Thursday 29 August

Main Hall

8:15 - 9:15

Plenary Lecture 4

8:15 **PL4** Understanding the Population and Behavioral Ecology of an Invasive Forest Insect: Insights for Sustainable Pest Management
Juan C. Corley
Grupo de Ecología de Poblaciones de Insectos, Instituto de Investigaciones Forestalesy Agropecuarias (INTA Bariloche-CONICET) & Departamento de Ecología, Universidad Nacional del Comahue (Argentine)

Introducer: Mayumi Yoshimura (Forestry and Forest Products Research Institute)

RoomA

Symposium 14-12

9:45 - 11:45

Bringing it home: Advances in research on the international pest Popillia japonica

Chair: Francesco Paoli (Council for Agricultural Research and Economics (CREA)), David W Held (Auburn University), Leonardo Marianelli (CREA -Council for Agricultural Research and Economics)

9:45 **14-12-01** Global invasion pathways of the Japanese beetle *Popillia japonica* revealed by genomic data
Antonio Carapelli

10:00 **14-12-02** Effectiveness of *Attract-and-kill* devices against the adults of *Popillia japonica* (Coleoptera: Scarabaeidae)
Francesco Paoli

10:15 **14-12-03** Sprayable dsRNA formulations for management of *Popillia japonica* Newman
David W Held

10:30 **14-12-04** Prevention of *Popillia japonica* larval transport in nursery plants
Jason Bradley Oliver

10:45 **14-12-05** *Popillia japonica* Italian outbreak management by means of natural strains of Biological Control Agents
Leonardo Marianelli

11:00 **14-12-06** Biological control of *Popillia japonica*
Karla M Addesso

11:15 **14-12-07** Building a surveillance strategy for the Japanese beetle in Europe: accounting for likelihood of entry and establishment to achieve early detection
Leyli Borner

11:30 **14-12-08** Use of Detection Canines for Invasive Pests: The Japanese Beetle
Melissa Singletary

Symposium 14-13

13:30 - 18:15

Multi-disciplinary innovation for stored-product insect pest management

Chair: Deanna Scheff (United States Department of Agriculture), Alison Gerken (USDA Agricultural Research Service)

13:30 **14-13-01** Stored-product entomology in Canada: Moving forward through innovation with a foot firmly planted in the past.
Brent G Elliott

13:45 **14-13-02** Searching ability and parasitism efficacy of *Habrobracon hebetor* in storage rooms
Jordi Riudavets

14:00 **14-13-03** Evaluation of diatomaceous earth formulation against stored product insects in semi-field conditions
Philippos M Ioannidis

14:15 **14-13-04** Ozonation Strategies for Pest Control: Enhancing Phytosanitary Inspection Against the Invasive Box Tree Moth
Darija Lemic

14:30 **14-13-05** Novel behaviorally-based tactics to combat phosphine resistance among stored product insects at food facilities
William R. Morrison

14:45 **14-13-06** Monitoring of *Lobesia botrana* (Lepidoptera: Tortricidae) with semiochemicals and Ultra Violet Light Emitting Diodes (UV-LED) under mating disruption
Eduardo Fuentes-Contreras

15:00 **14-13-07** Development of an insect-free qPCR-based test for the detection of pest insects in stored grain
Nuria Agusti

15:15 **14-13-08** Current and future potential distribution of a biocontrol beetle, *Teretrius nigrescens*, and the overlap with its prey, *Prostephanus truncatus*
Rachel R. Harman

15:30 **Coffee Break**

16:15 **14-13-09** Discrimination methods for Japanese species of the genus *Morophagoides* (Lepidoptera, Tineidae)
Yohei Osada

16:30 **14-13-10** A New SmartProbe Technology for Early Detection of Insect Pests and Environmental Monitoring in Stored Products
Zhongli Pan

16:45 **14-13-11** Advances in stored product insect pest identification using artificial intelligence
Alison Gerken

17:00 **14-13-12** Enhancing cigarette beetle trapping: novel insights and applications of terpenoids as co-attractants
Salvatore Guarino

17:15 **14-13-13** Efficacy of extreme temperatures for the control of all life stages of *Oryzaephilus surinamensis* (L.), *Plodia interpunctella* (Hübner) and *Ephestia kuehniella* Zeller
Maria K. Sakka

