

ISCE 2019 Annual Meeting Schedule

@ indicates student presenter

Sunday, June 2nd, 2019 Georgia Tech – Ford Environmental Science & Tech Bldg. ROOM L1175 – 311 Ferst Dr. NW

3:00 pm to 6:00 pm | ISCE Executive Committee and Councilors Only Meeting

Sunday, June 2nd, 2019 Georgia Tech Hotel & Conference Center

5:00 pm | Registration | Salons IV-VI Foyer

6:00 pm | Welcome Reception | Salons IV-VI

Monday, June 3rd, 2019 Georgia Tech Hotel & Conference Center

8:00 am | Registration | Salons IV-VI Foyer

8:15 am | Welcome by the Conference Hosts | Salons III-IV

8:30 am to 9:30 am | Plenary Speaker | Monika Hilker | Salons III-IV
Free University of Berlin
ISCE Silverstein-Simeone Award Lecture

**Inconspicuous, but impactful: insect eggs and their
chemoecological interactions with enemies and plants**

9:30 am to 9:45 am | Coffee Break – All Sessions

The Chemical Ecology of Host and Mate Selection | Felipe Yon and Julia Bing 9:45am – 12:15pm | Salon III

9:45am – 10:15am | **Genetic divergence and phenotypic plasticity contribute to variation in cuticular hydrocarbons and male choice in the seaweed fly *Coelopa frigida***

Presenter: Henrik Pavia

Authors: Emma Berdan, Swantje Enge, Göran M. Nylund, Maren Wellenreuther, Gerrit A. Martens, and Henrik Pavia

10:15am – 10:30am | **Allelopathy in spatial competition among sponges and scleractinian corals**

Presenter and sole author: Andia Chaves Fonnegra

10:30am – 10:45am | **Uncoupling pre- and post-pollination in *Nicotiana attenuata* to evaluate the potential and actual outcrossing of different pollinators**

Presenter: @Julia Bing

Authors: Julia Bing, Danny Kessler and Ian T. Baldwin

10:45am – 11:00am canceled	Nerolidol-mediated rendezvous of <i>Cyclocephala paraguayensis</i> in bottle gourd flowers Presenter: Arodi Favaris Authors: Arodi Favaris, Amanda Túler, Weliton Silva, Sérgio Rodrigues, Walter Leal and José Maurício Bento
11:00am – 11:15am	Parasites affect sexual attraction in moths Presenter: @Ke Gao Authors: Ke Gao, David G. Heckel, Myron Zalucki and Astrid T. Groot
11:15am – 11:30am	Physiological basis of the aggregation pheromone production in <i>Ips typographus</i> Presenter: Anna Jirošová Authors: Anna Jirošová, Jaromír Hradecký, Jiří Synek, Jaromír Bláha, Fredrik Schlyter and Blanka Kalinová
11:30am – 11:45am	Gypsy moth pheromone-binding proteins: molecular interactions and kinetics relevant to enantiomer discrimination Presenter: Erika Plettner Authors: Erika Plettner, Maily Terrado and Govardhana R. Pinnelli
11:45am – 12:00pm	Pheromone signaling in pennate diatoms to preserve the food webs' base Presenter: @Franziska Speck Authors: Franziska Speck, Georg Pohnert, Wim Vyverman and Sien Audoor
12:00pm – 12:15pm	Distinct spatial and temporal dynamics of response by a bark beetle to different components of its aggregation pheromone Presenter and sole author: Brian Sullivan
12:15pm	Lunch Conference Dining Room

Natural Product Application in Insect Pest Control | Aijun Zhang and Jian Chen
9:45am – 11:30am | Salon IV

9:45am – 10:15am	Evaluation of attract-and-kill strategy for management of cocoa pod borer in Malaysia cocoa plantation Presenter: Aijun Zhang Authors: Aijun Zhang, Yan Feng and Wouter Vanhove
10:15am – 10:30am	Updates on the sex pheromone trapping system for the control of cacao pod borer, <i>Conopomorpha cramerella</i>, in the Philippines Presenter: Divina Amalin Authors: D.M. Amalin, B.J.M. Almarinez, M. Arcelo, M.A. Tavera, J.I. B. Janairo and A. Zhang
10:30am – 10:45am	Sublethal effects of Zingiberaceae essential oil on the life cycle of <i>Conopomorpha cramerella</i> (Lepidoptera: Gracillariidae) Presenter: Bakar Saripah Authors: Saripah B., A. Zhang, M.L. Siti Noor Hajjar and A. Alias.
10:45am – 11:00am	Identifying trail pheromone components of the little fire ant, <i>Wasmmania auropunctata</i> Presenter: Dong Cha Authors: Dong Cha, Dominick Skabeikis, Joanne Yew, Man-Yeon Choi, Robert Vander Meer

11:00am – 11:15am	Fire ant control in potting soil using a hexyl benzoate based formulation Presenter: Jian Chen Authors: Jian Chen, Yuzhe Du, and Michael J. Grodowitz
11:15am – 11:30am	Substituted benzoate compounds as fumigant control agents for the common bed bug (<i>Cimex lectularius</i> L.) Presenter: Nicholas Larson Authors: Nicholas Larson, Mark Feldlarufer and Aijun Zhang
11:45am	Lunch Conference Dining Room

Molecular Mechanisms in Terrestrial and Aquatic Chemical Ecology | Wei Xu and Scott Cummins
9:45am – 12:15pm | Conference A

