NEWSLETTER
International Society of Chemical Ecology

Volume 40 | Issue 1 | 20 March 2024

— In This Issue —

— Important Dates ———

- **8 May 8 2024**
  Deadline for abstract submission to the 2021 ISCE meeting in Prague.
- **1 May 2024**
  Last day to submit ballots for the 2024 ISCE Officer Election
- **14-18 July 2024**
  ISCE Annual Meeting, Prague, Czechia

2024-2025 ISCE Elections

All members are invited to vote in the 2024-2025 ISCE Elections. This year, the membership will vote to select a vice-president and four councilors. The **vice-president** serves one year in this position and serves as president in the following year. **Councilors** serve a three-year term and act in an advisory capacity to the Executive Committee. For additional information, please consult the ISCE bylaws. Please log in to your ISCE account to vote at the society website.

2024 ISCE Meeting: Prague, Czechia

Invitation and Call for Abstracts

Dear friends of chemical ecology, we would like to invite you to **the 39th Annual Meeting of ISCE** which will take place in **Prague, Czechia, from 14 July to 18 July 2024**. It is the second time for Prague to host the ISCE meeting (1996 + 2024) and we would like to pay tribute to this legacy by adopting the motto for the ISCE2024 meeting: 'Chemical Ecology Returns to Prague'. The meeting will take place on the campus of the Czech University of Life Sciences in Praha-Suchdol.

The meeting symposia will cover a wide range of chemical ecology topics in diverse life forms spanning from microorganisms to humans, such as chemical communication and animal olfaction, insect-plant interactions, plant-plant interactions, organic synthesis of natural products, biochemistry, molecular genetics and genomics, ecometabolomics, and applied chemical ecology.

ISCE2024 offers nearly 60 hours of regular talks organized in three parallel symposia, 6 hours of plenary lectures, and two poster sessions. During the traditional Wednesday free afternoon, attendees will have the option to select from various excursions to Prague's city centre, historical castles around Prague, or the famous Pilsener brewery. After the meeting, a field trip to Czech forests affected by recent bark beetle outbreaks will be organized.

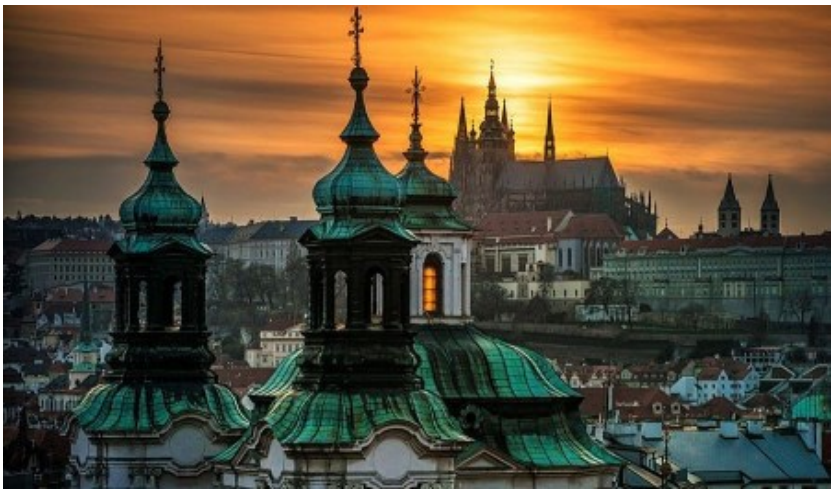
The registration for the 39th Annual Meeting of ISCE is now open, the deadline for abstract submission is **May 8, 2024**. The registration fees are listed on the website, with Early Bird registration closing on **April 30, 2024**. For the Student Travel Award the deadline for application is **April 15, 2024**. For updates, please follow the official meeting website: https://www.isce2024.cz/

We cordially invite you to Prague to enjoy lots of chemical ecology and our beautiful historical city.

