



NEWSLETTER

International Society of Chemical Ecology

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<https://isce2019.biosci.gatech.edu/>

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ISCE 35th Annual Meeting

June 2-7, 2019 | Atlanta, Georgia, USA

Update on the 2019 ISCE Meeting (Atlanta, USA)

Dear ISCE Member Colleagues,

We look forward to welcoming ISCE members to the 35th annual meeting of the International Society of Chemical Ecology which will be held in Atlanta, Georgia, USA, organized by the Georgia Institute of Technology's School of Biological Sciences and Aquatic Chemical Ecology Center. The meeting will be held from June 2 to 6, 2019 with the theme "Chemistry as the Language of Life", emphasizing that most of Earth's organisms lack eyes and ears, and so sense and communicate with co-occurring organisms via chemical cues and signals. Along with plenary lectures from ISCE awardees and special guests, the conference will involve oral and poster presentations organized into 19 themed sessions. Mid-week, there will be an opportunity to visit local attractions including the Georgia Aquarium, Atlanta Botanical Gardens, Zoo Atlanta, Center for Human and Civil Rights, and the Martin Luther King Memorial and National Historic Site. The conference will conclude with a banquet on June 6th at Atlanta Botanical Gardens. The scientific program and schedule of presentations is available on the conference website, along with information about getting to and from the conference site on the Georgia Tech campus in midtown Atlanta. See you soon!

Sincerely,

Mark Hay and Julia Kubanek

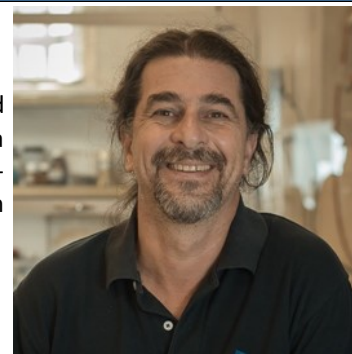
on behalf of the local scientific organizing committee.

Results of 2019-20 ISCE Officer Elections

Vice-President

Andrés González Ritzel is an Associate Professor at the Chemistry Department of Universidad de la República in Montevideo, Uruguay. He earned a Chemistry degree in Uruguay in 1993, and a PhD in Neurobiology & Behavior from Cornell University (1999), working on insect chemical defense with Prof. Thomas Eisner. He then went back to his home country to start a research group in Chemical Ecology, which he still runs together with his life partner, Carmen Rossini.

Andrés' research interests include several topics related to Chemical Ecology, from insect pheromones to plant-insect interactions. He has published over 50 papers in which he combines



Vice-President, continued

chemical analysis with functional and behavioral questions, merging basic and applied approaches in various study systems, mostly insect pests relevant to Latin America. His research work includes a strong component of student training, both at the undergraduate and graduate levels, promoting the interdisciplinary work of chemistry, agronomy and biology students. In this sense, he has taught Chemical Ecology courses, lectures and seminars in Uruguay, Argentina, Brazil, Colombia and Venezuela.

His long-term goal of promoting Chemical Ecology in his country and in Latin America led him to be co-founder of ALAEQ, the Latin American Association of Chemical Ecology, and to co-host ALAEQ's first meeting in Uruguay in 2010. He has been an active participant and symposia organizer in all ALAEQ meetings, and regularly attends the Brazilian Meetings of Chemical Ecology since 2003. He has served as Councilor and President of ALAEQ, and now as Treasurer, and promotes this Association as a strategic tool for the fruitful interactions of Latin American research groups in the field.

Andrés has participated in several ISCE meetings since 1994, when he attended as a first-year graduate student, receiving later on, in 1999, a Student Travel Award. He has served as Councilor for the society during the 2015-2018 term, and as a member of the Editorial Board of the Journal of Chemical Ecology since 2011. He is also Section Editor for Neotropical Entomology since 2016, managing manuscripts that deal with Chemical Ecology.



New Councilors

This year, the election results were exceptional. Due to the equal number of votes on the 4th and 5th position, the Executive Committee decided to accept both candidates and for the term of 3 years, the number of councilors will increase by one (16 instead of 15).