9:45am – 10:15am	Chemosensory navigational strategies of aquatic slugs and snails Presenter and sole author: Russell Wyeth
10:15am – 10:30am	Pheromone receptors in <i>Heliothine</i> species: expression, function and evolution Presenter: Chenzhu Wang Authors: Chen-Zhu Wang and Ke Yang
10:30am – 10:45am	Mechanisms of chemical adaptation in terrestrial and aquatic insects Presenter and sole author: Fang (Rose) Zhu
10:45am – 11:00am	The molecular components of trail mucus in the common garden snail, <i>Cornu aspersum</i> Presenter and sole author: @Kaylene Ballard
11:00am – 11:15am	Waterproofing function of cuticular hydrocarbons from the imported fire ants Presenter and sole author: Li Chen
11:15am – 11:30am	Detoxification of pine terpenoids by mountain pine beetle cytochromes P450 Presenter: @Christine Chiu Authors: Christine Chiu, Christopher I. Keeling and Jörg Bohlmann
11:30am – 11:45am	Single-cell biology reveals the assembly of a rove beetle chemical defense system Presenter: Adrian Brückner Authors: Adrian Brückner and Joseph Parker
11:45am – 12:00pm	In search of pheromone receptors in Decapod crustaceans Presenter: @Mihika Kozma Authors: Mihika Kozma, Manfred Schmidt and Charles Derby
12:00pm – 12:15pm Moved to Tuesday at 12:15pm Salon IV	Hormone involvement in the biosynthesis of aggregation pheromone in <i>Tribolium castaneum</i> Presenter: Yujie Lu Authors: Yujie Lu, Chengguang Zhang, Zhengyan Wang and Shiyuan Miao

12:15 pm	Lunch	Conference Dining Room
Anthropogenic Impacts on Chemical Cues, Signals and Chemoreception Robbie Girling and Kathy Van Alstyne 1:30pm – 2:45pm Salon III		
1:30pm – 2:00pm	The effects of ozone pollution on volatile-mediated interactions Presenter and sole author: James Blande	
2:00pm – 2:15pm	Air pollutants reduce the strength and alter the composition of the floral odors that insects need to locate flowers Presenter and sole author: Jose D. Fuentes	
2:15pm – 2:30pm	Field assessments of the effects of elevated ozone and diesel exhaust emissions on insect pollination services Presenter: Robbie Girling Authors: James Ryalls, Neil Mullinger, Ben Langford, Eiko Nemitz, Christian Pfrang and Robbie Girling	
2:30pm – 2:45pm	Anthropogenic impacts on chemically-mediated foraging in marine wildlife: the problem of plastic Presenter and sole author: Gabrielle Nevitt	
2:45 pm	Coffee Break – All Sessions	
Natural Product Application in Insect Pest Control Aijun Zhang and Jian Chen 1:15pm – 2:45pm Salon IV		
1:15pm – 1:30pm	Evaluation of false codling moth <i>Thaumatotibia leucotreta</i> pheromone in Israel by sequential SPME/GCMS analysis and field trials Presenter: Anat Levi-Zada Authors: Daniela Fefer, Reut Madar, Sara Steiner, Roy Kaspi and Anat Levi-Zada	
1:30pm – 1:45pm	Re-evaluation of (Z)-9-tricosene as a house fly attractant Presenter: Dangsheng Liang Authors: Dangsheng Liang and Ana Story	
1:45pm – 2:00pm	Mating behavior and attractiveness of male cuticle extracts based on electroantennogram and behavioral assay in <i>Sirex noctilio</i> Fabricius Presenter and sole author: Pengfei Lu	
2:00pm – 2:15pm	Prospects for the use of methyl benzoate as an alternative fumigant to control post-harvest pests Presenter: William Morrison Authors: William R. Morrison III, Nicholas Larson, Dan Brabec and Aijun Zhang	

2:15pm – 2:30pm	<p>Potential of semiochemicals in the control of cacao mirid bug, <i>Helopeltis bakeri</i>, in the Philippines</p> <p>Presenter: @Mary Angelique Tavera</p> <p>Author: Mary Angelique Tavera, Leslie Ann Ormenita, Billy Joel Almarinez, Divina Amalin, Gerardo Janairo and Jose Isagani Janairo</p>
2:30pm – 2:45pm Canceled	<p>Screening behaviorally active compounds based on fluorescence quenching in combination with binding mechanism analyses of SspOBP7, an odorant binding protein from Sclerodermus sp.</p> <p>Presenter and sole author: Man-Qun Wang</p>
2:45 pm	Coffee Break – All Sessions

Molecular Mechanisms in Terrestrial and Aquatic Chemical Ecology | Wei Xu and Scott Cummins
1:45pm – 2:45pm | Conference A

1:45pm – 2:00pm	<p>Functional characterization of an enzyme in the biosynthesis of the aggregation pheromone trans-verbenol in the mountain pine beetle</p> <p>Presenter: Christopher Keeling</p> <p>Authors: Christopher I. Keeling, Véronique Lévesque-Tremblay, Roxanne Sergerie and Kathia Bernier</p>
2:00pm – 2:15pm	<p>Bacterial volatile ammonia regulates the consumption sequence of D-pinitol and D-glucose in a fungus associated with an invasive bark beetle</p> <p>Presenter and sole author: Min Lu</p>
2:15pm – 2:30pm	<p>Extracting IDs: chemotaxonomy in <i>Gonipterus</i> weevils</p> <p>Presenter: @Natalia Medeiros de Souza</p> <p>Authors: Natalia M. Souza, Michelle L. Schröder, R. Andrew Hayes, Jan E. Bello and Helen F. Nahrung</p>
2:30pm – 2:45pm	<p>By which molecular mechanisms do aquatic predators sense chemical defences in prey? Synthesis and application of chemical defense molecular probes</p> <p>Presenter: Samantha Mascuch</p> <p>Authors: Samantha Mascuch, Nazia Mojib, Bhuwan Chhetri, Barry Imhoff, Nael McCarty and Julia Kubanek</p>
2:45 pm	Coffee Break - All Sessions

Anthropogenic Impacts on Chemical Cues, Signals and Chemoreception
Robbie Girling and Kathy Van Alstyne
3:00pm – 4:00pm | Salon III

3:00pm – 3:15pm	<p>More acidic = more toxic? Effects of future ocean conditions on biotoxins, signalling cues and their functioning</p> <p>Presenter: Christina C. Roggatz</p> <p>Authors: Christina C. Roggatz, David M. Benoit and Jörg D. Hardege</p>
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- 3:15pm – 3:30pm** | **Ocean acidification amplifies a predator related cue**
 Presenter: @Paula Schirrmacher
 Authors: Paula Schirrmacher, Christina C. Roggatz, Jörg D. Hardege, and David M. Benoit
- 3:30pm – 3:45pm** | **Coral larvae maintain settlement preferences in the face of climate change**
 Presenter: Jennifer Sneed
 Authors: Jennifer Sneed, Justin Campbell, Audrey Looby and Valerie Paul
- 3:45pm – 4:00pm** | **Chemical defense of macrophytes under global change**
 Presenter: Mashasweta Saha
 Authors: Mahasweta Saha, Chi Guan, Janina Brakel, Stina Jakobsson Thor and Florian Weinberger

