Inorganic Chemistry (organized by Graham de Ruiter of the Technion), Chemical Biology and Biochemistry (organized by Noam Adir of the Technion), Industrial and Analytical Chemistry (organized by Amir Mizrahi of the NRCN), Theoretical Chemistry (organized by Uri Peskin), and Energy (organized by Malachi Noked of Bar-Ilan University).

The eight sessions of the second day included Organic Catalysis (organized by Mark Gandelman of the Technion), Polymer & Supramolecular Chemistry (organized by Gabriel Lemcoff of the Ben-Gurion University), Nanochemistry (organized by Lilac Amirav of the Technion), Agricultural and Food Chemistry (organized by Guy Mechrez of the Volcani Institute), Bioorganic Chemistry (organized by Amnon Bar-Shir of the Weizmann Institute), Polymer and Supramolecular Chemistry (organized by Michael Silverstein of the Technion), Electrochemistry (organized by David Eisenberg of the Technion), and Soft Matter and Biophysics (organized by Bat-El Pinchasik of Tel Aviv University).

In addition to the scientific program, the ICS held its traditional General Assembly on the afternoon of the first day,

discussing the past year's activities, plans for the next year, and financial issues. Mr. Shimon Nizrad, the ICS Accountant, provided an overview of the ICS's budget, legal status, and financial goals. A Gender Equality Power-Hour took place on the second day, chaired by Mindy Levine of Ariel University. The prize ceremony, which took place on the evening of the first day, was preceded by a reception and light dinner for all participants.

The event attracted many sponsors, including the Weizmann Institute of Science, Tel Aviv University, Bar-Ilan University, Ben-Gurion University of the Negev, the Hebrew University of Jerusalem, Ariel University, and the Technion.

The experienced team of Diesenhaus-Unitours Incoming Tourism Ltd., staffed by Orit Gilad, Anat Reshef, Tsipi Laxer, and Magali Mizrahi, took responsibility for the actual operation, including all technical aspects, administration, organization of the exhibition, promotion, etc.

The meeting included a commercial exhibition by 17 providers of lab equipment, scientific instrumentation, chemicals, materials, analytical chemistry services, publishing houses, and intellectual property management. Exhibitors included Arad-Ophir Information Specialists Ltd., Bargal Analytical Instruments Ltd., BioAnalytics Ltd., Bruker Scientific Israel Ltd., Holland Moran Ltd., Meshulam Avni & Son Ltd., ILPEN Scientific Equipment & Supplies Ltd., JEOL (UK) Ltd., Labotal Scientific Equipment Ltd., LabSuit Projects Ltd., Mark Technologies Ltd., Mercury Ltd., Dr. Golik Scientific Solutions Ltd., New Technology S.K. Ltd., Rhenium Ltd., Spectro Israel Ltd., and Tzamal D-Chem Laboratories Ltd.

This mix of excellent lectures, colorful poster sessions, exhibitions, and other activities created a vivid atmosphere with vibrant discussions, exchange of information, and social gathering, all reflected by the collage of photographs (Figure 1).

Opening Ceremony

Prof. Saar Rahav, co-chairperson of the organizing committee, opened the meeting and greeted the guests and participants: "Good morning, everyone. On behalf of the other co-chairman Prof. Charles Diesendruck and the organizing committee, I am delighted to welcome you to the 86th meeting of the Israel Chemical Society in Tel Aviv.

It has been a while since the previous meeting. The covid pandemic caused many upheavals. We all remember the lockdowns and their effect on our personal lives and our

ability to teach and work on our research. Our academic community showed remarkable resilience in dealing with the changing conditions and found ways to continue our scientific work and adjust to teach remotely. Arguably, the aspect that affected the most was our ability to meet in workshops and conferences. Thankfully, things are much improved now.

The pandemic has affected our ICS meeting as well. We were forced to postpone the meeting, and just when things seemed normal again, a new wave meant we had to postpone it again. Even now, when almost all restrictions are removed, it still affects us. The international delegation we lined up could not come since China still has stringent covid regulations and is practically isolated from the rest of the world.

Despite the difficulties, it is crucially important that we continue our longstanding tradition of ICS meetings. This celebration of Israeli chemistry is a unique opportunity to share our enthusiasm for science and to recognize excellence in research, teaching, and other aspects of academic life. I thank many colleagues who showed flexibility in dealing with the forced changes, in particular the ones who were called to contribute on short notice due to the changing dates of the meeting.

I am delighted to see so many graduate students in the crowd. This meeting allows you to explain your research to other scientists and expose you to different aspects of chemistry. Those who have not experienced hearing a talk detailing some attractive solution to a scientific problem said to themselves, this idea is simply brilliant; I wish I had thought about that. Such gems of science inspire us to keep asking difficult and important questions. And who knows, perhaps a new idea you encounter today will be relevant to your research tomorrow. I therefore warmly encourage you to use this occasion to get to know your colleagues and their work. You may discover new ideas that will inspire your love of science, or you may meet someone to collaborate with in the future.

This meeting could not have happened without the generous support from the seven major Israeli universities and research institutions. We are grateful for their help. I wish you all an illuminating, productive, and inspiring meeting."

Prof. Ehud Keinan, president of the ICS, added his greetings: "Good morning everybody, and welcome to the 86th Meeting of the ICS. First, I would like to thank all the people who made it possible, chairpersons Charles Diesendruck and Saar Rahav and their colleagues from the Technion, including members of the organizing committee and session organizers. Many others deserve our thanks, including all the sponsors, the Diesenhaus-Unitours team, and administrative manager Tali Lidor for taking care of all the small details.



Figure 1. Collage of random photos that reflect the general atmosphere of the 85th ICS Meeting. Photographs by Allon Zaslansky.

It's a pleasure to open this Meeting after a gap of two and a half years. We postponed this Meeting more than once and even considered waiting for another year until February 2023. It is typical for the Israeli community that no matter what the circumstances are, we keep going and continue our annual meetings as usual. As we all know, nothing is standard in Israel, but the past two years have been very unusual in Israel and worldwide. The ICS was established in 1933, and we'll celebrate our 90th anniversary next year. Holding now the 86th Meeting means that the Israeli community of chemists met uninterrupted almost every year over the past nine decades. And we had many reasons to postpone these meetings, including World War II, Israel's War of Independence, and many other upheavals. Thus, skipping the 2021 meeting due to Covid-19 was a rare historical event. We were fortunate to hold the 85th ICS meeting in mid-February 2020 with the Yale delegation, just two weeks before hell broke loose and Covid-19 changed all human activities worldwide.