Andrea Clavijo McCormick

is a Senior Lecturer at the School of Agriculture and Environment at Massey University, in New Zealand, where she also leads the Chemical Ecology group. During her Master's studies, she developed a mating disruption programme for the Guatemalan Potato moth (*Tecia solanivora*) in a collaborative project between the Colombian Corporation for Agricultural Research (CORPOICA) and the Swedish University of Agricultural Sciences (SLU), under the supervision of Dr. Alba Marina Cotes and Prof. Peter Witzgall. In her Ph.D., Andrea investigated the direct and indirect defences of Poplar trees (*Populus nigra*) at the Max Planck Institute for Chemical Ecology in Germany, under the supervision of Prof. Jonathan Gershenzon and Dr. Sybille Unsicker, in collaboration with Dr. Tobias G. Köllner, Dr. Andreas Reinecke, and Prof. Bill S. Hanson.



She then obtained a Plant Fellows Scholarship for a postdoctoral position at the Swiss Federal Institute of Technology in Zurich (ETH Zurich), in the Biocommunication group led by Prof. Consuelo De Moraes, where she investigated the relationship between flightlessness and olfaction in the Gypsy moth (*Lymantria dispar*) in collaboration with Dr. Ewald Grosse-Wilde. She has authored several peer-reviewed publications in journals such as Trends in Plant Science, Frontiers, Plant, Cell & Environment, The Plant Cell, The Plant Journal, Journal of Chemical Ecology, and Ecology and Evolution. Her current research aims to explore the mechanisms underlying ecological interactions in New Zealand's endemic, native and endangered species, and to apply this knowledge to the development of sustainable agricultural methods and the conservation of vulnerable species and their habitats. Some flagship projects include: investigating communication between an invasive (*Calluna vulgaris*) and a native plant species (*Leptospermum scoparium*) in competition scenarios, understanding the role of microorganisms in plant-pollinator interactions in native Mānuka plants (*L. scoparium*), and exploring plant-insect interactions in New Zealand's native ferns.

Marcelo G. Lorenzo

is the leader of the Vector Behavior and Pathogen Interaction Group at IRR-FIOCRUZ, in Belo Horizonte, Brazil. He graduated in Biological Science at University of Buenos Aires and got his Ph.D. in Science at the same university under the supervision of Prof. Claudio Lazzari. Subsequently he developed postdoctoral experiences in UBA (Argentina), CPqRR-FIOCRUZ (Brazil) and SLU (Sweden). He became associate researcher at CPqRR in 2002 and senior researcher of the same institute in 2006. Marcelo's main scientific experience is on insect physiology, with an emphasis on behavioral physiology. His research includes studies on the behavior, pheromones, kairomones, electrophysiology and, more recently, the functional genomics of sensory processes of triatomines and culicids. He keeps a series of collaborations with colleagues from diverse countries through which his research is clearly multidisciplinary. He has been an active supervisor of undergraduate and graduate students through most of his career. Marcelo is a member of the editorial boards of PLOS ONE, Frontiers in Ecology and Evolution and Neotropical Entomology, while he also acts as a reviewer for many peer-reviewed journals. Finally, Marcelo has published more than 60 papers on diverse topics related to insect neuroethology in a variety of peer-reviewed journals including the Journal of Chemical Ecology.



Christelle AM Robert is a senior research associate and group leader at the University of Bern, Switzerland. After a MSc in Ecology, Ethology and Evolution at Rennes (France), which she passed with distinction, she embarked on a PhD with Prof. Ted

New Councilors, continued

Turlings at the University of Neuchâtel, Switzerland. Her award-winning thesis unraveled how volatile and non-volatile plant metabolites shape the behavior and damage of the western corn rootworm, the most damaging maize pest on the globe. She then obtained funding from the Swiss National Science Foundation to continue her research at the Max Planck Institute for Chemical Ecology in Jena, Germany. She combined her model system with biochemical approaches to investigate



how the western corn rootworm processes plant secondary metabolites for its own benefits. In 2014, she joined the group of Biotic Interactions of the University of Bern, Switzerland, as a project leader. She extended her work to higher trophic levels and demonstrated that the herbivore sequesters and reactivates the plant secondary metabolites upon attack by its enemies. Since 2018, Christelle is leading the “Chemical Ecology” group at the Institute of Plant Sciences at the University of Bern. Her research is interdisciplinary and combines plant genetics, molecular biology, behavior and ecology to advance the state-of-the art in multitrophic interactions and provide possible bases for the development of new strategies to solve imminent challenges, such as food production and climate change. Despite a one year career break for family reasons, she published over 40 manuscripts since 2012, including papers in *Science*, *Nature Communications*, *Ecology Letters* and *PLOS Biology*.

Christelle is committed to mentoring the next generation of scientists through interactive and original teaching methods. She supports the scientific community by serving as reviewer and as a member of the advisory board of the *New Phytologist*. She strongly believes that scientific curiosity combined with strong inference and empirical approaches will help to push the frontiers of knowledge in chemical ecology.