We are looking forward to meeting you all in Prague,

Anna Jirošová, Robert Hanus & Pavlína Kyjaková

On behalf of the organizers



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The online ballot is available for all paid members. Please log in to your ISCE account to vote:

https://chemecol.org/login/

After reviewing the biographies below, please vote for your candidates: **ONE** (**1**) for Vice President and **FOUR** (**4**) candidates for Councilors. Please submit this information via the electronic ballot. **Voting will close at midnight (EDT) on May 1, 2024**.

Candidate for Vice President

Robert A. Raguso. I have pioneered the study of floral volatiles at all levels of analysis, from genetic and physiological control to plasticity in response to stress, behavioral relevance and contributions to reproductive success and community interaction networks, and phylogenetic distribution. My research has explored the chemical ecology of signal evolution and communication across the full spectrum of plant-pollinator interactions, from obligate mutualism to generalized pollination systems to floral mimicry and deception. These studies have provided clear examples of multi-modal communication, in which chemical signals modify (and are modified by) other sensory channels, and of context dependence, in which the information content and fitness consequences of chemical signals are modified by extrinsic factors from community interactions to abiotic conditions. My students, collaborators and I have published over 180 peer reviewed journal articles, invited reviews, book chapters and commentaries (Google Scholar: https://scholar.google.com/citations?user=RmDXdLEAAAAJ&hl=en&oi=ao).

Service to the ISCE and the field of Chemical Ecology

I have participated in the activities and governance of our society throughout my career by regularly attending, organizing, and presenting in symposia at ISCE meetings, and by serving as councilor (2012-15). I have supported the Journal of Chemical Ecology as an author (9 data papers, 4 commentaries), an editorial board member (since 2008) and a special associate editor for the "New Synthesis" feature (2011-14). With the help of my colleagues, I will co-organize and co-chair the 2026 annual meeting at Cornell, a key player in the establishment of chemical ecology as a field.

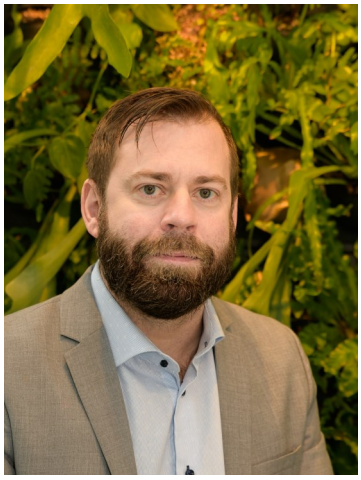
Beyond the ISCE, I have promoted chemical ecology worldwide as a guest instructor in short courses at Penn State (USA), Lund (Sweden), San Juan (Puerto Rico), Almeria (Spain) and Rio Clarillo (Chile). I have built capacity as a US Fulbright Fellow and National Geographic Explorer in South Africa (2003, 2006) and by designing and leading workshops at remote field stations (OTS – La Selva, Costa Rica 2010; Rocky Mt. Biological Laboratory, Colorado, USA 2018, 2022). Finally, I served on the Scientific Advisory Board for the Max-Planck-Institute for Chemical Ecology, Jena, Germany (2010-2014). In 1999, I founded and chaired a new Gordon Research Conference on Floral (later, Plant) Volatiles at Oxford, UK, and oversaw its continuation until 2018.

Statement of Intent

I am honored to have been nominated to serve the ISCE through the three-year cycle of executive leadership. I pledge to energetically uphold the quality and rigor of our field, as expressed through the research published in our journal and presented at our annual meetings. I will work with the executive committee to utilize the human and material resources of our society to expand the global reach, diversity and inclusivity of our field, building stronger ties to our colleagues in APACE and ALAEQ. Finally, I will tap into the collective wisdom of our membership to address the challenge of training the next generation of chemical ecologists to value and participate in our society.

Candidates for Councilors

(in alphabetic order)



Martin Andersson. Since 2023, Martin Andersson holds a permanent faculty position as Senior Lecturer at Lund University (LU) and leads his own research group. He is also one of the principal investigators and a board member of the Max Planck Center next Generation Insect Chemical Ecology.