Although we lost the opportunity to host the Chinese delegation of 30 scientists from China, I'm happy to see the many enthusiastic young people eager to resume the Annual Meeting and meet friends and colleagues from around the country.

I take this opportunity to announce the general plans for the 87th Meeting. The ICS managing Board has decided to hold it on the first week of July, immediately after the end of the academic year, to maximize the number of participants. We will host a large delegation from Denmark, including 10 professors and 20 graduate students from the University of Copenhagen, the Technical University of Denmark, and Aarhus University.

The Meeting will be part of a more significant event named Chemistry Congress, ChemCon 2023, planned for July 3–5, 2023, at the International Convention Center, Jerusalem. We join forces with the Haaretz/TheMarker Group to organize these events because the two organizations share complementary expertise and experience. The Haaretz Group, which is 103 years old, and a bit older than the ICS, will allocate its international content marketing tools to maximize the ChemCon2023 exposure. In contrast, the ICS will ensure a relevant, packed, and well-diversified scientific program.

The ChemCon2023 will include three major components to create synergism and generate high interest among chemists, chemical engineers, businesspeople, government agencies, and the public: A one-day symposium on "The Good Carbon" opportunities, the two-day ICS 87th Annual Meeting, and an unprecedentedly large, three-day international chemistry exhibition.

The "Good Carbon" Symposium will focus on using compounds of a single carbon atom, such as natural gas and carbon dioxide emissions, as feedstock for the chemical industry. The symposium will highlight the methanol-based economy, methanol-to-olefins (MTO) processes, synthetic fuels, novel fuel cells, and clean energy. These topics will create high interest for businesspeople, venture capitalists, government ministries, startup entrepreneurs, chemical industry leaders, and the public.

The ChemCon Exhibition will provide direct access to global chemical research, development, and manufacturing. All aspects of chemistry, including research tools and infrastructure, analytical methods and instrumentation, energy, synthetic fuels, environmental sciences, green energy, nanotechnology, materials science, food science, agriculture, pharmaceuticals, bio-analytics, quantitative measurement of biological molecules, industry and manufacturing, process control, quality assurance and quality control of manufactured products, industrial processes, intellectual property, venture capital companies, and more.

The ChemCon2023 will create synergism between the academic, business, and government communities, generating high interest among chemists, chemical engineers, businesspeople, government agencies, and the public in chemistry opportunities. Take advantage of the opportunity to attend the event.

Thanks again for participating in the 86th ICS Meeting; I wish you an enjoyable, highly fruitful experience!"

Plenary lectures

Leeor Kronik of the Weizmann Institute of Science, the ICS Prize of Excellence winner, lectured on "Predicting materials properties from first principles: A density functional theory journey." He provided some perspectives from his journeys in predicting materials properties from first principles, based on density functional theory. On the one hand, he emphasized the ongoing dialogue between theory and a diverse set of experiments, covering the range of chemical, mechanical, electrical, optical, magnetic, and more. On the other hand, he surveyed highlights from work on developments within density functional theory, especially on orbital-dependent functionals, which have been indispensable to gaining true predictive power.

Stephen Weiner and **Lia Addadi** of the Weizmann Institute of Science, winners of the ICS Gold Medal, lectured jointly on "Biomineralization is chemistry and biology with a history."

They explained that biomineralization is widespread and involves many disciplines in chemistry, biology, materials sciences, optics, environmental and historical sciences. The evolution of mineralized products is well-documented in the fossil record because they are relatively well preserved. Hence, this field has a rich history. Organisms deposit a wide range of organic and inorganic compounds to fulfill disparate functions from defense to structural support, from camouflage to vision. Depending on the functions and the evolutionary pathways, the final phase of the deposited solids may be crystalline or stable amorphous. The basic processes in biomineralization involve the uptake, transport, and deposition of ions in a solid state or concentration of endogenously produced molecules.

In many cases, organisms form a disordered transient phase that subsequently crystallizes. Most of the utilized compounds are sparingly soluble in both extra- and intracellular environments, raising the question of how cells transport and concentrate vast amounts of the materials without compromising their metabolism. Steve and Lia focused on two main subjects. The first addressed ion pathways in biomineralization, with a perspective on the uptake, transport, and deposition of calcium, carbonate, and phosphate. The second was on the structure and function of organic crystals that produce structural colors, are critical components in visual systems, or may be involved in enhancing photosynthesis. They pointed out that biomineralization is an inherently interdisciplinary field that presents many fascinating research questions. This field is essential for understanding challenging questions relevant to diverse disciplines, some of which relate to the many threats our planet is now experiencing.

Keynote lectures

Gonen Ashkenasy of Ben-Gurion University lectured on “Emergence of function in primitive chemical systems out-of-equilibrium.”

Micha Fridman of Tel Aviv University spoke about “Guiding antifungal drugs to their target-harboring organelle: Stretching drug delivery to a higher level of resolution.”

Moshe Kol of Tel Aviv University lectured on “Poly(lactic acid): New catalysts, materials and processes.”

Yaron Paz of the Technion lectured on “Transient FTIR spectroscopy as a tool for studying photocatalytic materials.”

Shirly Avargil of the Technion lectured on “Assessing students in a chemistry-based escape room – why and how?”

Roman Dobrovetsky of Tel Aviv University, winner of the ICS Young Investigator Award, lectured on “P with a touch of B.”

Amnon Bar-Shir of the Weizmann Institute, winner of the ICS Young Investigator Award, lectured on “Molecular and cellular imaging with MRI: Probes design and applications.”

Francesco Ferella of INFN and University of L'Aquila, Italy, spoke about “Performing matrix extraction and characterization of copper cables for LEGEND experiment by high-resolution inductively coupled plasma mass spectrometry.”

Gershon Kurizki of the Weizmann Institute of Science spoke about “From open-system to closed-system quantum thermodynamics: Coherent heatronics.”

