

NEWSLETTER International Society of Chemical Ecology

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— In This Issue —

- Update on ISCE Meeting
- Message from the President
- Results of the 2023-24 Officer Elections
 - Vice President
 - Secretary
 - Councilors
- ISCE Award Winners
- Society news
 - MS data repository MACE-new edition
 - Announcement of CICE
 - In memoriam of Paul Weldon
- Trending in JCE

- Election Results -

Vice-President	Jeremy Allison
Secretary	Pavlína Kyjaková
Councilors	Simon C. "Niels" Groen Margarita Orlova Maryse Vanderplanck Radhika Venkatesan

Update on the 38th ISCE Annual Meeting

Dear colleagues,

There is only a month for the ISCE (2023) meeting in Bengaluru, India. There will be close to 200 participants, and also 25 students who have just attended a two-week summer school in Chemical Ecology (8-23 July 2023) which will be held at the Centre for Ecological Sciences, Indian Institute of Science (IISc), Bengaluru. IISc is also the venue for our conference. We look forward to exciting Award Lectures, Plenary Talks and Symposia. There is a good mix of speakers and poster presenters from across the globe. We look forward to an exciting conference. Please visit www.isce2023.org for the latest information.

Let's celebrate four decades of ISCE Message from the President

The year 2023 is a particularly nice year for our society. After the global pandemic made us postpone, go online or have a hybrid annual meeting, we finally will have a full in-presence annual meeting again! Renee Borges and her team worked very hard to present us with a wonderful program. The meeting will be attended by over 150 participants and take place 23-27 July 2023 in



Celebrating four decades of chemical ecology

Bangalore, India. Next to hearing many exciting talks on the latest in chemical ecology, I am particularly looking forward to meeting many of you in person!

Second, our society celebrates its 40th birthday this year! In September 1983, the ISCE was officially founded in the USA (more details can be found on our website). In the early days of the ISCE, the society was mainly run and joined by Northern- American and Western-European scientists. Having been a member since 1991 – at the occasion of attending the annual meeting in Dijon, France- I witnessed how the membership grew in numbers and, particularly, in all dimensions of diversity. Both ecological and so-ciological studies show that diversity enhances community resilience. This makes me very confident that ISCE will also see its 50th and even 100th anniversary.

Third, I want to dedicate a few words of thanks to some members that have been supporting the Executive Committee for many years. By the end of 2023, our webmaster, Rob Mitchell, will hand over his position to Cesar and Corinne Rodriguez-Saona (welcome aboard!). Thanks Rob, for all the excellent work you did! Every time I had a job advertisement to share, you were very quick putting it online. Thanks also for overlapping with your successors, while the new website is being built. Another person that has been a great support to many executive boards, our secretary Irena Valterová, will also hand over her duties at the upcoming business meeting. Many, many, many thanks, Irena! Without you, I would have been lost as a president. I am sure this is true for all my predecessors whom you supported with your expertise. Irena will be followed up by her colleague Pavlína Kyjaková, whom we warmly welcome on the EC.

Last but not least, at our annual meeting in Bangalore, I will officially hand over the hammer and president's tie & shawl to Ted Turlings. It has been a great pleasure to serve the ISCE as its president, and I am looking forward to serving another year as past-president on the EC.

Nicole van Dam, ISCE President



Renee Borges, Organizing Secretary

Results of 2023-24 ISCE Officer Elections

Vice-President

Jeremy Allison is a research scientist with the Canadian Forest Service, an adjunct Assistant Professor at the University of Toronto, and group leader of the satellite lab in Applied Chemical Ecology at the Forestry and Agricultural Biotechnology Institute, University of Pretoria. He has a Master of Pest Management degree from Simon Fraser University where he studied the chemical ecology of the Cerambycidae under the supervision of John H. Borden. His PhD is in entomology from the University of California-Riverside where he studied the behavioral and chemical ecology of pheromone communication in



moths under the supervision of Ring T. Carde.

His current research is focused on understanding the behaviors that chemical cues and signals mediate in forest insects. This information is used to develop and improve integrated pest management programs and to develop a more complete understanding of the chemical ecology of forest insects. To date he has published more than 70 peer-reviewed papers (12 in the Journal of Chemical Ecology), three book chapters and was senior editor of the books "Pheromone Communication in Moths: Evolution, Behavior and Application" and "Forest Entomology and Pathology – Volume 1: Entomology (in press with Springer)".