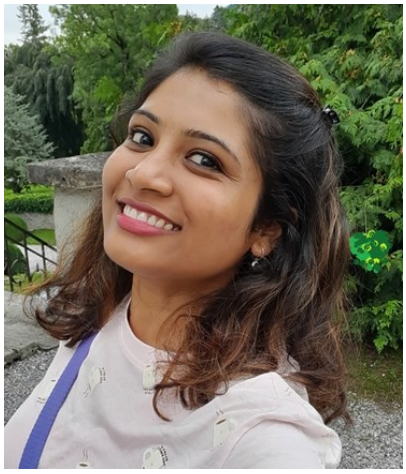
After obtaining his PhD from the Swedish University of Agricultural Sciences, Alnarp, Sweden in 2011 on the topic "Olfaction in the spruce bark beetle Ips typographus", Martin came to LU as a postdoc with his own funding from the Swedish Research Council. Since then, he has obtained several major grants from the national research councils as well as more targeted awards. Some of Martin's postdoctoral research was conducted abroad, including longer research visits to the Max Planck Institute for Chemical Ecology (Jena, Germany) and Plant and Food Research (Auckland, New Zealand). In 2018, Martin was awarded the ISCE Early Career Award.

During his early career, Martin performed a comprehensive characterization of the olfactory neurons on bark beetle antennae, and found links between neuronal responses and the behaviors triggered by the active odor molecules. He also studied the behavioral responses in the field to anti-attractant blends that can be used to divert attacks from trees. Beyond that, Martin has more recently taken a molecular approach to gain deeper insight into the olfactory sense of insects through molecular and functional studies of the odorant receptors responsible for odor recognition. His work has included studies of dipterans, lepidopterans and his current focus is on coleopterans. To this end, his state-of-the art projects have, for example, led to the functional characterization of 16 odorant receptors in beetles, which to date is more than half of all characterized odorant receptors from this insect order, and provided important insight into the functional evolution of this receptor family. Apart from continued work on the receptors, Martin's research also targets pertinent questions about the olfactory mechanisms that facilitates the maintenance of symbiosis between bark beetles and their fungal microbes, as well as the mechanisms that determine host specificity in these beetles. To date, Martin has published 56 scientific papers, including several in high impact journals.

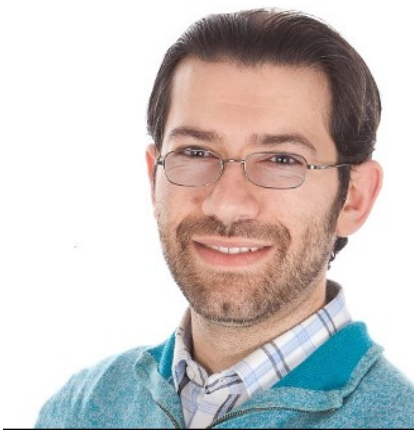
Martin's specific expertise in combination with his broad approach to chemical ecology and his organizational skills make him an excellent candidate for an ISCE councilorship and he is highly motivated to serve the Society in this capacity.