17:30 **14-13-14** The effects of sub-lethal temperatures on feeding behavior of *Tineola bisselliella* (Hummel): IPM implications for conditioning spaces to reduce damage
James C Feston

17:45 **14-13-15** Efficacy and economics of refrigerated fumigation treatments for stored grain insects
Brodie Foster

18:00 **14-13-16** Utilization of stored-product insects as feed and food through circular economy practices
Christos Athanassiou

Annex Hall1

Symposium 14-14

9:45 - 11:45

Control Strategies of Hemipteran Pest Bugs

Chair: Ken Tabuchi (Tohoku Agricultural Research Center, NARO), Un Taek Lim (Andong National University)

9:45 **14-14-01** Use of a mass trapping system and sulphur applications to manage *Halyomorpha halys* in fruit orchards
Davide Scaccini

10:00 **14-14-02** Characterization and improvement of "Cimiciato" damage management: Insights from trials on the impact of *Halyomorpha halys* on hazelnut quality
Flavia De Benedetta

10:15 **14-14-03** Parasitism of the fruit-piercing stink bug, *Glaucias subpunctatus*, by the tachinid fly, *Cylindromyia petiolata*
Ayaka Tsunashima

10:30 **14-14-04** Dynamics of the box bug *Gonocerus acuteangulatus* and impact of egg parasitoids in Italian hazelnuts
Roberto Rizzo

10:45 **14-14-05** The search for the egg parasitoid wasps of the rice stink bugs by settling frozen egg masses in the paddy fields
Ayumu Sumita

11:00 **14-14-06** Seasonal occurrence pattern of egg parasitoids and its biological attributes, and parasitism on eggs of *Riptortus pedestris* (Fab.) (Hemiptera: Alydidae)
Md. Abdul Alim

11:15 **14-14-07** Microbial control of *Riptortus pedestris* (Hemiptera: Alydidae) using an entomopathgenic fungus *Beauveria bassiana*
Un Taek Lim

11:30 **14-14-08** Prediction of crop damage by hemipteran pests using land use data: the spatially explicit model for mapping hazard, and its extrapolation
Ken Tabuchi

Symposium 14-15

13:30 - 18:15

Novel approaches in the management of invasive fruit flies (Diptera: Tephritidae)

Chair: Nikolaos Papadopoulos (University of Thessaly, Greece), Marc F Schetelig (Justus-Liebig-University Giessen, Winchester Str. 2, 35394 Giessen, Germany), George Tsiamis (University of Patras | UP · Department of Environmental Engineering)

13:30 **14-15-01** The REACT's Innovative Approach to *Bactrocera* Sexing Systems for Sterile Insect Technique programs
Marc F Schetelig

14:00 **14-15-02** A metabolomics approach for improved mass-rearing
Francesca Scolari

14:15 **14-15-03** Transcriptomic markers for Quality Control of sterile males in *Ceratitis capitata* SIT applications
Kostas Mathiopoulos

14:30 **14-15-04** Precision guided Sterile Insect Technique in Mexican fly *Anastrepha ludens*
Georgia Gouvi

14:45 **14-15-05** Presentation Withdrawn

15:00 **14-15-06** Climate change effects on crop-pest interactions: Queensland fruit fly and its hosts.
Polychronis Rempoulakis

15:15 **14-15-07** New insights from the invasive process of *B. dorsalis* in Italy: Providing evidence to resolve the about 40-year debate on periodic introductions *versus* low-density presence
Umberto Bernardo

15:30 **Coffee Break**

16:15 **14-15-08** Tracing invasion pathways of the Oriental fruit fly, *Bactrocera dorsalis*, using RAD-Capture sequencing
Marie-Pierre Chapuis

16:30 **14-15-09** Presentation Withdrawn

16:45 **14-15-10** Competitive interactions between the invasive oriental fruit fly, Bactrocera dorsalis and other polyphagous species
Hélène Delatte

17:00 **14-15-11** Real-Time Surveillance of Invasive Fruit Flies
David Nestel

17:15 **14-15-12** The use of IoT and AI in the Automated Pest Monitoring System for *Bactrocera cucurbitae* and *Bactrocera dorsalis*
Shao-Lin Lin

17:30 **14-15-13** A novel formulation containing the entomopathogenic fungus, *Beauveria bassiana*, to manage invasive fruit flies (Diptera: Tephritidae)
Ikkei Shikano