He has been active in service of the society and discipline of chemical ecology. He attended his first meeting in 2002 in Hamburg and has attended all but four meetings since, organized symposia at the 2006 and 2015 meetings and served as chair of the organizing committee for the 2021 meeting in South Africa. He served as Treasurer from 2011-18 and currently coordinates the International Union of Forest Research Organizations Working Party 7.03.16 "Behavioural and Chemical Ecology of Forest Insects".

Secretary

Pavlína Kyjaková is a research scientist at the Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences in Prague, in the group of Dr. R. Hanus, pursuing chemical ecology of termites. Pavlina graduated in analytical chemistry at Charles University in Prague, Czech Republic, where she applied chromatographic data to determine vapor pressures of pheromone-like compounds. She also spent 6 months in the lab of Prof. J. Meinwald, interpreting GC-FTIR data of pheromonal components under the supervision or Dr. A. Attygale. As a PhD student, using various sampling techniques for volatile organic compounds, she studied interaction of the European oak bark beetle (*Scolytus intricatus*) with its host tree and associated fungi, under the supervision of Dr. B. Koutek and Prof. I. Valterová. In the area of termite chemical ecology, she studied diversity of chemical defensive compounds in various neotropical species as well as pheromonal compounds including structural elucidation of termite queen pheromones base on interpretation of mass spectrometric and infrared data and enantioselective chromatographic separations.

Her current research interest further involves human chemocommunication, such as uniqueness of human scent signature, olfactory communication be-



tween child and mother, the role of odour in mate choice, and volatile chemistry of different emotional states or diseases; mainly applying comprehensive two-dimensional gas chromatography with mass spectrometry detection. This high-resolution technique offers sensitive detection and provides structured two -dimensional chromatograms of very complex samples, such as the human body odor profiles.

Pavlina teaches chemistry topics of chemical ecology and natural products at the Charles University and at Jan Evangelista Purkyně University in Ústí nad Labem. She is a member of the Czech Mass Spectrometry Society and the Lipidomic section of the Czech Society for Biochemistry and Molecular Biology. She became ISCE member in 1998.

New Councilors

Simon C. "Niels" Groen is an assistant professor at UC Riverside. Growing up in the Netherlands, Niels became fascinated with plant-animalmicrobe interactions while working as a "ziekzoeker" in tulip fields outside of school hours. A "ziekzoeker" looks for diseased plants and he searched in particular for the variegated white and red tulips you might recognize from golden-age Dutch still life paintings. He learned how these



tulips are infected with an aphid-transmitted virus and during his PhD with John Carr at the University of Cambridge he investigated the molecular mechanisms of how virus infections change plant interactions with aphids and pollinators through altering production of volatile and non-volatile compounds. Niels continued to study how plant chemicals may shape species interactions as postdoc with Noah Whiteman at the University of Arizona and UC Berkeley, focusing on how the monarch butterfly evolved resistance to milkweeds' cardenolide toxins. While this

work mostly revolved around a single, large-effect gene, typically Maryse Vanderplanck discovered many genes are involved in organisms' evolutionary responses. the field of chemical ecology during As a Gordon and Betty Moore Foundation fellow with Michael her Master's thesis in Belgium Purugganan at NYU, Niels observed genome-wide patterns of (UMONS, ULiège), where she comnatural selection on gene expression in rice populations that he pleted her PhD in 2013. She was grew under wet and dry field conditions with collaborators at awarded the Adolphe Wetrems IRRI in the Philippines. He found that selection acted on growth/ Prize of the Belgian Royal Academy defense trade-offs and that under field drought rice plants do of Science for her PhD research, not just respond to diminishing water availability, but also to which has led to new findings sugconcomitant changes in the soil microbiome. At UC Riverside, gesting that non-volatile chemical Niels is continuing to study rice and milkweeds, as well as plants compounds in pollen can shape bee from the mustard and nightshade families, looking at the com- -plant interactions. Since then, she plex evolutionary tug-of-war between these plants, their insect continued her research in UMONS herbivores, and parasitic nematodes. Combining laboratory and plant chemicals play by using approaches from chemical ecology, evolutionary biology, and systems biology.