Natural Product Application in Insect Pest Control | Aijun Zhang and Jian Chen
3:00pm – 3:30pm | Salon IV

- 3:00pm – 3:15pm** | **Screening and development of plant origin attractants for the control of crop insect pests**
 Presenter: Fengming Yan
 Authors: Fengming Yan, Weizheng Li, Rune Bai, Jingjing Li, Lin Zhou, Gaoping Wang
- 3:15pm – 3:30pm** | **Discovery of natural product-based repellent compounds against blood-sucking insects**
 Presenter: Junwei Jerry Zhu
 Authors: Jerry (Junwei) Zhu
- 4:00 pm to 6:00 pm** | **Poster Presentations** **Salons I – II and V – VI**
All Posters Displayed - Presenters should be present for odd numbered posters

8:00 am	Registration	Salons IV-VI Foyer
8:30 am to 9:15 am	Plenary Speaker Sarah E. O'Connor John Innes Centre and Max Planck Institute for Chemical Ecology Chemistry and biology of plant metabolism	Salons III-IV
9:15 am to 10:00 am	Plenary Speaker Assaf Vardi Weizmann Institute of Science The metabolic cross-talk during host-pathogen arms race at sea	Salons III-IV
10:00 am to 10:15 am	Coffee Break – All Sessions	

Metabolomics in Chemical Ecology | Neha Garg and Remington Poulin

10:15am – 12:00pm | Salon III

10:15am – 10:45am	Data analysis strategies for untargeted metabolomics of natural products Presenter and sole author: Roger Linington	
10:45am – 11:00am	Isolation and identification of waterborne chemical cues for <i>Porites astreoides</i> coral larvae Presenter: Skylar Carlson Authors: Skylar Carlson, Jennifer Sneed, Sarath Gunasekera, Vinayak Agarwal, Danielle L. Dixson and Valerie J. Paul	
11:00am – 11:15am	Exploring plant chemical diversity with network annotation propagation Presenter and sole author: Ricardo da Silva	
11:15am – 11:30am	Identification of functional metabolites of captive sharks for health matrix construction Presenter: Erica Forsberg Authors: Erica M. Forsberg, Asha Goodman, Zachary Walters, Robert Edwards and Elizabeth Dinsdale	
11:30am – 11:45am	Novel analytical tools helpful to understand microbe-microbe and plant-microbe chemical interactions Presenter and sole author: Paolina Garbeva	
11:45am – 12:00pm	Leaf metabolomes respond stronger to soil than to foliar herbivory Presenter: @Martine Deborah Huberty Authors: Martine Huberty, Young Hae Choi, Robin Heinen and T. Martijn Bezemer	
12:00pm	Lunch	Conference Dining Room

Application and Manipulation of Plant Volatiles for Crop Protection

Ted Turlings

10:15am – 12:30pm | Salon IV

10:15am – 10:45am	Manipulation of natural enemies via plant volatiles to increase ecosystem function and services Presenter: Cesar Rodriguez-Saona Authors: Cesar Rodriguez-Saona, Jordano Salamanca and Pablo Urbaneja-Bernat
10:45am – 11:00am	Herbivore-induced maize volatiles in pest attraction and control Presenter: Anna Block Authors: Anna Block, John Beck, Hans Alborn and Robert Meagher
11:00am – 11:15am	Synthetic biology routes to novel aphid semiochemicals for crop protection Presenter: @Irene Castellan Authors: Irene Castellan, Owen Jones, David J Miller, John A Pickett, Rudolf K Allemann
11:15am – 11:30am	Dynamic differences in how a commercial and wild tomato species interface with their volatile environment Presenter: @Niall Conboy Authors: Niall J.A. Conboy, Thomas McDaniel, David George, Paul Donohoe, Angharad M.R. Gatehouse and Colin R. Tosh
11:30am – 11:45am	Communication among cotton plants Presenter: @Luca Grandi Author: Luca Grandi, Wenfeng Ye, Armelle Vallat, Gaétan Glauser, Luis Abdala-Roberts, Thierry Brevault, Betty Benrey and Ted C.J. Turlings
11:45am – 12:00pm	Volatile production by banana plants infected with <i>Fusarium oxysporum</i> f.sp. <i>Cubense</i> Presenter: R. Andrew Hayes Authors: R Andrew Hayes, Lindy Coates, Wayne O'Neill and Ken Pegg
12:00pm – 12:15pm	Bt rice plants may protect neighboring non-Bt rice plants against the striped stemborer <i>Chilo suppressalis</i> Presenter: Yunhe Li Authors: Yunhe Li, Yaoyu Jiao, Xiaoyun Hu, Jörg Romeis and Yufa Peng
12:15pm – 12:30pm previously was on Monday	Hormone involvement in the biosynthesis of aggregation pheromone in <i>Tribolium castaneum</i> Presenter: Yujie Lu Authors: Yujie Lu, Chengguang Zhang, Zhengyan Wang and Shiyuan Miao
12:30pm	Lunch Conference Dining Room