17:45 **14-15-14** The citrus fruits mount a robust defense against oviposition by a specialist, *Bactrocera minax* (Diptera: Tephritidae)
Bingbing Wei

18:00 **14-15-15** Differences in rectal amino acid levels determine bacteria-originated sex pheromone specificity in two closely related flies
Zijie Gao

Annex Hall2

Symposium 14-16 — 9:45 - 11:45

Management of Insect Pests with Bt Crops: A Global Perspective

Chair: Aaron Gassmann (Iowa State University), Dominic Reisig (North Carolina State University)

9:45 **14-16-01** Bt Crops and Insect Pest Control in Brazil: Current Challenges and Prospects
Celso Omoto

10:15 **14-16-02** Dispersal and reproductive potential of *Helicoverpa zea* (Boddie) (Lepidoptera: Noctuidae) in Bt and non-Bt crops and implications for insecticide resistance management.
Silvana V. Paula-Moraes

10:30 **14-16-03** Management of insect pests with Bt crops in Africa
Johnnie Van den Berg

10:45 **14-16-04** Bt-resistance among key insect pests of maize in Canada
Yasmine Farhan

11:00 **14-16-05** Management of insect pests in the southern United States with Bt crops
Dominic Reisig

11:15 **14-16-06** Monitoring the efficacy of Vip3A refuge strategies against *Striacosta albicosta* in Bt crop systems
Alisson Santana

11:30 **14-16-07** Management of Insect Pests with Bt Maize in the Midwestern United States
Aaron Gassmann

Symposium 7-12 — 13:30 - 18:15

Novel approaches to harness the worlds' natural history entomology collections

Chair: Moritz D Lürig (University of Florida), Niklas Wahlberg (Lund University), Alexander Blanke (University of Bonn)

13:30 **7-12-01** Humans in the loop: Community science and machine learning for digitizing and generating insights from natural history collections.
Robert P Guralnick

13:45 **7-12-02** Harnessing traditional and modern approaches to unravel the tempo and mode of phenotypic evolution in insects
Sridhar Halali

14:00 **7-12-03** Quantifying evolution in 3- and 4-D: prospects and challenges for large-scale image datasets
Christy Anna Hipsley

14:15 **7-12-04** AI in Natural History: Leveraging Deep Learning to Quantify Phenotypic Traits in Specimens
Yichen He

14:30 **7-12-05** BioEncoder: Image Classification through Supervised Metric Learning
Moritz Lurig

14:45 **7-12-06** ANTSCAN: how to generate phenomic 3D data across the whole ant tree of life with high-throughput serial synchrotron micro-CT scanning
Francisco Hita Garcia

15:00 **7-12-07** Morphological adaptations to burrowing lifestyles in cockroaches (Dictyoptera: Blattodea)
Frederic Legendre

15:15 **7-12-08** Developmental change in camouflage tactics in a hornworm, *Marmba gaschkewitschii*.
Ayako Hagiwara

15:30 **Coffee Break**

16:15 **7-12-09** Parsed and future: Monitoring and mitigating error in large aggregated biological databases
Brandon P Hedrick

16:30 **7-12-10** Overhauling the collection curatorial process to advance insect species discovery via a DNA barcode-informed pipeline
Wei Song Hwang

16:45 **7-12-11** Genomes of museum collections reveal a rapid adaptation to pesticide exposure of the eastern honeybee
Shanlin Liu

17:00 **7-12-12** The Dawn of Arctiine Genomics (Lepidoptera: Erebidae)
Nicolas Joel Dowdy

17:15 **7-12-13** Insect sizes have not responded universally to climate change: shifts vary across elevations and life histories
Caroline Williams

17:30 **7-12-14** Short and long-term effects of warming temperatures on Carabidae body size and Monarch (*Danaus plexippus*) larvae colouration
Michelle Tseng

17:45 **7-12-15** Little change in tropical butterfly species richness over the past 164 years hides variation over shorter time periods
Tiffany L T Ki

18:00 **7-12-16** How the visual systems of insect pollinators shape the flower color diversity in alpine plant communities
Roberto Rebollo Hernandez

Room C-1

Symposium 7-13

9:45 - 11:45

Climatic niche dynamics in a changing world

Chair: Olivia Bates (University of Lausanne), Cleo Bertelsmeier (University of Lausanne)