Margarita Orlova is an assistant professor at the Department of Biology and Chemistry at the State University of New York Polytechnic Institute in Utica, NY, USA. She earned her PhD from Tel Aviv University in 2016 with the thesis "Physiological and social control over production and perception of fertility signals in the honeybee Apis mellifera" under the supervision of Prof. Abraham Hefetz. Following her PhD she was awarded a two-year fellowship by the Bi-



national Agricultural Research and Development Fund to con- Ecology, Jena, Germany. Her PhD duct postdoctoral research in the lab of Prof. Gro Amdam at work unraveled the role of light in Arizona State University where she studied physiological and jasmonate-mediated regulation of molecular mechanisms of fertility signal and queen pheromone extrafloral nectar secretion, an indiproduction in the honeybee. From 2019 to 2022 she worked as a postdoctoral research associate in the lab of Dr. Etya Amsalem studying queen-worker communication in the bumblebee Bombus impatiens. This work uncovered a number of hitherto uneusocial species and resulted in several publications in promi-Experimental Biology, Journal of Chemical Ecology and others. Institute in 2022 Dr. Orlova developed an independent research program pursuing comparative research on chemical communiunderlying signal honesty infertility signaling and queen worker diverse student body SUNY Polytechnic Institute and serves as a derrepresented backgrounds.



(Belgium), UniNE (Switzerland), ULiège (Belgium) and ULille field experiments, his lab is zooming in on the central role that (France), and added a new dimension by considering the impact of global changes on bee-plant interactions. Her discoveries were published in 50 peer-reviewed papers. In 2021, she successfully transitioned into a CNRS Associate Researcher position within the Biotic Interactions Team at the CEFE (Montpellier, France). She aims to determine the capacity of bees to cope with living in a changing world by understanding how pollen metabolites could contribute to their resilience and by demonstrating whether conditions for self-medication occur in wild bees to face global changes. She received the ISCE Early Career Award in 2022 for her post-doctoral research conducted on nutritional resilience in bumble bees.

> Radhika Venkatesan is an ecological chemist and obtained her PhD working with Prof. Wilhelm Boland at the Bioorganic Chemistry Department, Max Planck Institute for Chemical rect plant defence. She has also published other important findings in the field of chemical ecology from



her PhD such as jasmonate control of floral nectar and differenknown aspects of chemical communication in the primitively tial regulation of volatiles and herbivory in ancient ferns. Her postdoctoral work at the RIKEN Plant Productivity Systems nent journals in the field including Behavioral Ecology, Journal of Group in Japan uncovered novel cytokinin-mimics from a plant pathogen that helped understand a long-standing question in After being hired as an assistant professor by SUNY Polytechnic plant pathogenesis by *Rhodococcus fascians*. Since moving to India in 2015, her lab has reported immune responses of important pest insect, Spodoptera litura and for the first time, cation in social bee species with different social structure. Her showed that specific plant volatiles modulate insect innate iminterests encompass physiological and biochemical mechanisms munity. Her lab has also done practical field trials using wasps to control pest populations. Their project on plant cyclic peptides communication, effects of stressors on chemical signaling and has also been successful as these peptides were shown to procognitive processes involved in perception of chemical signals by tect against beta amyloid toxicity and oxidative stress. Radhika workers. Being passionate about diversity, equity and inclusion Venkatesan has been instrumental in establishing and popularizin science and higher education Dr. Orlova is leading a research ing chemical ecology as a research area in India by organizing team of undergraduate researchers recruited from among the workshops, seminars and teaching courses, especially a twoweek residential summer school in Chemical Ecology. She has dedicated mentor to several students from historically un- been awarded with the prestigious Ramanujan Fellowship and has also been the recipient of an Early Career Award and a POW-

for her contributions in 2022. Radhika is a member of the Local Organising Committee for the ISCE 2023 meeting in Bangalore. Her lab aims to investigate various interesting questions pertaining to insect oviposition preferences, tri-trophic interactions, plant defence responses and sustainable agriculture to understand chemically mediated organismal interactions.

Congratulations to all elected officers!