Emanuel Peled of Tel Aviv University, lectured on “High-energy lithium metal batteries.”

Ilan Marek of the Technion lectured on “Nucleophilic substitution at quaternary carbon stereocenters.”

Yossi Weizmann of the Ben-Gurion University lectured on “Diverse self-assembly structures from nucleic acids and nanoparticles for biological and plasmonic applications.”

Efrat Lifshitz of the Technion lectured on “Local and global magnetism in semiconductor nanostructures.”

Meital Rechtes of The Hebrew University spoke about “Biodegradable coatings that resist bacteria, viruses, and fungi.”

Assaf Friedler of The Hebrew University spoke about “Peptide inhibitors of protein–protein interactions.”

Gabriel Lemcoff of the Ben-Gurion University lectured on “A personal perspective on ring-opening metathesis polymerization.”

Michal Leskes of the Weizmann Institute spoke about “Elucidating the structure and function of the electrode-electrolyte interface by new solid state NMR approaches.”

Lihli Adler-Abramovich of Tel Aviv University lectured on “Designing new bioinspired 3D nanostructure for biological applications.”

The ICS Awards Ceremony

Following ICS tradition, all prizes were awarded at the special ceremony, which took place on September 12 after the open reception. All prize winners signed the traditional ICS poster, Figure 2.



Figure 2. The traditional ICS poster autographed by all 22 prize winners.

The 2021 ICS Prize for an Excellent Graduate Student was awarded to seven excellent students in alphabetical order by the ICS president and a representative of the relevant university:

Ran Attias of Bar-Ilan University carries out his PhD work under Prof. Doron Aurbach. He received his BSc in biotechnology engineering in 2015 from Ben-Gurion University and his MSc in chemistry in 2017 from Bar-Ilan University. His work focuses on interfacial phenomena related to charge-transfer processes on the electrode-electrolyte solution interface during the intercalation process of magnesium ions into metal-oxide and metal-sulfide cathodes. Ran published over 20 research papers, 10 of them as the primary author.

Subhash Garhwal of the Technion received his BSc (Hons) in chemistry (2015) from the University of Delhi and MSc in organic chemistry from the Indian Institute of Science Education and Research, Bhopal (2018) with Dr. Joyanta Choudhury. His PhD work at the Technion with Dr. Graham de Ruiter focuses on the design and synthesis of PCNHCP pincer complexes with first-row transition metals, such as iron and cobalt, to catalyze organic transformations, including hydrogen isotope exchange, alkene isomerization, alkyne hydrofunctionalization, and selective C-H activation of aryl ketones, esters, and amides.

Qais Jaber of Tel-Aviv University carries out his chemical biology research under Prof. Micha Fridman's supervision. He obtained his BSc (2016) and MSc (2018) in Chemistry from Tel-Aviv University with high distinction. His research focuses on developing new antifungal agents and novel molecular tools, such as live-cell fluorescent imaging as probes for deciphering the mode of action of fungal pathogens. He published his results in *Angewandte Chemie*, *ACS Chemical Biology*, *European Journal of Medicinal Chemistry*, *ACS Central Science*, *ChemBioChem*, and *Genetics*.

Efrat Shukrun-Farrell of the Hebrew University works under Prof. Shlomo Magdassi, focused on forming new photopolymerizable pre-ceramic compositions for 3D printing of hybrid and ceramic objects with high geometrical complexity and unique properties. She produced new materials for making organic-silica objects with high silica content at centimeters to micron scale, the first photochemical preparation of low-density ceramic aerogels, and the first 3D printing of ordered-mesoporous silica monoliths.

Ebaston Thankarajan of Ariel University has recently completed his PhD under Professors Gary Gellerman and Leonid Patsenker. He has developed a series of fluorescently monitored targeted drug delivery systems, and activatable

photosensitizers for photodynamic therapy of cancer and antimicrobial photodynamic therapy. The ISF supported this work. He continues this line and a new project funded by NOFAR, developing fluorescence-based tools for detecting and identifying pathogenic bacteria.

Iliia Tutunnikov of the Weizmann Institute received his BSc in Chemistry from Tel Aviv University in 2016 and then started his direct track PhD, supervised by Professors Ilya Averbukh and Yehiam Prior. His experimental work focuses on laser control of chiral molecules and echoes in single quantum systems. His theoretical work has led to the first experimental demonstration of the laser-controlled enantioselective orientation in a gaseous medium. He investigated the echo phenomenon in single vibrationally excited molecules and several other single quantum systems. The enantioselective orientation may pave the way to novel analytical and separation techniques. Iliia received the John F. Kennedy Award of the Weizmann Institute for his outstanding PhD research.

Jonathan Tzadikov of the Ben-Gurion University obtained all his degrees from Ben Gurion University, BSc (2016), MSc (2018 cum laude), and PhD under Prof. Menny Shalom. He inserts heteroatoms into carbon networks to fine-tune their electronic, optical, electrochemical, and chemical reactivities. His unprecedented, scalable approach involves molten-state intermediate, using molten precursors, polycyclic aromatic hydrocarbons with various heteroatoms, such as elemental sulfur or ammonia-borane complex. The new materials show promising performance towards electrochemical oxygen evolution reaction (OER), Na-ion, and Li-ion batteries.

The 2021 ICS-Uri Golik Prize for an Excellent Graduate Student was awarded to **Shahar Dery** of the Institute of Chemistry, the Hebrew University of Jerusalem, for elucidating structure-reactivity correlations at the single nanoparticle level, revealing reactivity patterns for oxidation and hydrogenation reactions. Shahar was born in Jerusalem in 1989. Upon completing his military service, he obtained his BSc (2014) and MSc (2016) from the Hebrew University under Prof. Norman Metanis, working on deselenization of selenocysteine. In 2016, he joined the lab of Prof. Elad Gross at the Hebrew University to study catalytic reactions on the nanoscale. His PhD research focuses on elucidating structure-reactivity correlations at the single nanoparticle level using IR nanospectroscopy. By combining specifically-designed model systems and high-spatial-resolution IR measurements, Shahar probed the surface of catalytic nanoparticles following oxidation and hydrogenation reactions. In doing so, invaluable chemical information was obtained, revealing two different reactivity patterns for oxidation and hydrogenation reactions. The fundamental insights gained from his studies may enable

the development of optimized heterogeneous catalysts for the chemical industry. His list of awards includes three Dean's awards for his bachelor's and master's studies and a faculty excellence scholarship for MSc students. Shahar received the Ministry of Energy Scholarship, the Rudin Scholarship, and the Azrieli Fellowship. He won the Prof. Rahamimoff Travel

Award for young scientists of the BSF to conduct collaborative research in the lab of Prof. F. Dean Toste at UC Berkeley. He also received the HUJI NANO 2020 award for excellent PhD research. Shahar has published 20 research papers in high-profile journals.