Carla Marques Arce is an experienced biologist and senior scientist affiliated with the Fundamental and Applied Research in Chemical Ecology group at the University of Neuchâtel, Switzerland. Her research focuses on herbivore-induced volatiles emitted by plants, exploring how these compounds modulate plant-insect interactions. Additionally, she investigates how insects that sequester secondary metabolites from host plants can benefit their offspring. Carla's journey into chemical ecology began during her master's studies at the University of Viçosa in Brazil, where she became captivated by this fascinating field. She pursued her Ph.D. in Brazil, delving into above and below-ground interactions between insects and phytonematodes mediated by plant defenses, particularly on Solanaceae plants. During her doctoral studies, Carla received funding from the Brazilian government to conduct research at the Max Planck Institute of Chemical Ecology in Germany. There, she employed molecular tools to unravel the intricate chemical defenses of Solanaceae plants against insect. Her research and teaching primarily focuses on agricultural plants and their associated pests, which has provided her with extensive insights for applied studies. Currently, Carla holds the position of senior scientist, spearheading a Horizon Europe project at the FARCE laboratory in Switzerland. This interdisciplinary project, a collaborative effort among various research groups, aims to develop real-time, on-site detection methods for pests using volatile compounds. In addition to her primary project, Carla investigates the Diabroticine beetles' sequestration, particularly regarding plant defenses in maize and Cucurbitaceae, and its implications for their protection. Carla has actively contributed to the advancement of chemical ecology in Brazil and in Europe. She served on the organizing committee of the Brazilian Congress of Chemical Ecology in 2009 and has been a member of the Latin American Society of Chemical Ecology since its inception in 2010. Carla became a member of the International Society of Chemical Ecology in 2015, receiving a highly competitive travel award for that year.

Monica Barman is a scientist at the Leibniz Institute of Vegetable and Ornamental Crops (IGZ), Grossbeeren, Germany. Her interest in chemical ecology developed during her doctoral research on floral scent biology, which fascinated her to delve deeper into exploring the ecological importance of floral scents and how they would be affected by environmental stress conditions. She received her PhD from the Indian Institute of Technology, Kharagpur, India, while working with Prof. Adinpunya Mitra, where she investigated the effects of varying environmental conditions on the biosynthetic pathways and studied temporal emission patterns of floral scent volatiles in multiple jasmine species. Immediately after completing her doctoral degree, she was awarded with the Lise-Meitner Fellowship in 2021 from the Austrian Science Fund to carry out her post-doctoral research with Prof. Stefan Dötterl at the Paris Lodron University of Salzburg, Austria, for two years. Herein, she investigated the impact of drought stress on plant-pollinator interactions mediated by floral volatiles in pumpkin plants and elucidated the biosynthetic pathway of pumpkin floral volatiles. In December 2023, she was appointed as a scientist at the Leibniz Institute of Vegetable and Ornamental Crops in the group of Prof. Nicole van Dam, with focus on plant-biotic interactions. Her research aims at evaluating the role of floral signals, including scent compounds, in plant-pollinator and other biotic interactions as well as examining the influence of climate change and other environmental stressors on floral signaling to unravel their effects on pollinator attraction in important crop plants.



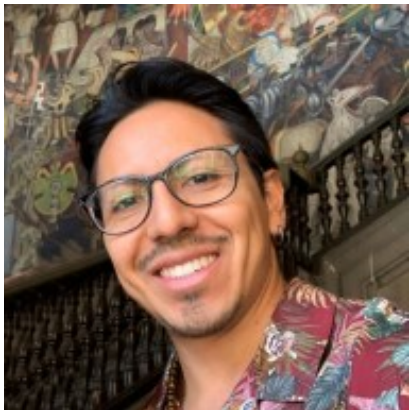
Antonino Cusumano is an associate professor in entomology at the Department of Agricultural, Food and Forest Science of the University of Palermo, Italy. Since the beginning of his academic career, he has been interested in chemical ecology, addressing ecological questions that can be applied in sustainable crop protection. During her PhD at the University of Palermo under the supervision of Prof. Stefano Colazza, Antonino investigated intraguild interactions between stink bug egg parasitoids, studying parallels and differences in the host location strategies adopted by competing parasitoid species. Part of his thesis was carried out in collaboration with Prof. Brad Vinson at Texas A&M University, USA. After his PhD, he held several post-doc positions including a Marie Curie Individual Fellowship carried out in the group of Prof. Marcel Dicke at Wageningen University, The Netherlands. There, his work addressed how parasitoid-associated viruses affect plant responses to herbivore attacks in a four-trophic level perspective. At the University of Palermo in Italy, his current research aims to investigate both basic and applied questions in ecology using stink bugs and their associated egg parasitoids as model study organisms. Antonino's research interest lies in plant-insect-microbe interactions, chemical ecology of parasitoids (and hyperparasitoids) and biological pest control. Recent research lines include how microbial volatiles produced by nectar-inhabiting microbes affect the olfactory responses of insect parasitoids and how beneficial soil microbes modulate chemically-mediated interactions among plants and insects of different trophic levels.