2023-2024 ISCE Award Winners

The ISCE Silver Medal was awarded to Jonathan Gershezon. The ISCE Silverstein-Simeone Award goes to Astrid Groot, the Applied Chemical Ecology Award to Miklos Toth.

These awardees will give lectures at the ISCE Annual Meeting in 2024, and their biosketches will be published in the next newsletter.

The Early Career Award to William Rob Mor-

rison

William Rob Morrison completed his PhD in 2014 under the supervision of Dr. Zsofia Szendrei working on the chemical ecology and various sustainable strategies to manage the asparagus miner, Ophiomyia simplex. He then worked for the USDA-ARS Ap-



palachian Fruit Research Station (Kearneysville, WV) and Rutgers University as a post-doctoral researcher under the supervision of Dr. Tracy Leskey on the development of attract-and-kill strategies to manage the invasive brown marmorated stink bug, Halyomorpha halys, in apple orchards, among other projects. Since 2016, Rob holds a Research Entomologist position at the The Council of the International Congresses of Entomology USDAARS Center for Grain and Animal Health Research, Stored Product Insect and Engineering Research Unit in Manhattan, KS. At his current position, Rob conducts research on the chemical ecology, behavioral ecology, and integrated pest management (IPM) of stored product pests, including the development of behaviorally-based management strategies, such as attract-andkill and push-pull, and other reduced-risk tactics.

Over his relatively young career, Rob has conducted cuttingedge research and produced significant accomplishments, espe-

ER grant from the Department of Science and Technology's Sci- cially towards the development and implementation of semioence and Engineering Board. She has also been heading the Max chemicals based strategies in IPM. Rob has 16 years of research Planck – India Partner group program in chemical ecology from experience with expertise in chemical ecology, behavior, agricul-2016-2022. Recently she has been awarded the Alexander von ture, and biological control, which he has been able to leverage Humboldt Fellowship for experienced researchers. She was to develop meaningful and sustainable solutions to problems elected as the Fellow of the Royal Entomological Society, London that interest stakeholders and industry. He has authored or coauthored 88 peer-reviewed articles. Further, he has successfully obtained \$11.1 million in extramural funding as PI or co-PI on 50 grants from funding agencies such as USDA NIFA, US Department of Energy, NSF, SARE, and ARS.

> In recognition of his accomplishments, Rob was chosen as the outstanding early career researcher by the Eastern Branch (2017) and North-Central Branch (2019) of the Entomological Society of America, as well as the International Organization for the Study of Biological Control (2017). He was also awarded the Anderson's Cereals and Oilseeds Early-in-Career Excellence Award (2020) and was recently elected as a full member into Sigma Xi, the Research Honor Society (2022).

> > **Congratulations to all award winners!**

Society News

MS data repository MACE

Dear colleagues,

We are happy to announce release 4 of our MS data repository MACE. The data can be found at: https://doi.org/10.24355/dbbs.084-202303170918-0

For an explanation of MACE see http://www.oc.tu-bs.de/schulz/html/MACE.html

Best personal regards Stefan Schulz

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Council of the International Congresses of Entomology (CICE)

Dear Entomologist and Friends of Entomology:

(CICE) is pleased to announce the recipients of the 2024 Certificates of Distinction (4) and Certificates of Merit (2). These six entomologists will be honored outstanding at the 27th International Congress in Kyoto (ICE2024Kyoto).

https://youtu.be/wAUIKvMNVGA

It would be much appreciated if the Presidents and Leaders of Entomological Societies disseminated this information widely with their members. We hope this video will help demystify the

nomination of the winners of the Certificates. Thank you all.

for Symposia. The standard format is a 2-hour symposium, with eight 15-min presentations (including discussion), but proposals for 4-hour symposia are also considered (access details here: https://ice2024.org/scientific-sections/).

We look forward to seeing you all in Kyoto next year.

Walter S. Leal, CICE Chair Angharad Gatehouse, CICE Secretary/Treasurer

In Memoriam of Paul Weldon

Paul J. Weldon died unexpectedly at age 70 in his Baltimore house from coronary heart disease at the end of December 2022, a sad way to end the year. He was preparing for the spring semester at Notre Dame of Maryland University, Baltimore, USA, working on various research projects and papers, and continuing his recent addiction to fossil hunting along the western shores of the Chesapeake Bay. As a pioneer in chemical ecology, his contributions were diverse, extensive, and often ground-breaking.