Figure 3. Photos from the Award Ceremony of the 86th ICS Meeting. First row from left: Excellent Graduate Students award to Ran Attias of Bar-Ilan University (with David Zitoun and EK), Subhash Garhwal of the Technion (with Noam Adir and EK), Qais Jaber of Tel-Aviv University (with Moshe Kol and EK), Efrat Shukrun-Farrell of the Hebrew University (with Mattan Hurevich and EK). Second row: Ebaston



Thankarajan of Ariel University (with Alex Szpilman and EK), Ilia Tutunnikov of the Weizmann Institute (with Reshef Tenne and EK), and Jonathan Tzadikov of the Ben-Gurion University (with Menny Shalom and EK). The Golik Prize to Shahar Dery of the Hebrew University (in his absence to Efrat Shukrun-Farrell with Uri Golik, Eran Golik, and EK). Third row: the Tenne Prize to Menny Shalom (with Reshef Tenne and EK), the Adama Prize for Technological Innovation to Raz Jelinek of Ben-Gurion University (in his absence to Michael Meijler, Itsik Bar-Nahum, Chief Chemist of R&D at Adama and EK), the Amir Shahar Prize for Excellence in Administrative Management to Sarah Amzallag of the Weizmann Institute (with Dani Shahar, Reshef Tenne and EK), the Dalia Cheshnovsky Prize for Excellence in Chemistry Teaching to Edna Friedman of the Horev Ulpana in Jerusalem and the Tehilla-Evelina de Rothschild Secondary School (with Dani Shahar, Ori Cheshnovsky, Dorit Taitelbaum and EK), Fourth row: the Dalia Cheshnovsky Prize for Excellence in Chemistry Teaching to Orit Weinstock from the Har-Tuv high school (with Dani Shahar, Ori Cheshnovsky, Dorit Taitelbaum and EK), the Itan Peled Prize for Excellent Chemistry Project to Tahel Amzaleg from Ort Kramim, Karmiel (with Dorit Taitelbaum, Nehama Peled, Michael Peled, chemistry teacher Mirit Kramer, and EK), the Itan Peled Prize to Avishag Samara from the Gymnasia Realit, Rishon Lezion (with Dorit Taitelbaum, Nehama Peled, Michael Peled, and EK), the Green Chemical Industry Prize to OR Recycling Park awarded to Nadav Ziv (with Alex Szpilman and EK). Fifth row: the Honorable Member of the ICS to Shimon Shatzmiller of Ariel University (with Alex Szpilman and EK), the ICS Gold Medal to Lia Addadi and Steve Weiner of the Weizmann Institute, the ICS Prize of Excellence to Leeor Kronik of the Weizmann Institute. Sixth row: the ICS Excellent Young Scientist Prize to Amnon Bar-Shir of the Weizmann Institute, the ICS Excellent Young Scientist Prize to Roman Dobrovetsky of Tel Aviv University. Seventh row: the best poster awards. Photographs by Allon Zaslansky.

The 2021 Tenne Family Prize in memory of Lea Tenne for Nanoscale Sciences was awarded to **Prof. Menny Shalom** of the Ben-Gurion University of the Negev for developing synthetic methodologies of carbon nitride-like materials and using them for photoelectrochemical cells and other energy-related applications. Menny was born in 1979 in Tel Aviv, Israel. He received his BSc in Chemistry in 2007 from Bar-Ilan University, followed by MSc and PhD under Arie Zaban at the same University, researching quantum-dot sensitized solar cells. As a Minerva fellow for his postdoc, he then joined Prof. Markus Antonietti at the Max Planck Institute of Colloids and Interfaces (MPI), Germany. In 2013–2016 he was a group leader in MPI and, since the end of 2016, he has become an Associate Professor at the Ben-Gurion University of the Negev. His group synthesizes new materials for energy conversion applications, mainly photo-electrochemical cells and electrocatalysts. Menny's group has published more than 50 papers in excellent journals. His list of awards includes the Wolf Foundation Award for an Excellent MSc student (2009), Wolf Foundation Award for Excellent PhD students (2012), ICS prize for an Outstanding PhD student (2012), Israel Vacuum Society Award (2018), Toronto Prize for Excellence

in Research (2018), ICS Excellent Young Scientist Prize (2020) and an ERC starting grant (2019).

Menny's research focuses on several fundamental and applied scientific topics ranging from new synthetic methodologies for 2D metal-free materials, sustainable solar-to-fuel conversion, and the development of new materials and concepts for clean fuel production, e.g., hydrogen, by using photoelectrochemical cells (PEC) and electrocatalysts. His group aims at understanding the structure-property relationships of novel materials. For instance, they rationally design synthetic processes, investigate reaction mechanisms. They study the properties of synthetic metal-free materials, which contain only carbon, nitrogen, phosphorus, sulfur, and boron (CN_Xs, X = P, S, or B). They employ these materials for photocatalytic and photo-electrochemical reactions. Alternatively, they use them for ceramics based on transition metals as electrocatalysts or co-catalysts in PECs.

Menny's research impacts renewable and sustainable energy production by studying the modes of action of photoactive materials and their behavior. Prof. Shalom's group has tackled the issue of manipulating the materials' final properties by the

rational selection of monomers, building blocks, solvents, reaction conditions, etc. His group has utilized polymeric carbon nitrides and their derivatives as photocatalysts and active material in photoanodes in photo-electrochemical cells. They have developed methods to manipulate the growth of carbon nitride layers on transparent conductive substrates by an intelligent design of the monomers, thus overcoming a crucial bottleneck in the area. They also overcame problems of insufficient light-harvesting, slow water oxidation kinetics, and instability of the photoactive layer. As a result, they achieved state-of-the-art carbon nitride-based PEC cells with efficient, long-term oxygen and hydrogen production.