Insect-Microbe Chemical Communication | Sybille Unsicker

10:15am – 12:15pm | Conference A

10:15am - 10:45am	Soil microbes mediate enhanced pest resistance on organic farms Presenter: Clare Casteel Authors: Clare L. Casteel, Amélie C.M. Gaudin and Rachel L. Vannette
10:45am – 11:00am	Host secondary metabolites drive parasite specificity in fungus-growing ants Presenter: Aileen Berasategui Authors: Aileen Berasategui, Hassan Salem and Nicole Gerardo
11:00am – 11:15am	The influence of fungal volatiles on the attraction of the walnut twig beetle, <i>Pityophthorus juglandis</i>, to pheromone-baited traps in walnut plantations Presenter: @Matthew Ethington Authors: Matthew W. Ethington and Matthew D. Ginzl
11:15am – 11:30am	Insect associated virus mediates top-down effects on plant defenses Presenter: Gary Felton Authors: Gary W. Felton, Ching-Wen Tan, Michelle Peiffer, and Asher Jones
11:30am – 11:45am	Incorporating microbes into defense syndromes: a case of working on the margins Presenter: Charles Mason Authors: Charles Mason, Kelli Hoover, Gary Felton and Ken Raffa
11:45am – 12:00pm	Microbial mediation of folivory Presenter and sole author: Hassan Salem
12:00pm – 12:15pm	Hidden players: tree-insect interactions are influenced by plant pathogens Presenter: Sybille B. Unsicker Authors: Franziska Eberl, Maite Fernandez de Bobadilla, Almuth Hammerbacher, Jonathan Gershenzon and Sybille B. Unsicker
12:15pm	Lunch Conference Dining Room

Metabolomics in Chemical Ecology | Neha Garg and Remington Poulin

1:30pm – 4:00pm | Salon III

1:30pm – 1:45pm	Back to the molecule-from large scale phenomena to molecular level function, modern approaches to chemical-ecology research Presenter: Christopher Jeffrey Authors: Christopher S. Jeffrey, Lee Dyer, Lora Richards, Casey Philbin and Andrea Glassmire
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1:45pm – 2:00pm	<p>Using untargeted metabolomics to reveal the chemical vocabulary that mediates phytoplankton interactions in the ocean</p> <p>Presenter: Constanze Kuhlisch</p> <p>Authors: Constanze Kuhlisch, Guy Schleyer, Noa Barak-Gavish, Georg Pohnert and Assaf Vardi</p>
2:00pm – 2:15pm	<p>Imaging mass spectrometry: a way to visualize the localization of metabolites</p> <p>Presenter: Ryo Nakabayashi</p> <p>Authors: Ryo Nakabayashi and Kazuki Saito</p>
2:15pm – 2:30pm	<p>Elucidating the chemical dialogue of microbes</p> <p>Presenter and sole author: Vanessa Phelan</p>
2:30pm – 2:45pm	<p>Global chemical impacts of the microbiome include novel conjugated bile acids that stimulate FXR</p> <p>Presenter: Robert Quinn</p> <p>Authors: Robert A. Quinn, Alexei Melnik, Manuela Raffatellu, Curtis Huttenhower, Sarkis Mazmanian, Rob Knight and Pieter Dorrestein</p>
2:45pm – 3:00pm	<p>Coffee Break</p>
3:00pm – 3:15pm	<p>Chemical diversity: using metabolomics to study ecological processes across multiple scales</p> <p>Presenter: Diego Salazar Amoretti</p> <p>Authors: Diego Salazar Amoretti and Paul VA Five</p>
3:15pm – 3:30pm	<p>Tracing metabolites through the Earth's critical zone</p> <p>Presenter: Carlos Fernando Sanchez Arcos</p> <p>Authors: Carlos Sanchez-Arcos and Georg Pohnert</p>
3:30pm – 3:45pm	<p>Water availability in the soil and its effects on tropane alkaloid metabolism in <i>Datura stramonium</i></p> <p>Presenter: Fredd Vergara</p> <p>Authors: Fredd Vergara, Abigail Moreno-Pedraza and Jennifer Gabriel</p>
3:45pm – 4:00pm	<p>Seasonal and landscape variations in the honey bee diet investigated by MS and NMR based metabolomics</p> <p>Presenter: Nanna Hjort Vidkjær</p> <p>Authors: Nanna Hjort Vidkjær, Jane Ward, Per Kryger and Inge S. Fomsgaard</p>

Application and Manipulation of Plant Volatiles for Crop Protection

Ted Turlings

1:30pm – 2:30pm | Salon IV

1:30pm – 1:45pm	<p>Stomatal aperture determines the uptake and transport of green leaf alcohols in maize</p> <p>Presenter: @Arash Maleki</p> <p>Authors: Arash F. Maleki, Irmgard Seidl-Adams and James H. Tumlinson</p>
1:45pm – 2:00pm	<p>A low-input management system for the pest pod-borer <i>Maruca vitrata</i> on cowpea, <i>Vigna unguiculata</i></p> <p>Presenter: @Jonathan Osei-Owusu</p> <p>Authors: Jonathan Osei-Owusu, Jozsef Vuts, John Caulfield, Samuel Osafo Acquaaach and Michael Birkett</p>
2:00pm – 2:15pm	<p>Whiteflies can fool their host plants, but not their parasitoids</p> <p>Presenter: Ted Turlings</p> <p>Authors: Peng-Jun Zhang, Jia-Ning Wei, Chan Zhao, Ya-Fen Zhang, Chuan-You Li, Shu-Sheng Liu, Marcel Dicke, Xiao-Ping Yu, and Ted Turlings</p>
2:15pm – 2:30pm	<p>The lure of hidden death: Attractive volatile organic compounds to attract wireworms towards entomopathogenic nematodes.</p> <p>Presenter: @Diana la Forgia</p>

Integrated Approaches for Structure Determination in Chemical Ecology

Serge Lavoie, Anne Marie Sweeney-Jones and Bhuwan Chhetri

2:30pm – 4:45pm | Salon IV

2:30pm – 3:00pm	<p>Changing the way we think about defining molecular structure: routine application of quantum chemistry to NMR problems</p> <p>Presenter: R. Thomas Williamson</p> <p>Authors: Yizhou Liu, Alexei V. Buevich, Ryan Cohen, Xiao Wang, Gary E. Martin and Ikenna Ndukwe</p>
3:00pm – 3:15pm	<p>Microbial interaction-driven metabolomics in host-microbe systems</p> <p>Presenter and sole author: Marcy Balunas</p>
3:15pm – 3:30pm	<p>Simplify: an integrated metabolomics approach to identify additives and synergists from complex mixtures</p> <p>Presenter: @Lindsay Caesar</p> <p>Authors: Lindsay K. Caesar, Sabina Nogo, Cassandra N. Naphen and Nadja B. Cech</p>
3:30pm – 3:45pm Canceled	<p>Chiroptical spectroscopy aided by quantum chemical predictions for structural determination of naturally occurring ladderanoic acids</p> <p>Presenter: Jordan Johnson</p> <p>Authors: Jordan Johnson and Prasad Polavarapu</p>