Paul was born May 27, 1952, in Mt. Vernon, New York, and was adopted eight months later by John and Corinne Weldon, a hospital administrator and school nurse, respectively. He grew up in White Plains, NY, and Danbury, CT, and had a Catholic education through high school. His path to science was clear by his undergraduate years at Western Connecticut State University (class of 1974), where he took 'collecting trips', which



mostly consisted of dragging one or more fellow students to various wilderness areas and spending time turning over stones looking for snakes and salamanders, which, if any were kept, had to be sneaked into the basement of his parents' house, where he lived.

His undergraduate degree was followed by a Master's with Daniel Hoffman at Bucknell University in 1977, based on a remarkable comparative analysis of the kick and thrust foot movements in 59 species of marine prosobranch gastropods. For his Ph.D. at the University of Tennessee, Knoxville, with Gordon M. Burghardt, he worked primarily on the chemical recognition abilities of ophiophagous snakes and their prey, but was also involved in many other projects with an ever-expanding network of student, faculty, and reptile enthusiast collaborators. Paul graduated in 1984, joining the faculty at Texas A&M University, but eventually became unhappy there because, at that time, there was little interest in zoology at the whole organism level. He moved, in 1992, to Washington, DC as a Smithsonian Associate (retaining that affiliation throughout his career), and in 1994 joined the faculty at Notre Dame of Maryland University, where he taught until his death. Almost everyone who knew Paul

nomination process. We made the process transparent, includ- found him to be a somewhat eccentric, inveterate scholar, baling acknowledging those who nominated and supported the anced by extraordinary generosity, loyalty, and quick wit. Although never married, on several occasions he took in and Lastly, we want to remind you of the ICE2024 Kyoto's Call housed people that he did not know well, but who for one reason or another needed temporary help, and greatly appreciated the support. His neighbors equally held him in high esteem. He frequently stopped by with a present, a CD, book, or mollusk shell, often enough to make one wonder how to reciprocate, and many who knew him possess mementos of his thoughtfulness. In recent years he gave cleaned and spray-lacquered fossil Miocene mollusks embedded in matrix that he had collected. He was a fan of electric blues guitar (and played quite well himself) and rockabilly; many of us remember accompanying Paul to concerts and shows and later discussing and dissecting them.

> He kept his research (through his association with the Smithsonian Conservation Biology Institute) separate from his faculty appointment, and managed an active career as both a researcher and a professor at a predominantly teaching college. He was serious and enthusiastic about instruction; students recognized this and reciprocated, he was held in high esteem among both students and other faculty at Notre Dame, where he was honored with the Mullen distinguished teaching award in 2007. Many of his efforts to expand his students' exposure to science, such as with lecture series similar to ones at major universities, and field trips, where he invited students to participate on his own research projects, and trips to various natural history museums, made the undergraduate biology experience at Notre Dame unique for a small college. Several former students related how inspiring his classes were, how well he could connect to students, and how he had a strong impact on their careers; high accolades indeed for a teacher. He also supported faculty in other departments, for example collecting surplus scientific glassware for a project by a Notre Dame Art Dept. faculty member.

> His research centered on chemically mediated interactions in animals, often with an evolutionary, adaptive, or ethological slant, and although he worked on species as diverse as mosquitos and monkeys, he had a strong bias towards reptiles. He took advantage of experts' untapped knowledge for several important papers. An example is 'A survey of birds odorous or unpalatable to humans: possible indications of chemical defense' (with J. H. Rappole, J. of Chemical Ecol. 1997, 23: 2609-2633), which was based on a survey of field and museum ornithologists. This paper was the genesis for the field of chemical defenses in birds. Indeed, his ability to mobilize an extensive network of collaborators is the likely reason he was able to answer such diverse research questions so successfully. He was a creative scientist and sometimes tackled questions posed by laymen, such as 'Does human scent bias the survival of bird nests?' (Ibis 2021, 164: 1-12), and the role of human body odor ('Are we chemically aposematic? Revisiting L. S. B. Leakey's hypothesis on human body odour', Biol. J. Linnean Society 2018, 125: 221-228). Much of his research involved identifying reptile gland secretions and understanding their functions, using creative experimental methods. The list of these papers is long, as is a list of coauthors/collaborators.