Dr Cusumano has a strong background in multitrophic interactions and I believe that his research can contribute to unraveling novel aspects of parasitoid chemical ecology. In particular, his recent research line addressing how ubiquitous nectar microbes affect parasitoid olfactory responses via the production of microbial volatile organic compounds is particularly exciting. Since his recent tenure, Dr. Cusumano has been actively involved in the chemical ecology network and will attend the next ISCE meeting in Prague and the forthcoming meetings. He has recently joined the COST action CA22102 - European Network in CHEmical Ecology: translating the language of life into sustainability (E-NICHE). He is currently co-organizing with Dr. Panos Milonas a symposium entitled "Chemical ecology and biological control" for the next XXIPPC conference to be held in Greece in July 2024 (https://www.ippcathens2024.gr/sessions/concurrent-sessions).

I thus believe that Dr. Cusumano is a strong candidate to be nominated for the next counselors of the International Society of Chemical Ecology.

Sergio Ramos is an evolutionary ecologist who uses methods from chemical ecology and evolutionary biology to understand the mechanisms and consequences of plant-insect interactions. He is passionate about biodiversity and enjoys making natural history observations in

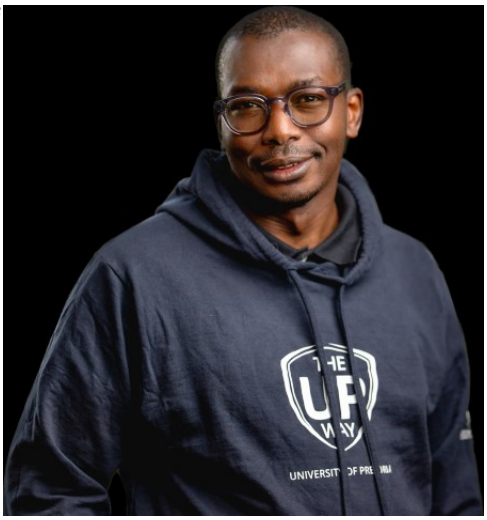


the field and conducting experiments under controlled and natural conditions. He completed his M.Sc. at the Ecology Institute of the Universidad Nacional Autonoma de Mexico (IE -UNAM), where he worked on plant-pollinator interactions. He later earned his Ph.D. in evolutionary biology from the Department of Systematic and Evolutionary Botany at the University of Zurich (UZH), under the mentorship of Prof. Florian Schiestl. During his Ph.D., Sergio investigated the evolution of morphological and chemical plant traits under interactions with insect pollinators and herbivores. He demonstrated that these contrasting interactions can lead to divergent evolutionary trajectories. Sergio was then awarded a 2-year fellowship at the University of Pittsburgh (USA) to work with Professors Tia-Lynn Ashman and Martin Turcotte on a more applied aspect of plant-insect interactions, investigating how sub-lethal levels of herbicides can affect plant ecology and chemical communication. Sergio is currently working as a postdoctoral researcher in the Spatial Genetics lab of Prof. Meredith Schuman at UZH in collaboration with the Environmental Robotics lab of Prof. Stefano Mintchev at the ETHZ. Their joint research aims to explore the feasibility of incorporating plant volatiles into remote sensing technologies as potential early warning signals for the presence of insect pests in maize for sustainable agriculture. Sergio is also active as a scientific illustrator, with his work appearing in several books and scientific papers. In addition to his scientific interests, Sergio enjoys all kinds of outdoor activities, as well as artistic activities such as photography, painting, and sculpture.