The 2021 ICS-Adama Prize for Technological Innovation was awarded to **Prof. Raz Jelinek** of the Ben-Gurion University of the Negev for implementing conjugated chromatic polymers as color sensors, and for using carbon quantum dots and nanoscale gold assemblies for biological imaging, and electro-optic devices. Raz Jelinek was born in Beer Sheva, Israel (1964), obtained his BSc (summa cum laude, 1988) from the Hebrew University, and PhD (1988–1993) from the University of California, Berkeley, under Alexander Pines, working on “Double Rotation NMR Studies of Zeolites and Aluminophosphate Molecular Sieves.” After postdoc research (1993–1996) at the University of Pennsylvania, he joined the Department of Chemistry at Ben-Gurion University. From 2005 to 2007 he served as the Department Chairman, and currently, he is Vice-President and Dean for Research & Development of BGU. He is the incumbent of the Carole and Barry Kaye Chair in Applied Science, has published over 220 research papers (h-index 49), 15 patents, and 6 books.

Raz is a world leader in the field of conjugated chromatic polymers, such as polydiacetylenes, which his group has implemented as color sensors for water pollutants, volatile organic compounds, proteins, and other biological molecules, as well as mechanical sensing of soft polymers. He is also a leader in the rapidly expanding carbon quantum dots (C-dots) field. He has demonstrated their utilization as biological and chemical sensors, cell imaging agents, bacterial detection, and membrane interactions screening biomolecules. In addition, Raz has worked on self-assembled organized nanoscale gold assemblies, and patented technology was implemented for fabricating various electro-optic devices, including transparent electrodes, antennas, supercapacitors, and physiological pressure sensors. His recent technology allows identifying therapeutic molecules in probiotic fermented microbiota, exhibiting remarkable anti-inflammatory properties. The technology has been translated to a startup company, which has raised a \$3.5M investment from a prominent VC fund. Another technology employing C-dot-based capacitive e-nose for contactless bacterial detection

through their volatile metabolites constitutes the basis for another startup company in the process of fundraising.

Raz has been awarded numerous grants focused on his applied science work, including three Kamin projects on transparent electrode technology, porous Au/graphene oxide systems for supercapacitor applications and a new electronic nose technology. His Ministry of Energy grant focuses on energy storage in server farms. A Nofar project focuses on polydiacetylene-based water pollution sensing, a Magnet project on pharmaceutical screening, a BARD grant on polydiacetylene-based detection of bacteria in agricultural products, and a Horizon 2020 grant on gas sensing of hazardous materials in containers.

The 2021 ICS-Shahar Prize for the Excellent Administrative Assistant was awarded to **Ms. Sarah Amzallag**, personal assistant to the Dean of the Faculty of Chemistry, the Weizmann Institute of Science. She will receive the prize for her remarkable professional and creative management, work ethics, human relations, and outstanding organizational skills manifested by voluntarily expanding her contributions beyond the formally expected. The prize is in memory of the late Amir Shahar, contributed by Bioanalytics Ltd.

Sarah was born in 1973 in Zurich to a German mother and half Italian/Swiss father. She finished high school in Bern, Switzerland (1994) and started her academic studies in Sociology and History at the University of Zurich. In 1996, Sarah made aliya to Israel and obtained her BA in Sociology and Political Sciences from the Hebrew University of Jerusalem. She worked as an assistant to the deputy VP of the Department of International Relations in the Israel Museum in Jerusalem. She also translated various freelance texts from German to English/Hebrew and vice versa (1999–2022). Following a short period as a marketing secretary at AccuBeat Ltd., Sarah worked for the JDC Israel – The Joint (2003), first as assistant to the Delegations’ Unit in the Department of International Relations, later at the Archive of the organization for microfilms research, and finally as the personal assistant to the Head of Relations in India and Donors in Europe. From 2006-2010 Sarah and her family moved to Zurich for five years, where she served as the personal assistant to the Head of the Institute of Pathology, University Hospital Zurich. In 2011, the family (3 children) moved back to Israel, settled in Givat Brenner, and she started working at the Weizmann Institute, first as the secretary of the Department of Structural Biology, and since 2014 as the Administrative Assistant of the Dean of the Faculty of Chemistry.

The departmental head, previous and current Deans, all claim that she actually works as a director of the office, a personal

advisor, and a consultant rather than an administrative assistant. Sarah has revolutionized the work of the Dean's office, dealing with a significant number of topics. In addition to all her duties as an executive assistant to the Dean, she has constantly sought new tasks to take upon herself beyond the formal job description, such as building new websites, introducing an online ordering system for departmental equipment, and dealing with construction planning. As the coordinator of the Faculty Promotions Committee, she developed a computerized tool to follow the complex process of appointments and promotions and obtain valuable statistics. She is also guiding the construction process of the new building for the Faculty of Chemistry. In 2017, Sarah received the Faculty of Chemistry's outstanding employee award.

The 2021 ICS-Dalia Cheshnovsky Prize for excellence in teaching was awarded to two teachers. **Ms. Edna Friedman** from Horev Ulpana in Jerusalem and the Tehilla-Evelina de Rothschild Secondary School, received the prize for her many years of achievements as a high-school chemistry teacher, as an instructor of chemistry teachers in the Jerusalem district, and as a national leader, for implementing diverse and innovative teaching methods, and for educating many generations of students to love chemistry and good citizenship. **Ms. Orit Weinstock** of the Har-Tuv High School received the prize for her many years of achievements as a teacher and coordinator of the chemistry program, as a guide for the chemistry teachers in the southern district and at the national level, for developing innovative teaching methods, and for making chemistry one of the most popular programs at Har-Tuv School.

The 2021 ICS-Peled Prize for outstanding high-school projects was awarded to **Avishag Samara** from the Gymnasia Realit, Rishon Lezion, and **Tahel Amzaleg** from Ort Kramim, Karmiel. Avishag won the prize for her research on the effect of a point mutation on the thermodynamic properties of dihydrofolate reductase. Her supervisor was Dr. Ilia Korobko of the Weizmann Institute of Science. Tahel won the prize for her research on the use of polymers for the development of a mobile artificial kidney. Her supervisor was Prof. Moris Eisen of the Schulich Faculty of Chemistry at the Technion. The ICS-Peled Prize is awarded yearly in memory of Itan Peled who died in the 1995 Arad disaster.