Magali Proffit is a young researcher at the National Centre for Scientific Research, France. She received her PhD in 2007 on the “Chemical mediation and community structure of hymenoptera parasite of fig and pollinating fig wasp mutualism”. She worked as a post-doc fellow at the University of KwaZulu-Natal, in South Africa, and then at the Swedish University of Agricultural Sciences, in Sweden. She is currently working at Centre for Functional and Evolutionary Ecology (CEFE), in Montpellier, France. She has published more than 20 research articles publications in some high-ranking journals,



such as Ecology letters, Proceedings of the royal society-B or Scientific Reports.

Her research activities are essentially oriented in the area of chemical ecology and build bridges between different disciplines (*i. e.* chemistry, behavioral ecology, evolutionary ecology and physiology) in order to understand the processes underlying plant-insect chemical communication. Recently, she has expanded her research interests to investigate the impact of environmental variation on plant-insect chemical communication, and as a consequence on the maintenance of biotic interactions. In addition to chemical ecology, she has strong theoretical and technical experience in pollination biology, phenotypic plasticity of insect olfaction and adaptation to environmental variation.

Fredrik Schlyter is a naturalist by genes and environment, trained in Animal Ecology/Zoology and Lund University, Sweden. He received his PhD in chemical ecology on *Ips typographus* aggregation pheromone system in 1984. His focus soon shifted from pheromone attractants to density-regulation cues with practical implications, verbenone, and release rate systems, but at first with weak results in practical terms. Not until he was up and running with non-host volatiles (NHV) effects got practically relevant. His review paper of 2004 established the rich phenomena of NHVs and supported the idea of Semiochemical Diversity Hypothesis as a functional aspect of biodiversity, particular in forest insects. The emerging effects of Global Warming prompted EU projects on bark beetles as well on pine processionary moths for applications and more importantly gave a lasting European network.



Moving to Swedish Agriculture Uni (SLU), Alnarp in 1995, a general interest in plant-insect relations involved him in studies on *Drosophila*, *Hylobius*, and moths, in particular *Spodoptera*. The modulation of insect behaviour at time scales of ethology, ecology, and evolution was the broad topic of the Linnaeus project ICE³ at SLU, 2006 -2016, where Fredrik was leader the last three years.

In 2015 the Czech Uni of Life Sciences (CULS) in Prague invited him to draft the scientific part of a project proposal of similar size as ICE3 for 6 years, EXTEMIT-K to mitigate effect of climate change on conifer forest. Since 2017 Fredrik is the scientific leader for the project working on levels of gene, tree, and landscape with a keen eye on bark beetle chemical ecology. Transcriptomic studies on beetle chemosensory proteins and in moth digestive diversity and OR deorphanisation, together with the recent successful genome sequencing of *Ips typographus* by Pac-Bio, points to the future.

Congratulations to all elected officers!

Most downloaded articles from Jan. — Apr. 2019:

- ◇ **The Male-Produced Aggregation-Sex Pheromone of the Cerambycid Beetle *Plagionotus detritus* ssp. *detritus*.**
January 2019. Mikael A. Molander, Jimmy Helgesson, Inis B. Winde, Jocelyn G. Millar, and Mattias C. Larsson. [\[link\]](#)
- ◇ **Gastropods and Insects Prefer Different *Solanum dulcamara* Chemotypes.**
February 2019. Onno W. Calf, Heidrun Huber, Janny L. Peters, Alexander Weinhold, Yvonne Poeschl, and Nicole M. van Dam. [\[link\]](#)
- ◇ **Changes in Toxin Quantities Following Experimental Manipulation of Toxin Reserves in *Bufo bufo* Tadpoles.**
March 2019. Zoltán Tóth, Anikó Kurali, Ágnes M. Móricz, and Attila Hettyey. [\[link\]](#)
- ◇ **Characterization of Male-Produced Aggregation Pheromone of the Bean Flower Thrips *Megalurothrips sjostedti*.**
April 2019. Saliou Niassy, Amanuel Tamiru, James G. C. Hamilton, William D. J. Kirk, Roland Mumm, Cassie Sims, Willem Jan de Kogel, Sunday Ekesi, Nguya K. Maniania, Krishnakumari Bandi, Fraser Mitchell, and Sevgan Subramanian. [\[link\]](#)

Call for symposia: 36th Annual Meeting of the ISCE Stellenbosch, South Africa 6-11 September 2020