Diogo Vidal is currently an Adjunct Professor in the Department of Chemistry of the Universidade Federal de Minas Gerais, Brazil. Vidal had graduated in Chemistry (2009), holds a masters (2012) and a PhD degree (2016), besides having have post-Doc experience (2016/2017), both from Federal University of Parana, Brazil, where he worked in Prof. Paulo Zarbin Lab. During these years, he investigated mainly the chemical structure, synthesis, and biosynthesis of insect pheromones.

He experienced several international opportunities during his journey researching in Chemical Ecology. Throughout his undergraduate studies (2009), Vidal researched interaction between volatiles and pheromone/odorant binding proteins in Walter Leal group at UC Davis (USA), funded by a bilateral Brazil/USA program (CAPES/FIPSE). Part of his PhD thesis was developed at Technische Universität Braunschweig (Germany), funded by the Brazilian program "Science Without Borders" (2015), where he investigated the occurrence, synthesis and biosynthesis of long-chain alkyl cyanides produced by bacteria. More recently (2019/2020), he worked as a visiting scientist in Prof. Stefan Schulz´s group at the TU Braunschweig (CAPES/PrInt – visiting professor - scholarship holder), investigating cuticular lipids isolated form Collembola, among other bacterial volatile related projects. Nowadays, Vidal investigates the chemical structure and ecological roles of volatiles released by different organisms, such as fungi, plants, and insects.

Volunteering service for different scientific societies played a great role of his career over the past years as well. Since 2017, Vidal is the Faculty Advisor of the ACS Student Chapter UFMG. Nowadays, he serves as a Counselor of the ALAEQ (2016/2021), besides is the immediate past vice-secretary of the Minas Gerais Local Section of the Brazilian Chemical Society. Vidal is a member of ISCE since 2010, participating and presenting research in several meetings and chairing sessions, besides receiving the ISCE travel award in 2014 (Urbana-Champaign, USA).



Abdullahi Yusuf holds a BSc degree in Biological Sciences from the University of Abuja Nigeria, an MSc in Instrumental Analytical Sciences from Robert Gordon University Aberdeen, MSc in Biodiversity Wildlife and Ecosystem health from the University of Edinburg and a PhD Entomology from the University of Pretoria. He presently works in the Department of Zoology and Entomology at the University of Pretoria, South Africa. His research looks at behavior and chemical communication in insects, its evolution, and application in sustainable integrated pest and vector management. His work spans the disciplines of analytical chemistry, genetics and mathematics and includes techniques like chromatography, behavioural assays and mathematical modelling. His current research projects include studying the evolution of pheromones in African honey bees, chemical communication in the bee hive, molecular underpinnings of pheromone synthesis as well as genetic diversity in honey bees. His other interests include studies in cultural entomology especially in the area of edible insects, their sustainable use, mass production and alignment to Sus-

tainable Development Goals. He is a member of professional societies including the International Society for Chemical Ecology (ISCE), African Association of Insect Scientists (AAIS), International Union for the study of Social Insects (IUSSI), Chromatographic Society of South Africa (ChromSA) amongst others.

Don't forget: members may vote for four (4) councilors.

Deadline: May 1, 2024

Society News

In Memoriam of Ezra Dunkelblum

Ezra Dunkelblum was born in 1937 in the city of Krakow, Poland. He spent the second world war years with his parents wandering around the Soviet Union, mainly in Siberia. At the age of 12 he immigrated to Israel with his parents and lived in Tel-Aviv (Ramat Gan). After army service in the Armored Corps he started his studies in chemistry at the Hebrew University of Jerusalem. Ezra received his Ph.D. in organic chemistry from the Hebrew University in 1968. After completing a post doc. at Zurich University and working as a lecturer at Hebrew University (1970-75), and then as a Research Associate in Organic Chemistry at Michigan State University (1975-77), Ezra joined the Chemistry Unit of the Institute of Plant Protection at Volcani Center, Israel, as a Research Scientist in 1977. His goal was to study and introduce sex pheromones as a tool in pest management. Therefore, he initiated close cooperation with the Department of Entomology at Volcani Center in order to establish a pheromone research group.