The 2022 ICS Prize for the Green Chemical Industry was awarded to **Daniel Unger** (CEO) and **David Reiner** (Operation Officer) of OR Recycling Park for applying advanced technologies to convert organic wastes into valuable agricultural products, including composts, organo-mineral fertilizers, broiler beddings, and biochar growing substrates. OR Recycling Park, located in the Jordan Valley, is a working

model of circular production between five collaborating companies. The park demonstrates a circular economy with zero waste, with every byproduct of one plant becoming a resource for others.

Compost Or receives about half a million tons of organic materials, such as municipal biosolids and agricultural waste, annually. The company recycles organic wastes into a rich, reviving soil conditioner using composting technology that was optimized over the past 20 years. The composting technology produces valuable fertilizers for Israeli farmers and prevents environmentally harmful alternatives, such as incineration, which releases greenhouse gases, or landfills, which contaminate soil and groundwater. Compost Or's research team has collaborated with agricultural R&D over the years. It is the only compost manufacturer in Israel that tests the quality of its product by growing crops in an R&D greenhouse. Compost Or has set up a facility for contaminated soil bio-remediation within the OR Recycling Park. They receive truckloads of soil contaminated with organic pollutants, such as fuels and oils, and decontaminate such soils using biological remediation technologies. For example, the team has recently developed an innovative method to purify soils contaminated by explosive materials.

Fertilo allows farmers and gardeners a way to nourish soils with valuable nutrients while building a living and healthy soil. Their flagship product, Cuftior™, is a concentrated slow-release organo-mineral fertilization pellet. It allows precision fertilization close to the plant's roots. Fertilo's R&D team developed Cuftior™ pellets in cooperation with the Institute for Desert Research, Ben-Gurion University, Israel. Fertilo uses nutrient-rich biosolids mixed with shredded green wood waste, making Cuftior™ a preferred choice for cultivating fields and gardens.

Ecologz aims to provide a national-scale solution to the polluting agricultural fires that adversely affect the general population. They also help Israeli poultry farmers raise healthy broilers without antibiotics. The Ecologz team met both challenges with their SecuriPad™, a biosecurity bedding for poultry farming. The company uses local raw materials from agricultural plantations or forest trimmings. Thus, polluted piles of plant trimmings undergo cleaning and screening stages, followed by compressing and steam sterilization. The product, SecuriPad, offers excellent absorption and evaporation capability, preventing pathogen development and poultry infections.

Earth Biochar develops and manufactures charcoal-like materials using anaerobic pyrolysis. CompoChar™ is a soilless growing medium with excellent water-holding capacity and drainage balance, an internal nutrient reservoir that makes

it a ready-to-use growing medium. CompoChar™ is produced from local, renewable organic raw materials. The company is also developing a set of activated carbon for chemical adsorption.

The 2021 Honorable Member of the ICS was awarded to **Prof. Shimon Shatzmiller** of Ariel University for his extensive contributions to academic research in organic synthesis, national security through extended military service, and chemical industry research and development.

Shimon Shatzmiller (Shatzi) was born in 1942 in Nesher, Israel. From 1960–1964, he studied chemistry at the Technion as part of the academic military reserve program. Following graduation with honors, he served in the IDF (1964–1967). Immediately after being accepted to the MSc program at the Technion, he was called up back to the army for the Six-Day War, serving as an artillery officer on the Syrian front. After the war, he married Shoshana Meirovich, with whom he has three children, Ronit, Noa, and Yonatan. Following his MSc with Prof. Eli Loewenthal, he continued in the same group, researching gibberellic acid synthesis. In 1971, he joined the group of Prof. Albert Eschenmoser at ETH, Zurich, as a postdoctoral fellow. When the Yom Kippur War broke out in October 1973, Shimon returned to Israel to fight as an artillery officer on the Syrian front. In the same year, he accepted a lecturer position at Tel Aviv University. His group developed synthetic methodologies involving chloronitrones, and unique carbonyl intermediates, such as 2-acetyl cations and nitrogen derivatives of carbonyl compounds. They discovered amidation reactions with minimal racemization, which yielded antibiotic pentapeptides. Many of his students became independent scientists in the Israeli pharmaceutical industry.

Shimon was a visiting professor at the University of Heidelberg and the Max Planck Society, collaborating with Prof. Richard Neidlein on pharmaceutical chemistry, and at the Africans University, Johannesburg. From 1984–1990, on a sabbatical leave and multiple visits to DuPont's molecular biology lab in Wilmington, Delaware, he worked with Dr. Pat Confalone on drug synthesis, leading to new syntheses of the Losartan for the treatment of hypertension and Sustiva for the treatments of Aids. From 1990–1996, Shimon joined IMI-TAMI, the research campus of Israel Chemicals Ltd (ICL), as a Research Director and Head of the organic division, continuing his university position. He introduced new projects and products, such as fire retardants for plastics, collaborating with Bromine Compounds Ltd. He also established the Novotide division in collaboration with Teva Pharmaceuticals for developing therapeutic peptides. In 1995, after many years of service as an Artillery officer, he was discharged with the rank of reserve brigadier general (Tat-Aluf). In 1998, when the College of

Judea and Samaria in Ariel (now Ariel University) opened the Department of Chemical Sciences, Shimon was appointed as its first Chair. He took early retirement from Tel Aviv University for that mission, raised funds, obtained scientific equipment, and recruited faculty and graduate students. He established a collaboration program with scientists from Bar-University for joint guidance of graduate students at Ariel. Shimon served as the ICS President from 1993-1996. For Shatzi's profile in Issue 6 of the ICE magazine, see <https://www.chemistry.org.il/resources/ice/>.

The 2021 ICS Gold Medal was awarded to **Prof. Lia Addadi** and **Prof. Steve Weiner** of the Department of Chemical and Structural Biology at the Weizmann Institute of Science, for their joint research on biomineralization, for discovering phenomenal properties of mineralized biological materials, and inspiring scientists worldwide in material science, biomedicine, and climate engineering.