Dear colleagues,

We hope that you will attend the 36th Annual Meeting of the International Society of Chemical Ecology, to be held at Stellenbosch University, Western Cape, South Africa from September 6-11, 2020. The Scientific Program is in the planning stage and if you have a proposal for a symposium topic and possible speakers, now is the time for you to contact the chairs of the Scientific Program Committee [Drs. Almuth Hammerbacher (almuth.hammerbacher@fabu.up.ac.za) and Ring Cardé (carde@ucr.edu)] with your suggestion. Symposia are typically scheduled for ½ day (3 hours) and are introduced by a lead speaker for 20-25 minutes. You can suggest the remaining speakers, but some contributions could be drawn from regular paper submissions. We anticipate selection of symposia and sessions to be completed in August and so we urge you to contact us by the end of June with your proposed topic and potential speakers. You also can speak with Almuth Hammerbacher and Jeremy Allison in Atlanta.

Best wishes,

Jeremy Allison (ISCE 2020 Organizing Committee)
On behalf of Drs. Ring Cardé and Almuth Hammerbacher (ISCE 2020 Scientific Committee)

Society News: In Memoriam of Professors Kenji Mori and Koji Nakanishi

Professor Kenji Mori, 21 March 1935 - 16 April 2019

by Wittko Francke, Hamburg, Germany



Professor Kenji Mori was the son of a pastor and grew up in Okayama, Japan. His father introduced him to nature and agriculture, and throughout his life Kenji was guided by his Christian faith, kindness and compassion.

Kenji Mori studied chemistry at the University of Tokyo where he obtained a Bachelor degree in Agricultural Chemistry (1957). The subject of his PhD thesis, carried out with Professor M. Matsui, was the total synthesis of gibberellins (1962), a group of complex plant-produced diterpenes. He held the position of Associate Professor at the Department of Agricultural Chemistry of the University of Tokyo until 1978, when he became Full Professor at the Department of Agricultural Chemistry. After his retirement (1995) he continued at the Department of Chemistry of the Science University of Tokyo (until 2001) and worked with several Japanese companies and institutes as a consultant, especially at RIKEN (2003-2019).

1981, Professor Kenji Mori receiving the Japan Academy Award in the presence of Emperor Hirohito.

The concept of asymmetry in bioorganic chemistry was a driving force in Kenji Mori's scientific work. Approaching this area from the perspective of preparative organic chemistry, studies on the synthesis of bioactive natural products remained the focus of his research activities. He was a pioneer on the significance of stereochemistry in biologically active natural products, and for more than 45 years he

was exceptionally productive in the field of asymmetric synthesis. His constant input and demand for nothing less than excellence was a decisive stimulus towards understanding the importance of stereochemistry in chemical signalling within and between organisms.

Large parts of Kenji Mori's work dealt with semiochemistry and chiral discrimination. He was the first to show the importance of enantiomeric composition in chiral volatile signals by synthesizing the pheromones of Khapra beetles (*Trogoderma* spp. 1973) and *Ips* bark beetles (1974). His enantioselective syntheses of many insect pheromones are unparalleled contributions to our basic knowledge of insect pheromone chemistry. As an untiring, enthusiastic, and efficient mediator between chemistry and biology, Kenji generously supported legions of biologists and chemists with large amounts of extremely pure test materials and reference samples, providing indispensable tools for progress in many other labs all over the world. Determination of the absolute configuration of a multitude of chiral natural products is based on his synthetic compounds, and chiral synergism and chiral inhibition could be investigated and quantified through his work. His book on "*Chemical Synthesis of Hormones, Pheromones and Other Bioregulators*" (Wiley 2010) has a strong autobiographic touch.

In many of his more than 1,200 frequently cited publications (research papers, monographs, and review articles) Kenji Mori was single author or the only chemist among biologists. With a proud smile Kenji used to say: "I did it with my own hands". Throughout his scientific life, his wife Keiko did most of the typing – thank you, Keiko. Making use of his experience, he was a highly esteemed board member of 15 international journals and a member of the Science Council of Japan (1988-1999). As an eminent scientist, Kenji was a sought after lecturer all over the world and received many prestigious awards, including: Agricultural Chemistry Award (1965, Agric. Chem. Soc. Japan), Japan Academy Award (1981, Japan Acad.), Agricultural Societies Prize (1992, Fed. Agric. Soc. Japan), ISCE Silver Medal (1996, Int. Soc. Chem. Ecol.), Fujiwara Prize (1997, Fujiwara Found. Sci.), Ernest Guenther Award (1999, Am. Soc. Chem.), František Šorm Memorial Medal (2003, Acad. Sci. Czech Rep.), Chirality Medal (2010, Soc. Chim. Italiana). Since 2015 Kenji was a member of the Japan Academy, and at the ISCE meeting in Kyoto (2017), the Society named him Honorary Life Member.