9:45 **7-13-01** Butterfly resurveys in Taiwan reveal climate tracking and challenges in tropical biodiversity
I-Ching Chen

10:00 **7-13-02** Do soil and air temperatures predict similar niche shifts in introduced ants?
Olivia Bates

10:15 **7-13-03** Integrating variation in physiology and climatic niches to understand contemporary range shifts of butterflies
Sarah Diamond

10:30 **7-13-04** Exploring the Thermoregulation Strategies of Ants and Shedding Light on Species' Adaptation to Future Global Warming
Chi Man Leong

10:45 **7-13-05** Butterflies inform our understanding of migration strategies and climate resilience
Clare Dittemore

11:00 **7-13-06** Bumblebee communities and populations track shifts in climate change-driven extreme weather relative to species' realized thermal niches
Jeremy T Kerr

11:15 **7-13-07** Temperature elevation reduces the density-dependent divergence in emergence time for two competing parasitoid species
Midori Tuda

11:30 **7-13-08** Lepidoptera-plant food webs in Central Europe: Associations to environmental gradients and predicted consequences under global change
Hsi-Cheng Ho

Symposium 7-14

13:30 - 18:15

The many facets of inordinate fondness: new insights into phytophagous beetle radiations

Chair: Bruno A. S. de Medeiros (Field Museum of Natural History), Sangil Kim (Harvard University), M. Lourdes Chamorro (United States Department of Agriculture, Agriculture Research Service, SEL)

13:30 **7-14-01** When phytophages encounter flowers: trends in extant flower beetle diversity
Bruno A. S. de Medeiros

14:00 **7-14-02** Cycad weevils as a model for multi-modal plant-insect signaling
Shayla Salzman

14:15 **7-14-03** Weevils as specilized brood-site pollinators of tropical flora : overview, common traits and evolutionnary trends
Julien M Haran

14:30 **7-14-04** The role of beetles as early angiosperm pollinators
David Peris

14:45 **7-14-05** Deep Time Beetle History as Viewed from their Interactions with Plants
Conrad Christopher Labandeira

15:00 **7-14-06** Genomic architecture and evolutionary rates in beetles and some other tiny consumers
Brian D. Farrell

15:15 **7-14-07** Adaptations to life in the North: A comparative genomic study of *Monochamus* longhorned beetles reveals a genetic basis of conifer-feeding evolution
Sangil Kim

15:30 **Coffee Break**

16:15 **7-14-08** Host plant specificity and co-phylogeny of Chrysomelidae leaf beetles in tropical rainforests of the world
Alfried P. Vogler

16:30 **7-14-09** Analysis of factors promoting diversification of Eumolpinae in the South Pacific
Jesus Gomez-Zurita

16:45 **7-14-10** Phylogenomics of Agrilus wood-boring beetles
Jonah Michael Ulmer

17:00 **7-14-11** Phylogenomics illuminates the evolution of Dryophthorinae weevils (Coleoptera: Curculionidae)
Diego de Santana Souza

17:15 **7-14-12** Exploring the evolution of oviposition and larval habits in the phylogeny of weevils: What can it tell us about beetle-plant interactions?
Adriana Elena Marvaldi

17:30 **7-14-13** Parasitic plants mediate extreme and independent host plant shifts in a weevil lineage
Benjamin Zelvelder

17:45 **7-14-14** Diversification process of the genus *Asiopodabrus* (Coleoptera, Cantharidae) in Japan
Ryo Nakamura

18:00 **7-14-15** Evolution across the adaptive landscape in a hyperdiverse beetle radiation
Yun Living Li

Room C-2

Symposium 7-15 — 9:45 - 11:45

ad hoc session

Chair: Mariana P Braga (Swedish University of Agricultural Sciences), Lauren Des Marteaux (Agriculture and Agri-Food Canada)

9:45 **7-15-01** GenARCC: Understanding insect declines through population genetics and museum collections data
Lauren Des Marteaux

10:00 **7-15-02** Invasion risk of *Tuta absoluta*(Meyrick) (Lepidoptera: Gelechiidae) in Korea: predictions based on MaxEnt Model
Jiwon Jeong

10:15 **7-15-03** The effects of heat waves and constant heat in a false widow spider are time-dependent and sex-dependent
Yuting Dong