Lia Addadi was born in Padova, Italy (1950), and obtained an MSc in Chemistry from Padova University. She immigrated to Israel in 1973 and received her PhD from the Weizmann Institute (1979) under Prof. Meir Lahav, working on solid-state organic chemistry, stereochemistry, and chiral crystals. Following a postdoc at Harvard University with Prof. Jeremy R. Knowles, Lia joined the Weizmann Institute, studying biomineralization with Steve Weiner since 1983. In collaboration with Meir Lahav and Leslie Leiserowitz, she studied the relations between crystal structure, crystal morphology, and molecular chirality. She has demonstrated that antibodies can selectively recognize crystals and nowadays studies the formation of cholesterol crystals in atherosclerosis, the leading cause of heart attack and stroke. Lia served as the WIS Dean of Chemistry (2001–2004) and Dean of the Feinberg Graduate School (2008–2013). Her long list of awards includes the 1989 ICS Young Scientist prize, the 1996 NIDR prize, the 1998 Prelog medal in Stereochemistry, the 2006 Kolthoff prize, the 2007 Spiers Medal of the RSC, the 2009 ICS Prize of Excellence, the 2011 Gregori Aminoff Prize, and 2018 Honorary Doctorate from ETH. In 2017, she was elected Foreign Associate of the U.S. National Academy of Sciences, and in 2019 she became a Foreign Associate to the American Philosophical Society. She has published about 300 research papers with nearly 40,000 citations and h-index of 95.

Steve Weiner was born in Pretoria, South Africa (1948). He obtained his BSc in chemistry and geology from the University of Cape Town, MSc in oceanography from the Hebrew University (1972), and PhD from CalTech (1977) under Profs. Heinz Lowenstam and Lee Hood, working on mollusk shell formation. He joined the Weizmann Institute in 1977. His book, "On Biomineralization," coauthored with

Heinz Lowenstam (1989), represents an essential reference in the field. In addition to the joint research with Lia Addadi, he has investigated the hierarchical structure of bone. Since 1985, he has developed a new approach in archaeological science, studying archaeological records that are invisible to the naked eye. His book on this approach, "Microarchaeology," was published in 2010. His list of prizes includes the 1980 Samuel Jaroslavsky Prize, the 1984 Ernst D. Bergmann Prize for Chemistry, the 2010 ICS Prize of Excellence, the 2011 Aminoff Prize of the Royal Swedish Academy of Sciences, and the 2013 Pomerance Award for Scientific Contributions to Archaeology from the Archaeological Institute of America. He has published over 350 research papers with 65,000 citations and h-index of 123.

For almost 40 years, Lia and Steve have collaborated on biomineralization, and their work has a broad spectrum of implications. For example, the amount of biogenic minerals produced is so large that it affects the amounts of atmospheric CO₂ absorbed into the oceans. Mineralized biological materials inspire materials scientists, and the importance of this field for medicine is enormous. A significant challenge in this field was identifying common underlying mechanisms used by organisms in forming their minerals. Lia and Steve discovered that many mineralizing organisms do not precipitate their minerals directly out of a saturated solution but first produce a transient, unstable precursor phase. This mechanism has proved to be an overall paradigm-changing strategy. They have resolved other basic phenomena, such as the counterintuitive occlusion of macromolecules inside crystals. They also understood the pathways that ions take from their uptake, concentration in vesicles within cells, and then extrusion into the extracellular space. They have also pioneered how organisms manipulate light by using organic crystals to produce structural colors and vision. With 160 joint papers and several joint prizes, Weiner and Addadi are considered worldwide leaders of the biomineralization field. Many of their students and postdocs have continued research in major academic centers in Israel and abroad. Israel has become a world center of biomineralization with 14 active research groups in Israeli universities.

The 2021 ICS Prize of Excellence was awarded to **Prof. Leeor Kronik** of the Department of Molecular Chemistry and Materials Science, Weizmann Institute of Science, for his pioneering contributions to the development of density functional theory (DFT) and its application to a wide range of contemporary issues in chemistry and materials science. He was born in 1970 in Rehovot, Israel. He obtained his BSc in Electrical Engineering (1991) from Tel Aviv University and PhD in Physical Electronics (1996) under the supervision of Prof. Yoram Shapira. Following postdoctoral research at the University of Minnesota with Prof. James R. Chelikowsky

(1999–2002), he joined the Department of Materials and Interfaces at the Weizmann Institute. In 2012 he became a Full Professor, and since 2019, he has held the Aryeh and Mintzi Katzman Professorial Chair. For nine years (2012–2021), he served as the Department Chair and is presently the director of the Tom and Mary Beck Center for Advanced and Intelligent Materials.

Through the development of novel orbital-dependent density functional approaches, Prof. Kronik's research has extended the predictive reach of DFT into a various electron and optical spectroscopy scenarios previously believed to be outside its realm, including the quantitative prediction of fundamental and optical gaps, as well as charge transfer excitations, in both molecular and solid-state systems. He has also contributed significantly to the development of methods for large-scale DFT calculations based on real-space approaches. Using these and other tools, in recent years, Leeor has contributed significantly to our understanding of a broad range of topics, including the electronic structure of metal-organic complexes, dynamic disorder processes in halide perovskites, structure and properties of biogenic and bio-inspired molecular crystals, collective effects at molecular electronic and spintronic junctions, and more. With over 250 publications in high-profile journals, including *Science*, *Nature Comm.*, *Nature Materials*, *Adv. Mater.*, *J. Phys. Chem. Lett.*, *Nano Lett.*, *Angew. Chem.*, *Phys. Rev. B*, *J. Phys. Chem.*, *JACS*, and *PNAS*, Kronik was cited over 21,000 times with an h-index of 74.

Prof. Kronik was a member of the Young Israel Academy and is a Fellow of the American Physical Society. He has received the Krill Prize of the Wolf Foundation (2006), the ICS Prize for the Outstanding Young Scientist (2010), the Israel Vacuum Society Award (2018), and the Helen and Martin Kimmel award (2021).