3:45pm – 4:00pm	Examples of structural elucidation of flexible molecules Presenter: Serge Lavoie Authors: Serge Lavoie, André Pichette, Anne-Marie Sweeney-Jones, Julia Kubanek, Anna Mazaleyrat and Angélique Dupuch
4:00pm – 4:15pm	The crystalline sponge method as a tool for small molecule structural elucidation Presenter and sole author: Timothy Ramadhar
4:15pm – 4:30pm	Structural and functional studies of gypsy moth <i>Lymantria dispar</i> pheromone-binding proteins Presenter: @Maily Terrado Authors: Maily Terrado, Mark Okon, Lawrence McIntosh and Erika Plettner
4:30pm – 4:45pm Canceled	Mapping of microbes and metabolites discovers networks of metabolic interactions and novel symbiotic factors in deep-sea mussels Presenter: Manuel Liebeke Authors: Benedikt Geier, Dolma Michellod, Nicole Dubilier and Manuel Liebeke

Microbe-Driven Chemical Communication across Ecosystems and Hosts

Dana Ulanova, Ruth Schmidt and Vartika Mathur

1:30pm – 3:45pm | Conference A

1:30pm – 1:45pm	Microbial chemical interactions in terrestrial and aquatic ecosystems Presenter: Ruth Schmidt Authors: Ruth Schmidt and Dana Ulanova
1:45pm – 2:00pm	Communication is the root of the matter; <i>Bacillus subtilis</i> in the rhizosphere Presenter: Noam Eckshtain-Levi Authors: Noam Eckshtain-Levi and Elizabeth A. Shank
2:00pm – 2:15pm Canceled	Chemical ecology in the age of microbiome science and big data Presenter and sole author: Nastassia Patin
2:15pm – 2:30pm	Variation in the plant-microbe association and plant metabolites in an urban ecosystem Presenter: Vartika Mathur Authors: Vartika Mathur, Garima Sharma and Rahul Tomar
2:30pm – 2:45pm	Microbial players in the upside-down jellyfish (<i>Cassiopea xamachana</i>) life cycle Presenter: Monica Medina Authors: Aki Ohdera, Allison Kerwin, Viridiana Avila and Mónica Medina
2:45pm – 3:00pm	Coffee Break
3:00pm – 3:15pm	Combined-culture: co-culture with MACB induced potential secondary metabolism in actinomycetes Presenter and sole author: Hiroyasu Onaka

3:15pm – 3:30pm	<p>Spatial metabolomics of in situ, host-microbe interactions – combining untargeted metabolite imaging and fluorescence labeling</p> <p>Presenter: @Benedikt Geier</p> <p>Authors: Benedikt Geier, E. Maggie Sogin, Dolma Michellod, Moritz Janda, Mario Kompauer, Bernhard Spengler, Nicole Dubilier and Manuel Liebeke</p>
3:30pm – 3:45pm	<p>Nectar microbial mixtures differ from single species in volatile profiles and attraction to pollinators</p> <p>Presenter: Caitlin Rering</p> <p>Authors: Caitlin Rering, Rachel Vannette, Robert Schaeffer and John Beck</p>
4:00 pm to 6:00 pm	<p>Poster Presentations Salons I – II and V – VI</p> <p>All Posters Displayed - Presenters should be present for even numbered posters</p>

8:00 am	Registration	Salons IV-VI Foyer
8:30 am to 9:30 am	Plenary Speaker Danielle Dixson University of Delaware ISCE Early Career Award Lecture Do chemical cues hold the key to coral reef recovery?	Salons III-IV
9:30 am to 9:45 am	Coffee Break – All Sessions	

Chemical Indices of Quality and Health Guiding Foraging, Host- and Mate-Choice
Robert A. Raguso and Geoffrey T. Broadhead
 9:45am – 12:15pm | Salon III

9:45am – 10:00am	Unfakeable chemical cues in a mendacious world: introduction to the symposium Presenter and sole author: Robert Raguso
10:00am – 10:15am	Honest fruit: scent signals nutrient content across species Presenter: Omer Nevo Authors: Omer Nevo, Diary Razafimandimby, Kim Valenta, Colin A. Chapman, Jörg U. Ganzhorn and Manfred Ayasse
10:15am – 10:30am	Nitrogenous floral volatiles as indices of nectar amino acid content Presenter: @Geoffrey Broadhead Authors: Geoffrey Broadhead and Robert Raguso
10:30am – 10:45am	In sickness and in health: chemical indices of stable and transient condition in lemurs Presenter: Christine Drea Authors: Christine M. Drea, Rachel L. Harris, Kathleen E. Grogan and Marylène Boulet
10:45am – 11:00am	Condition dependent volatile cues and host choice by entomopathogenic nematodes Presenter and sole author: Adler Dillman
11:00am – 11:15am	Evolutionary origins of social insect queen pheromones: effects of condition-dependent indices of fecundity on the totipotent worker caste of a socially flexible bee Presenter: @Callum Kingwell Authors: Callum Kingwell, Jocelyn Millar, Yasuharu Yoshimi and William Wcislo
11:15am – 11:30am	Coffee Break

11:30am – 11:45am	<p>Methyl-alkanes repulsive and/or short CHCs attractive? how the CHC profiles of male and female <i>Odynerus spinipes</i> (Insecta: Hymenoptera: Vespidae) change with age and which genes are causing these changes?</p> <p>Presenter: @Victoria Moris</p> <p>Authors: Victoria Moris, Aline Wirtgen, Thomas Schmitt and Oliver Niehuis</p>
11:45am -12:15pm	<p>Virus manipulation of hosts and vectors depends on pathogen traits and host context</p> <p>Presenter: Kerry Mauck</p> <p>Authors: Kerry Mauck, Quentin Chesnais, Tessa Shates, Jaimie Kenney and Penglin Sun</p>