> His knowledge of the literature was encyclopedic and he authored or co-authored many review articles, synthesizing in

formation from papers that sometimes only peripherally or unintentionally had results relevant to the focus of the review article. He had articles in surprisingly diverse research areas involving many taxa; it was hard to keep track of all the different research avenues he simultaneously pursued. He was an inveterate letter (and later, email) writer and had strong opinions about both theoretical issues and personalities in ethology; he could be quite persuasive in his arguments, dredging up tidbits of obscure data that informed his position. Remarkably, in this age of emphasis on accruing funding, Paul managed to conduct his extensive research using only small grants and formal institutional collaborations (giving him access to specimens and laboratory space/materials), depending on collaborators for financing chemical analyses, some sample collecting, and occasional hosting on his travels to obtain samples or run experiments.

Paul will be missed by many. A video of a memorial service held in January, 2023 is available at

https://livendm-my.sharepoint.com/:f:/g/personal/ jkerr_ndm_edu/ EhZU37Z3WnNJrDafnSH8u0wBr03DXMDkPGk6hT8Slb0FOw? e=1Qxxef.

Here tributes and stories, both moving and humorous, are recounted by colleagues, students, current friends and many from his graduate school days at the University of Tennessee. A short portfolio of his life in pictures is also included.

Donations in Paul's memory can be made to: Corinne A. Weldon Award for Nursing, Notre Dame of Maryland University, Institutional Advancement, 4701 N Charles St, Baltimore MD 21210.

Matthew Kramer Gordon M. Burghardt

Trending

in the Journal of Chemical Ecology

Most downloaded articles from October 2022 — April 2023:

- Volatile-Mediated Induced and Passively Acquired Resistance in Sagebrush (Artemisia tridentata).
 Oct/Nov 2022. Patrick Grof-Tisza, Natasja Kruizenga, Arja I. Tervahauta & James D. Blande. [link]
- Links Between Feeding Preferences and Electroantennogram Response Profiles in Dung Beetles: The Importance of Dung Odor Bouquets. Oct/Nov 2022. Miguel A. Urrutia, Vieyle Cortez & José R. Verdú. [link]
- Water Deficit, Nitrogen Availability, and Their Combination Differently Affect Floral Scent Emission in Three Brassicaceae Species.

Nov/Dec 2022. Rebecca J. Höfer, Manfred Ayasse & Jonas Kuppler. [link]

 Characterisation of the Alarm Pheromone of *Bathycoelia* distincta (Pentatomidae).

Nov/Dec 2022. Elisa Pal, Jeremy Allison, Quentin Guignard, Brett P. Hurley, Bernard Slippers & Gerda Fourie. [link]

• The Alarm Pheromone and Alarm Response of the Clonal Raider Ant.

Jan/Feb 2023. Lindsey E. Lopes, Erik T. Frank, Zsolt Kárpáti, Thomas Schmitt & Daniel J. C. Kronauer. [link]

- Immune Stimulation via Wounding Alters Chemical Profiles of Adult Tribolium castaneum.
 Jan/Feb 2023. Lai Ka Lo, R. Reshma, Lisa Johanna Tewes, Barbara Milutinović, Caroline Müller & Joachim Kurtz. [link]
- Identification of a Female-Produced Sex Attractant Pheromone of the Winter Firefly, *Photinus corruscus* Linnaeus (Coleoptera: Lampyridae).

Mar/Apr 2023. Sarah E. Lower, Gregory M. Pask, Kyle Arriola, Sean Halloran, Hannah Holmes, Daphné C. Halley, Yiyu Zheng, Douglas B. Collins & Jocelyn G. Millar. [link]

 Identification of the NA+/K+-ATPase α-Isoforms in Six Species of Poison Dart Frogs and their Sensitivity to Cardiotonic Steroids.

Mar/Apr 2023. Katherine Medina-Ortiz, Felipe Navia, Claudia Mosquera-Gil, Adalberto Sánchez, Gonzalo Sterling, Leonardo Fierro & Santiago Castaño. [link]



International Society of Chemical Ecology

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