10:30 **7-15-04** Thermal tolerance of cereal aphids might differ along a longitudinal gradient
Ruining Li

10:45 **7-15-05** Do warm winters drive insect pest-associated yield declines in rapeseed?
Ryan Edward Brock

11:00 **7-15-06** Climate warming promotes pesticide resistance through expanding overwintering range of a pest species
Wei Zhang

11:15 **7-15-07** Balancing the budget: phylogeny and climate shape ant metabolic traits representing energetic trade-offs in colony economics.
Lily Lena Leahy

11:30 **7-15-08** Combining species distribution modeling and phylogenetic reconstruction of host repertoires to predict the fate of butterfly species
Mariana P Braga

Symposium 7-16 — 13:30 - 18:15

Key Innovations in Insect Evolution

Chair: Sarah Kocher (Howard Hughes Medical Institute, Princeton University), Corrie S. Moreau (Cornell University)

13:30 **7-16-01** Cell type evolution of a chemical key innovation in rove beetles
Joseph Parker

14:00 **7-16-02** Functional evolution and molecular dynamics of light-sensitive opsin receptor adaptations
Marjorie Lienard

14:15 **7-16-03** Developmental Modifications to Take Flight: An Evo-Devo Study Bridging the Gap Between Wingless and Winged Insects
Takahiro Ohde

14:30 **7-16-04** Towards a molecular understanding of plant gall induction by aphids: the role of the huge, novel family of Bicycle effector proteins
David Stern

14:45 **7-16-05** The mutational origins of facial individual recognition, a novel complex behavior associated with social organization and range expansion in paper wasps.
Michael J Sheehan

15:00 **7-16-06** Comparative methods offer powerful insights into social evolution in halictid bees
Sarah Kocher

15:15 **7-16-07** Eco-evolutionary implications for possible contributions of the insect-specific cuticle formation in insect evolution and terrestrialization
Tsunaki Asano

15:30 **Coffee Break**

16:15 **7-16-08** Odonata (dragonfly and damselfly) evolutionary innovations
Jessica Ware

16:45 **7-16-09** From dung to their young: How dung beetles use animal waste as a breeding resource
Shantanu P Shukla

17:00 **7-16-10** Chromosomal rearrangements drive the evolution of neo-XY sex chromosomes in treehoppers
Daniela Palmer Droguett

17:15 **7-16-11** Evolution of ultrasonic warning signals in the bat-insect arms race
Akito Y Kawahara

17:30 **7-16-12** The rise of wing pattern diversity in butterflies
Chia-Hsuan Wei

17:45 **7-16-13** Symbiosis as a driver of evolutionary diversification in the ants
Corrie S. Moreau

18:00 **7-16-14** Convergent molecular evolution of a key innovation shapes toxin-mediated multitrophic interactions around milkweeds
Simon Cornelis Groen

Room D

Symposium 16-12

9:45 - 15:30

Insect bioenergetics in changing environments

Chair: Philipp Lehmann (University of Greifswald), Caroline Williams (University of California, Berkeley), Hervé Colinet (CNRS & University of Rennes)

9:45 **16-12-01** Low temperature deeply shapes Drosophila suzukii traits: a bioenergetics prospect
Hervé Colinet

10:00 **16-12-02** Energetic costs of stress in Antarctica's extreme and rapidly changing environment
Nick Teets

10:15 **16-12-03** Asymmetric day/night warming, predatory insect demography, energy flux and biocontrol functioning
Gang Ma

10:30 **16-12-04** Metabolic adjustments and thermogenic mechanisms of honeybees (*Apis mellifera*) during seasonal transitions
Nicolas Pichaud

10:45 **16-12-05** Energy dynamic in Mountain Pine Beetle and Emerald Ash Borer during overwintering
Fouzia Haider

11:00 **16-12-06** Epigenetic regulation of periodic metabolic arousal during insect dormancy
Chao Chen

11:15 **16-12-07** The impact of temperature on macronutrient reserves in the solitary bee *Megachile rotundata*
Julia H Bowsher

11:30 **16-12-08** Carbohydrate intake and fat accumulation increase diapause likelihood
Clancy Short

11:45 **Poster Session**

13:30 **16-12-09** Winter fitness and energy allocation shift in response to winter costs and extreme cold events in the willow leaf beetle (*Chrysomela aeneicollis*)
Andre Szejner-Sigal