Language of Cooperation and Conflict: Chemical Communication in Social Insects

Margarita Orlova and Etya Amsalem

9:45am – 12:30pm | Salon IV

9:45am – 10:00am	<p>Chemical ecology and sociality in aphids: opportunities and directions</p> <p>Presenter and sole author: Patrick Abbot</p>
10:00am – 10:15am	<p>Do bumblebees (<i>Bombus impatiens</i>) produce brood pheromone?</p> <p>Presenter: Etya Amsalem</p> <p>Authors: Jesse Starkey, Ahja Brown and Etya Amsalem</p>
10:15am – 10:30am	<p>Evolution of queen pheromones in primitively eusocial sweat bees</p> <p>Presenter: Manfred Ayasse</p> <p>Authors: Iris Steitz, and Manfred Ayasse</p>
10:30am – 10:45am	<p>Influence of an obligate social parasite on host-nest odor and host aggressiveness</p> <p>Presenter: Anne-Genevieve Bagnères</p> <p>Authors: Marta Elia, Maria Cristina Lorenzi and Anne-Geneviève Bagnères</p>
10:45am – 11:00am	<p>Chemical characterization and behavioral responses to Dufour's gland esters in <i>Bombus impatiens</i></p> <p>Presenter: @Nathan Derstine</p> <p>Author: Nathan Derstine, Gabriel Villar, Abraham Hefetz, Jocelyn Millar and Etya Amsalem</p>
11:00am – 11:15am	<p>Long-range regulation of reproduction in the arboreal, polydomous weaver ant, <i>Oecophylla smaragdina</i></p> <p>Presenter: @Jessica Ebie</p> <p>Authors: Jessica Ebie, Jocelyn Millar, Simon Robson, Bert Hölldobler, and Jürgen Liebig</p>
11:15am – 11:30am	<p>Coffee Break</p>

11:30am – 11:45am	The warrior queen: interplay of aggression and fertility signaling in regulating worker reproduction in <i>Bombus impatiens</i> Presenter: Margarita Orlova Authors: Margarita Orlova, Erin D. Treanore and Etya Amsalem
11:45am – 12:00pm	Diversification and conservation of social signals in the cuticular hydrocarbon profile of <i>Odontomachus</i> ants Presenter: Adrian Smith Authors: Adrian A. Smith
12:00pm – 12:15pm	Cooperative policing behavior regulates reproductive division of labor in a termite Presenter: Qian Sun Authors: Qian Sun, Kenneth F. Haynes and Xuguo Zhou
12:15pm – 12:30pm	Tyramide fed fire ant female sexuals undergo physiological changes associated with mating Presenter: Robert Vander Meer Authors: Satya Chinta, Robert Vander Meer and Tappey Jones

Chemical Communication of Social Insect Associates: Espionage, Weaponry and Stealth

Rachelle Adams

12:30pm – 1:15pm | Salon IV

12:30pm – 1:00pm	Sex, social regulation and intraspecific social parasitism in honey bees Presenter: Robin Crewe Authors: Robin Crewe and Robin Moritz
1:00pm – 1:15pm	The evolution of chemical weaponry in megalomyrmex social parasites Presenter: Rachelle Adams Authors: Rachelle M.M. Adams and Tappey H. Jones

Secondary Metabolites and other Small Molecules as the Language in Microbiome Interactions

Brian Hammer and James Lyles

9:45am – 11:45am | Conference A

9:45am – 10:15am	Chemical signaling and social behaviors of pathogenic <i>Streptococci</i> Presenter and sole author: Michael Federle
10:15am – 10:30am	Interbacterial competition and the evolution of quorum sensing Presenter and sole author: Josephine Chandler
10:30am – 10:45am	Quorum sensing between <i>Vibrio fischeri</i> populations within the squid light organ Presenter: Tim Miyashiro Authors: Andrew Murtha, Taylor Yount and Tim Miyashiro
10:45am – 11:00am	Evaluation of a biofilm inhibitor using imaging mass spectrometry Presenter: Laura Sanchez

	<p>Authors: Alanna R Condren, Lisa Kahl, Manuel Banzhaf, Lars Dietrich and Laura Sanchez</p>
11:00am – 11:15am	<p>Open source mass spectrometry tools identifying natural product quorum sensing inhibitors using <i>Castanea</i> spp. as a model system</p> <p>Presenter: James Lyles</p> <p>Authors: James T. Lyles, Micah Dettweiler, Sandeep Voleti and Cassandra L. Quave</p>
11:15am – 11:30am	<p>Glucose enhances <i>E. coli</i> competitiveness against type VI secretion attacks by <i>Vibrio cholera</i></p> <p>Presenter: @Cristian Crisan</p> <p>Authors: Holly L. Nichols, Cristian V. Crisan, Gabi Steinbach, Peter Yunker, and Brian K. Hammer</p>
11:30am – 11:45am	<p>Interspecific interactions: chemical =diversity via mapping the fungal battlefield</p> <p>Presenter and sole author: Nicholas Oberlies</p>
<p>Pick- up box lunches starting at 11:45am</p>	
Afternoon	<p>Self-Organized Excursions</p> <p>Georgia Aquarium, Zoo Atlanta, National Center for Human and Civil Rights, Martin Luther King Memorial and National Historic Site, Atlanta Botanical Garden, CNN, High Museum of Art, Fernbank Natural History Museum, Atlanta History Center</p>