The 2021 ICS Excellent Young Scientist Prize was awarded to **Dr. Amnon Bar-Shir** of the Department of Molecular Chemistry and Materials Science, the Weizmann Institute of Science for developing small molecules, nanocrystals, supramolecular assemblies, and proteins, as sensitive and selective sensors for MRI applications; and **Prof. Roman Dobrovetsky** of the School of Chemistry, Tel Aviv University for developing novel concepts in the chemistry of main-group elements, and preparing molecules containing boron, phosphorus, and zinc with unique structures and catalytic properties.

Amnon Bar-Shir was born in Kibbutz Ramat HaKovesh, Israel, in 1975, earned his BSc (2002) and MSc in chemistry from Tel Aviv University (2004, under Michael Gozin), both magna cum laude. His PhD (2009, under Yoram

Cohen) focused on advanced diffusion NMR and MRI to study the structure and function of the central nervous system. As a postdoc at the Johns Hopkins University School of Medicine under Assaf Gilad and Jeff Bulte, he developed genetically engineered reporters for MRI. In 2014 he joined the Weizmann Institute, where he created new kinds of biosensors with artificial “multicolor” features for MRI applications. His lab uses synthetic chemistry, nanofabrication, and protein engineering to generate novel molecular formulations, such as small molecules, nanocrystals, supramolecular assemblies and proteins, as MRI sensors of high sensitivity, specificity, and orthogonality. He has used these methods for in-vivo molecular and cellular MRI studies for mapping inflammation, multiplexed in-vivo MRI, imaging orthogonal reporter genes, and sensing metal ions. In addition, he used his techniques to study fundamental questions in supramolecular chemistry, including kinetic features of dynamically exchanging molecular systems and control over nanocrystals’ formation. Dr. Bar-Shir won multiple research grants, including the ERC, two individual ISF grants, BSF, Minerva, and the Israel Precision Medicine Program (IPMP) of the ISF. He was recognized by the 2009 ICS Prize for graduate students, the 2019 Krill Prize, the 2014 NIH Pathway to Independence Award, and the International Society for Magnetic Resonance in Medicine (ISMRM) 2014 Junior Fellowship.

Roman Dobrovetsky was born in Tashkent, Uzbekistan in 1979, and moved to Israel with his family in 1991. After his military service (1998–2002), he obtained his BSc in Chemistry (2005) from the Technion. His PhD research (2005–2011, under Yitzhak Apeloig) focused on developing alpha-functionalized silyl anions. As a postdoc at the University of Toronto under Doug Stephan, he studied frustrated Lewis pairs and Lewis-acid catalysis. In 2015, he joined the School of Chemistry at Tel Aviv University and, in 2020, became an Associate Professor. His fields of interest include main group compounds, focusing on boron, phosphorus, and zinc-based compounds and their chemistry with small molecules. His group developed a diverse research program, including transition metal-free catalysis, geometrically distorted main group centers, stable main group radicals, and the chemistry of boron-cluster-based substituents. His group demonstrated the first geometrically constrained phosphonium cation and its ambiphilic nature. They developed highly selective air-stable Zn-based hydroelementation catalysts. They showed that ortho-carborane substituents could stabilize radicals attached to their carbon atom and used this property to synthesize the first persistent 19-electron molybdenum metalloradical. Utilizing the ability of ortho-carboranes to withdraw electrons into their cage structure, thus forcing geometrical changes on the ligands’ structure, they developed the electrochemical tweezers concept. Roman was selected

for the Young Investigator Workshop 2018 in Oxford, which recognizes the most promising European organic chemists under the age of 40.

Closing ceremony

Prof. Charles Diesendruck greeted the audience: “Good afternoon, and many thanks to all the survivors for staying until the end of the meeting. As happy as I was in opening the conference yesterday, I’m even more delighted to close it today. It’s been a long process that took two and half years and, in my opinion, went quite smoothly and successfully. We had over 600 participants at the conference, with 115 lectures and over 240 posters presented. This has been a major accomplishment, remembering that the meeting was postponed three times and is not occurring at our typical time. I am very happy to pass the heavy hat to the organizers of the 87th ICS meeting, which will take place in early July next year in Jerusalem.

Before announcing the best poster awards, I’d like to thank the organizers and chairs again, from the Technion and outside the Technion, who helped us organize the conference. I thank the speakers and poster presenters for creating fascinating scientific discussions. I want to thank the Diesenhaus team for all their help, especially Tsipi Laxer, who worked directly with us these past months to restructure the conference and be in touch with the speakers. Finally, I want to thank the ICS President, Prof. Ehud Keinan, who wanted very much to be here, but, as you heard, is recovering from Covid. I appreciate his efforts to participate in the first day and prize ceremony. I wish him good health so that he continues representing the ICS in the highly demanding M2V relay race next year.

Finally, I am happy to reach the much-expected poster awards. We have four awards this year, not in order of preference, and I’ll call the awardees alphabetically. It is always hard to select four posters out of 240, but Saar and I were not part of the committee. I cannot name the committee members, but we thank them for their efforts.

See you next year in Jerusalem!”

Chairpersons Charles Diesendruck and Saar Rahav announced the four best Poster prizes, all sponsored by BioAnalytics Ltd., and awarded them to the winners:

“Targeting proteins “hot spots” using structured and disordered chimeric peptide inhibitors” was presented by Guy Mayer of the Hebrew University of Jerusalem, who carried out the work with Zohar Shpilt, Hadar Kowalski, Edit Y. Tshuva, and Assaf Friedler.

“A camouflage reflector in the eyes of decapod crustaceans larvae” was presented by Keshet Shavit of the Departments of Chemistry and Life Science at the Ben-Gurion University of the Negev, who carried out the work with Avital Wagner, Bracha Viviana Farstey, Alexander Upcher, Amir Sagi, Venkata Jayasurya Yallapragada, and Benjamin Alexander Palmer.

“Catalytic and photocatalytic formation of nucleobases and nucleotides from pre-biotic substances” was presented by

Shoval Gilboa of the Department of Chemical Engineering at the Technion, who carried out the work with Douaa Satel, and Yaron Paz.

“A Matter of Charge: Electrostatically tuned co-assembly of amphiphilic peptides” was presented by Elad Arad of the Departments of Chemistry and the Ilse Katz Institute for Nanoscale Science and Technology at Ben-Gurion University, who carried out the work with Topaz Levi, Ziv Azoulay, Raz Jelinek, and Hanna Rapaport.