13:45 **16-12-10** The thermal sensitivity of diapause development with implications for seasonal synchrony and energetics
Greg Ragland

14:00 **16-12-11** Environmental effects on phenotypes associated with flight energetics
Charles-A. Darveau

14:15 **16-12-12** Mitochondrial flexiblity in Drosophila : Protective responses to dietary and thermal changes
Florence Hunter-Manseau

14:30 **16-12-13** Mitochondrial bioenergetics and metabolism of tropical cockroach *Gromphadorhina coquereliana* under cold stress
Jan Lubawy

14:45 **16-12-14** Overwinter life stage is a key determinant of diapause metabolic plasticity
Kevin T Roberts

15:00 **16-12-15** Phenological adjustments and bet-hedging strategies in *Rhagoletis cerasi*
Nikolaos Papadopoulos

15:15 **16-12-16** Break it 'til you make it: How insects remodel their flight muscle in response to energetic challenges
Jacqueline Lebenzon

Symposium 16-13

16:15 - 18:15

The multi-functionality of insect fat: Its power and constraints

Chair: Bertanne Visser (Université de Liège), Cécile Le Lann (University of Rennes)

16:15 **16-13-01** Influence of the Hawaiian *Drosophila* mycobiome on reproduction and lipid composition
Joanne Y. Yew

16:45 **16-13-02** Neuroendocrinal control of lipid metabolism in hibernating Colorado potato beetle, *Leptinotarsa decemlineata* (Coleoptera: Chrysomelidae)
Solmaz Ghanbari

17:00 **16-13-03** Comparing fatty acid synthesis and fat accumulation in the vinegar fly *Drosophila melanogaster* and the amber wasp *Leptopilina heteroma*
Mathilde Scheifler

17:15 **16-13-04** Regulation of insect fat body metabolism by muscarinic receptors
Szymon Chowański

17:30 **16-13-05** A California alpine carpenter ant symbiosis as a model for insect-bacteria co-evolution.
Reo Maynard

17:45 **16-13-06** Identification and functional analysis of ABC transporters in cholestanol excretion in *Helicoverpa armigera*
Xiangfeng Jing

18:00 **16-13-07** Fat metabolism in parasitoids: Past, present, and future research
Bertanne Visser

Room E

Symposium 16-14

9:45 - 11:45

Vision in Lepidoptera - from genes to behavioural ecology

Chair: Michiyo Kinoshita (SOKENDAI)

9:45 **16-14-01** The neurogenomics of diversity in butterfly mate preference learning
Erica L Westerman

10:00 **16-14-02** Seasonal covariation in wing color, behavior, and visual system in a temperate grassland butterfly
Grace E. Hirzel

10:15 **16-14-03** Signalling geometry and the visual significance of limited-view iridescence in butterflies
Darrell Kemp

10:30 **16-14-04** Light variation in tropical forests drives sensory convergence in a community of mimetic butterflies
Stephen Montgomery

10:45 **16-14-05** Using microCT to understand eye and brain evolution in moths
Yash Sondhi

11:00 **16-14-06** Butterfly vision is fine-tuned to the visual ecology at multiple scales, from spectral sets of photoreceptors to retinal mosaics
Gregor Belusic

11:15 **16-14-07** Integration of visual information with an extended set of ommatidia in Nymphalid butterflies
Marko Ilić

11:30 **16-14-08** Chromatic information in visual modalities of the swallowtail butterfly
Michiyo Kinoshita

Symposium 19-2

13:30 - 15:30

Insect Insights: Decoding Nature Agile Flyers

Chair: Bluest Lan (National Chung Hsing University)

13:30 **19-2-01** Simplifying Aerial Design by Emulating Butterfly Wing Pitch Mechanics
Bluest Lan

13:45 **19-2-02** The Role of Pitch and Stroke Plane Angles in Enhancing Flapping Flight
Ching-Chan Huang

14:00 **19-2-03** Mechanosensory role of elytra in beetle flight
Hyee Ryun Lee

14:15 **19-2-04** Tracking Autonomous Insect Flight in Complex Environments
Joshua Foley

14:30 **19-2-05** Flying in the wind: sensory-motor control of foraging bumblebees and bio-inspired robots landing on rapidly moving flowers
Florian T Muijres