8:30 am to 9:30 am	Plenary Speaker Valerie J. Paul Smithsonian Marine Station at Fort Pierce ISCE Silver Medal Lecture Marine chemical ecology in a changing ocean	Salons III-IV
9:30 am to 9:45 am	Coffee Break	
Biosynthesis of Secondary Metabolites in Chemical Ecology Nicole Lopanik		
9:45am – 11:45am Salon III		
9:45am – 10:15am	Biosynthesis of offensive and defensive chemicals in mollusks Presenter and sole author: Eric Schmidt	
10:15am – 10:30am	Impacts of physical chemistry on biosynthetic constraints of plant volatile profiles Presenter: @Jordan Dowell Authors: Jordan Dowell and Chase Mason	
10:30am – 10:45am	Do it yourself: <i>de novo</i> biosynthesis of terpene pheromones in stink bugs and beyond Presenter: Dorothea Tholl Authors: Jason Lancaster, Bryan Lehner, Claus Tittiger, Ashot Khrimian, Donald C. Weber and Dorothea Tholl	
10:45am – 11:00am	Endosymbiotic bacteria of pest beetle produce chemical armoury to guard its host from pathogens Presenter: @Benjamin Dose Authors: Christian Hertweck and Benjamin Dose	
11:00am – 11:15am	Discovering genetic basis for production of ozone damaging polybromomethanes Presenter: Hem Thapa Authors: Hem Thapa and Vinayak Agarwal	
11:15am – 11:30am	Biosynthesis of the pyranocoumarins in <i>Citrus sinensis</i> and <i>C. limonia</i>: production of new bactericides for citrus protection and with lower risks for the environment Presenter: Maria Silva Authors: Jéssica Cristina Amaral, Maria Fátima das Graças Fernandes da Silva, Antônio Gilberto Ferreira, Adriana Aparecida Lopes and Ana Maria Soares Pereira	
11:30am – 11:45am	Widespread occurrence of actinomycete secondary metabolism in passalid beetle colonies across the Eastern U.S. Presenter: Matthew Traxler Authors: Rita Pessotti, Javier Navarro, Eoin Brodie and Matt Traxler	
11:45am	Lunch	Conference Dining Room

9:45am – 10:15am	<p>Plant defense metabolites: weapons that are also warning signs</p> <p>Presenter: Jonathan Gershenzon</p> <p>Authors: Christiane Förster, Vinzenz Handrick, Tobias Köllner, and Jonathan Gershenzon</p>
10:15am – 10:30am	<p>Trans-generational transcriptomic response to natural variation in host plant toxicity and insecticides in a specialist insect</p> <p>Presenter: Stephanie Birnbaum</p> <p>Authors: Stephanie Birnbaum and Patrick Abbot</p>
10:30am – 10:45am	<p>What can we learn from invasive plants about the function of herbivore-induced plant volatiles?</p> <p>Presenter: Ted Turlings</p>
10:45am – 11:00am	<p>Visualising the metabolic cross-talk between a bloom-forming alga and its virus</p> <p>Presenter: @Guy Schleyer</p> <p>Authors: Guy Schleyer, Nir Shahaf, Yonghui Dong, Asaph Aharoni, Jörn Piel and Assaf Vardi</p>
11:00am - 11:30am	<p>Bacteria as modulators of phytoplankton dynamics – friend and foe (or innocent bystanders?)</p> <p>Presenter and sole author: Georg Pohnert</p>
11:30am – 11:45am	<p>Do phytoplankton use dead competitors to assess predation risk?</p> <p>Presenter: @Emily Brown</p> <p>Authors: Emily Brown and Julia Kubanek</p>
11:45am – 12:00pm	<p>Signals in the sea</p> <p>Presenter: @Kristie Rigby</p> <p>Authors: Kristie Rigby, Erik Selander, Jenny Lindström and Wiebke Grebner,</p>
12:00pm – 12:15pm	<p>Copepodamides drive large scale trait mediated effects in the ocean</p> <p>Presenter: Erik Selander</p> <p>Authors: Erik Selander, Mats Andersson, Kristie Rigby, Jenny Linström, Andrew Prevet and Wiebke Grebner</p>
12:15pm	<p>Lunch</p> <p style="text-align: right;">Conference Dining Room</p>

Chemically-Mediated Consumer-Prey Interactions | Christelle A.M. Robert

9:45am – 12:15pm | Conference A

9:45am – 10:15am	<p>Risk management: consequences of predation risk on behavior, physiology and fitness</p> <p>Presenter: @Sara Hermann</p> <p>Authors: Sara Hermann and Doug Landis</p>
10:15am – 10:30am	<p>Tuning communication among four trophic levels</p> <p>Presenter: Jared Ali</p> <p>Authors: Jared Ali, Lukasz Stelinski, Denis Willett and Monique Rivera</p>
10:30am – 10:45am	<p>Snake foraging as a model behavior systems approach to sequentially organized behavior</p> <p>Presenter and sole author: Gordon Burghardt</p>
10:45am – 11:00am	<p>The toxic smell of a poison frog: analysis of VOCS in Dendrobatidae family</p> <p>Presenter: @Mabel Gonzalez</p> <p>Authors: Mabel Gonzalez and Chiara Carazzone</p>
11:00am – 11:15am	<p>Silicon amendment impacts tritrophic interactions by modifying plant volatile cues</p> <p>Presenter: @Nicolas Leroy</p> <p>Authors: Nicolas Leroy, Jean-Thomas Cornélis and François Verheggen</p>
11:15am – 11:30am	<p>Trait-mediated avoidance behavior of fruit flies to semiochemicals of <i>Oecophylla longinoda</i> (Latreille) (Hymenoptera: Formicidae)</p> <p>Presenter: Emilie Deletre</p> <p>Authors: Bethelihem Mekonnen, Christian Pirk, Abdullahi Yusuf, Baldwyn Torto, Sunday Ekesi and Emilie Deletre</p>
11:30am – 11:45am	<p>Evolution of chemical defenses in mimetic Heliconiini butterfly communities</p> <p>Presenter: @Ombeline Sculfort</p> <p>Authors: Ombeline Sculfort, Marianne Elias and Violaine Llaurens</p>
11:45am – 12:00pm	<p>Aphids' micronutrient content induces sterility in male lady beetles</p> <p>Presenter: Todd Ugine</p> <p>Authors: Todd A. Ugine, Stuart B. Krasnoff, Robert J. Grebenok, Spencer T. Behmer and John E. Losey</p>
12:00pm – 12:15pm	<p>Diel vertical migration of zooplankton - identification of the fish kairomone</p> <p>Presenter: Eric von Elert</p> <p>Authors: Eric von Elert, Christoph Effertz, Laurent Bigler and Meike Hahn</p>
12:15pm	<p>Lunch</p> <p style="text-align: right;">Conference Dining Room</p>