Promoting "his" scientific communities, Kenji Mori was untiring in the use his industrial connections in many fundraising campaigns, which were highly impactful especially during the early years of the ISCE. And to underline his relations to the ISCE, he took the responsibility as the Society's President in 1992/1993. Since Kenji always sought to encourage young scientists from East Asia to get into contact with colleagues from the West, he was among several founders of the Asia-Pacific Association of Chemical Ecologists (APACE) and the first President of the new Society (1997-1999) – and he was happy to see APACE quickly achieve remarkable success.

Professor Kenji Mori was an exemplary ambassador for interdisciplinary research through dedication, inspiration, disciplinary rigor, and human understanding. He was Japanese at heart and soul, who travelled extensively, but never left Japan for a post doc or sabbatical. He was most pleased when he proclaimed, "from my flat I can see Mount Fuji and my lab". Until his last hours, he was working on a manuscript.



2007, Kenji Mori toasting the success of ISCE and APACE at the APACE meeting in Tsukuba, Japan.

Koji Nakanishi dies at age 93

Natural products chemist isolated more than 200 biologically active compounds.

by Linda Wang

March 29, 2019

Koji Nakanishi, an emeritus professor of chemistry at Columbia University, died on March 28 in New York City. He was 93.

Nakanishi is known for developing new spectroscopic methods to analyze natural products. His group determined the structures of more than 200 biologically active compounds, many of which occur in minuscule quantities.

“With his characteristic enthusiasm and brilliance, Professor Nakanishi demystified the ‘magic’ of natural product chemistry and brought this field into the modern era,” says Phil S. Baran, a professor of chemistry at Scripps Research Institute. “Through a career that spanned six decades, he is responsible for several of the techniques we take for granted today, such as the use of the nuclear Overhauser effect for structural elucidation and the exciton chirality method for determining absolute stereochemistry.”

Nakanishi was also an early practitioner of chemical biology—for example, in elucidating the cause of macular degeneration and the mechanism of action for the ginkgolides. His group synthesized more than 100 analogs of retinoids. Through the binding of these analogs to the visual pigment rhodopsin and the eukaryotic pigment bacteriorhodopsin, he gained a clearer understanding of the mechanism of these pigments.

Nakanishi earned a bachelor of science in organic chemistry from Nagoya University in 1947.

He completed two years of postgraduate work at Harvard University and then returned to Nagoya University, where he received a PhD in organic chemistry in 1954.

“What has always struck me about the career of Koji Nakanishi is the breadth of his research, ranging from the development of circular dichroism spectroscopy to all aspects of natural products chemistry (isolation, biosynthesis, chemical synthesis, and mode-of-action studies),” says Sarah E. Reisman, a professor of chemistry at California Institute of Technology. “His contributions at the interface of chemistry and biology, involving mode-of-action studies of natural products, such as mitomycin, were on the leading edge of the field that has become chemical biology. But probably the thing that I associate most strongly with him is what has become known as the ‘Nakanishi hypothesis’ for the biosynthesis of the ladder polyether natural products, because it presented a simple and elegant explanation for some of the most complex natural products ever isolated.”

Beyond the lab, Nakanishi was also a magician. “When Koji visited universities to give lectures, he was always willing to provide magic shows, which were tremendously enhanced by his own almost childlike spirit and warm humor,” says Jeffrey I. Seeman of the University of Richmond, who edited Nakanishi’s autobiography, “[A Wandering Natural Products Chemist](#),” which the American Chemical Society published. “Even well into his 80s, he was a hard-working scientist who expected the best of his students and collaborators.”

Nakanishi received numerous prizes, including the [Order of Culture medal from the Emperor of Japan](#). In 1996, ACS and the Chemical Society of Japan established the Nakanishi Prize in honor of his lifetime of achievements. The annual award is given in odd years by ACS and in even years by the Chemical Society of Japan.

“His impact and legacy will live on forever amongst the legions of students he educated, the many chemists inspired by the structures he deciphered, and the ever-present research programs that continue to benefit from his path pointing scholarship and inventions,” Baran says.



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