Ezra's first large project as a pheromone chemist involved some major cotton moth pests. He worked closely with the late Dr. Moshe Kehat to apply cotton pest pheromones in the field until Dr. Kehat retired in 1999. Various formulations for mating disruption were tested and finally, with the help of Dr. Ogawa of Shin Etsu Company, pheromone ropes were introduced and applied successfully. These methods are still in use today. Sex pheromones of fruit pests for monitoring and control of the codling moth, the European vine moth and other fruit moth pests were incorporated into pest management based on Ezra's and Moshe's pioneering efforts. Another project involved investigating the sex pheromones of four species of Plusiinae moths. Ezra studied moth sexual behavior in a wind tunnel and in field tests. He also employed fatty acid precursors as a tool to identify minor pheromone components.

Ezra devoted much of his time to research on scale insect sex pheromones. From 1985 until 2014, he studied the pheromones of citrus mealybug *Planococcus citri,* vine mealybug *Planococcus ficus* and the pine bast scale *Matsucoccus josephi*. The main topics were identification and synthesis which were done in collaboration with chemists from Israel and Kenji Mori from Japan. The entomological aspects were studied with Prof. Zvi Mendel. Since 2000, Ezra worked closely with Dr. Anat Levi-Zada in the same laboratory on studies of insect pest pheromones and chemical ecology (species of moths, mealybugs, bark beetles, and scales).

Ezra spent two Sabbaticals in Canada with chemists in chemical ecology (1983-84 with Peter Silk, RPC; 1993-94 with Cam Oehlschalger, Simon Fraser Univ.).

Ezra received international competitive Grants, and many grants from Israeli sources such as the Cotton Board, Fruit Growers, KKL (Forestry) and Agricultural Chief Scientist programs. He also instructed M.Sc., Ph.D, Postdocs and visiting students. His public scientific activities involved being a member and head of the Plant Protection project evaluation committee (for national and international proposals), Member of the professional committee for evaluation of engineers and technicians, and Member of the professional committee for promotion of scientists of the Volcani center. Since his retirement in 2002, he continued working part-time on pheromone identification and synthesis, including chiral reactions until 2018. Ezra was married to Irit for 58 years and they had two sons, Jonatan and Dan, and a daughter Shlomit and four grandchildren, Naomi, Avigail, Amitay and David. Ezra was known among his friends as an exceptional scholar and an encyclopedia of knowledge, who never hesitated to share his experience and advice with others. Ezra managed to maintain friendships with many people in Israel and abroad. Ezra passed away on 30 Dec. 2023. May his soul rest in peace.

ISCE Award winners 2024-2025

The 2024 winners are **Bill Hansson** (ISCE Silver Medal) and **Caroline Müller** (Silverstein-Simeone Award). The winner of the 2024 Early Career Award is **Etya Amsalem**. The Applied Chemical Ecology Award winner is **Jürgen Gross**. The introduction of winners selected in 2024 will be published in the next issue.

Congratulations to all ISCE Award winners!

ISCE Student Travel Award &

ISCE Family Fund Travel Grant

For travel funds available from ISCE, please visit https://chemecol.org/awards/call-for-travel-awards/#FFTG

Trending in the Journal of Chemical Ecology

Most downloaded articles from Nov. 2023 — Feb. 2024:

Irving, M.R., Goolsby, E.W., Stanford, H. et al. **Temperature alters the toxicological impacts of plant terpenoids on the polyphagous model herbivore *Vanessa cardui*.** J Chem Ecol 49, 666–680 (2023).

https://doi.org/10.1007/s10886-023-01449-8

1198 downloads

Frühbrodt, T., Du, B., Delb, H. *et al.* **Know when you are too many: Density-dependent release of pheromones during host colonisation by the European spruce bark beetle, *Ips typographus* (L.).** *J Chem Ecol* **49**, 652–665 (2023).

https://doi.org/10.1007/s10886-023-01453-y

1175 downloads