Chemical Biology Approaches for Interactions among Organisms

Bao-Hua Song

1:15pm – 3:15pm | Salon III

1:15pm – 1:45pm	Discovering infochemical pathways shaping belowground tritrophic interactions Presenter and sole author: Christelle A.M. Robert
1:45pm – 2:00pm Canceled	Evolution of biosynthesis of volatile terpenoids mediating interactions among organisms Presenter and sole author: Feng Chen
2:00pm – 2:15pm Canceled	Smelly ferns: Investigating responses to physical damage and herbivory in ancient plants Presenter: Andrea Clavijo-McCormick Authors: Keylee Soriano and Andrea Clavijo-McCormick
2:15pm – 2:30pm	Evolution of floral scents in a nursery pollination mutualism Presenter: Martine Hossaert- McKey Authors: Martine Hossaert-McKey, Magali Profit, Catherine Soler, Nina Joffard, Nadir Alvarez and Bertrand Schatz
2:30pm – 2:45pm	Root-knot nematode infestation facilitates <i>Spodoptera exigua</i> performance only during the galling stage Presenter: @Crispus Mbaluto Authors: Crispus Mbaluto, Nicole M. van Dam and Ainhoa Martínez-Medina
2:45pm – 3:00pm	Finding solutions from the wild --- elevated phenolic acids contribute to broad-spectrum resistance to soybean cyst nematode in wild soybean Presenter: Bao - Hua Song Authors: Bao-Hua Song, Hengyou Zhang, and Neha Mittal
3:00pm – 3:15pm	Interference effect of multiple plant scents on <i>Manduca sexta</i> foraging Presenter: Felipe Yon Authors: Felipe Yon, Alexander Haverkamp, Julia Bing, Ian Baldwin, Markus Knaden and Bill Hansson
3:15pm	Coffee Break – All Sessions

The Chemical Ecology of Symbiotic Interactions | Aileen Berasategui

1:15pm – 3:15pm | Salon IV

1:15pm – 1:45pm	<p>Volatile and nonvolatile metabolites mediate plant-pollinator-microbial interactions at the floral interface</p> <p>Presenter: Rachel Vannette</p> <p>Authors: Caitlin Rering, John Beck and Robert Schaeffer</p>
1:45pm – 2:00pm	<p>Managing herbivore attraction through cascading interactions between cover crops, AMF, and plant volatiles in maize</p> <p>Presenter: @Elizabeth Davidson-Lowe</p> <p>Authors: Elizabeth Davidson-Lowe, Swayamjit Ray, Ebony Murrell, Jason Kaye and Jared Ali</p>
2:00pm – 2:15pm	<p>Effects of plant toxins on monarch butterfly infection, immunity and the gut microbiome</p> <p>Presenter and sole author: Jacobus de Roode</p>
2:15pm – 2:30pm	<p>Evidence for the contribution of gut symbionts to the cuticle formation in herbivorous turtle ants <i>Cephalotes varians</i> through NMR spectroscopy</p> <p>Presenter: Christophe Duplais</p> <p>Authors: Christophe Duplais, Vincent Sarou-Kanian, Yannick Estevez, Jacob Russell, Estelle Martineau, Patrick Giraudeau, Jonathan Farjon and Corrie Moreau</p>
2:30pm – 2:45pm	<p>Glandular chemistry and behaviors in the beetle <i>Sceptobius lativentris</i> allow for intimate integration into ant colonies</p> <p>Presenter: @Thomas Naragon</p> <p>Authors: Thomas Naragon, Adrian Brückner and Joe Parker</p>
2:45pm – 3:00pm	<p>Disruption of an aboveground tritrophic mutualism by belowground root-knot nematodes</p> <p>Presenter: Elizabeth Pringle</p> <p>Authors: Elizabeth G. Pringle and Fabiane M. Mundim</p>
3:00pm – 3:15pm	<p>Fungal biotransformation of host tree monoterpenes elicit behavioral responses in the spruce bark beetle, <i>Ips typographus</i></p> <p>Presenter: Jonathan Gershenzon</p> <p>Authors: Dineshkumar Kandasamy, Jonathan Gershenzon, Martin N. Andersson and Almuth Hammerbacher</p>
3:15pm	Coffee Break – All Sessions

**Language of Life Under Climate Change | Mahasweta Saha, Joerg Hardege and Christina Roggatz
1:45pm – 3:00pm | Conference A**

1:45pm – 2:15pm	Marine chemical ecology in a changing world- info-disruption an overlooked impact of oceanic acidification? Presenter: Jorg Hardege Authors: Jörg Hardege, Christina Roggatz, David Benoit , John Terschak and Helga Bartels-Hardege
2:15pm – 2:30pm	Volatile-mediated interactions between algae and aquatic herbivores in present and future oceans Presenter: Patrick Fink Authors: Patrick Fink, and Eric von Elert
2:30pm – 2:45pm	Aphids facing climate changes: elevated carbon dioxide concentration impact aphid chemical communication and multitrophic interactions Presenter: François Verheggen Authors: François Verheggen and Antoine Boullis
2:45pm – 3:00pm	Aphid-ant mutualism under a changing climate: Impact of temperature and CO2 concentration on multitrophic interactions Presenter: @Solène Blanchard Authors: Blanchard Solène, Detrain Claire, Van Offelen Julie and Verheggen François
3:15 pm to 3:30 pm	Coffee Break – All Sessions
3:30 pm to 4:30 pm	Business Meeting and Student Awards Salons III-IV

Thursday, June 6th, 2019

Atlanta Botanical Gardens

ISCE 2019 Banquet

5:30 pm	Bus transportation will depart from outside the main lobby of the Georgia Tech Hotel and Conference Center to the Atlanta Botanical Gardens. Walking is also an option (allow 30 minutes). (<i>Self-Parking - \$5</i>)
6:00 pm to 7:00pm	Self-Guided Tours
7:00 pm to 9:00 pm	Dinner Banquet Day Hall and Lanier Terrace
9:00pm to 10:00pm	Self-Guided Tours
Starting at 9:30 pm	Bus transportation will depart from the Atlanta Botanical Gardens to the Georgia Tech Hotel and Conference Center.