14:45 **19-2-06** Bio-aero-structural dynamics of the *Drosophila* flight motor
Arion Pons

15:00 **19-2-07** The allometry of flight in hoverflies
Camille Le Roy

15:15 **19-2-08** Passive Pitching Mechanisms in Damselflies: The Role of Body Center of Mass
Yu-Hsiang Lai

Symposium 19-3

16:15 - 18:15

Using insect sensing and locomotor abilities in robots to overcome real-world challenges

Chair: Noriyasu Ando(Maebashi Institute of Technology), Shunsuke Shigaki (National Institute of Informatics), Sridhar Ravi (University of New South Wales)

16:15 **19-3-01** Long-range navigation using insect-inspired sensing and sensory processing
Barbara Webb

16:45 **19-3-02** Unraveling the biomechanics of undulatory swimming using mosquitoe larvae as model systems
Sridhar Ravi

17:00 **19-3-03** An Insect-based Bio-Hybrid Mobile Robot for Olfactory Sensing
Neta Shvil

17:15 **19-3-04** Aerodynamics of locomotion and navigation in insects
Toshiyuki Nakata

17:30 **19-3-05** CYBORG INSECT: living legged and winged robot
Hirotaka Sato

17:45 **19-3-06** How to shoot insect behavior outdoor with a high-speed video camera
Kiyoaki Takashima

18:00 **19-3-07** Bridging Science and the Public through Insect Films
Fumihiko Hirai

Room F

Symposium 2-3

9:45 - 11:45

Genomic and molecular basis of the evolution of silk production in Arthropods

Chair: Jacqueline Heckenhauer (Senckenberg Research Institute and Natural History Museum Frankfurt), Paul B Frandsen (Brigham Young University)

9:45 **2-3-01** Comparative structural and mechanical analysis of H- and L-fibroins of terrestrial Lepidopteran and aquatic Trichoperan silk fibers
Russell Stewart

10:00 **2-3-02** Primary structure and amino acid composition of major silk genes in aquatic Amphismenoptera
Jacqueline Heckenhauer

10:15 **2-3-03** Understanding Trichoptera silk genotype and phenotype using transcriptomics and imaging
Maria Gabriela Jijon Nemalceff

10:30 **2-3-04** Allelic diversity of the silk protein *H-fibroin* across Lepidoptera
Samantha Standring

10:45 **2-3-05** Insights from comparative transcriptomics in the evolution of silk.
Bert Foquet

11:00 **2-3-06** Characterizing silk production in the luna moth (*Actias luna*, Lepidoptera: Saturniidae)
Amanda Markee

11:15 **2-3-07** New genome assembly and annotation for the Polyphemus Moth, *Antheraea polyphemus* (Saturniidae)
Taylor Pierson

11:30 **2-3-08** Genomic and morphological investigation of spider silk production exploring evolutionarily divergent web builders
Jessica Garb

Symposium 2-4

13:30 - 15:30

Raw silk production beyond textile: silkworm general rearing conditions and environmental impact of sericulture

Chair: Alessio Saviane (Council for Agricultural Research and Economics), Silvia Cappellozza (Council for Agricultural Research and Economics)

13:30 **2-4-01** Insect welfare from a consumer perspective: the case of *Bombyx mori* in the silk supply chain
Alessio Saviane

13:45 **2-4-02** From the history of Butterfly Houses, a simple code of ethics that can also form the basis for rearing Lepidoptera for silk production.
Enzo Moretto

14:00 **2-4-03** Sericultural Industry beyond "silk"
Shuichiro Tomita

14:15 **2-4-04** Silkworm, an invertebrate model to accelerate early antimicrobial drug discovery and development
Yidong Yu

14:30 **2-4-05** A lesson learnt from bees. Can the BeeNet environmental biomonitoring project be replicated for the silkworm?
Piotr Medrzycki

14:45 **2-4-06** The role of design in silkworm domestication.
Filippo Da Prada

15:00 **2-4-07** Elevating Eri culture in India via chawki rearing for industrial production
Mahesh D S

15:15 **2-4-08** Silk Beyond Textiles: The added value of sericulture in educating students on the value of their traditions, cultural heritage and the construction of a European identity.
Skarlatos G. Dedos

Symposium 2-5

16:15 - 18:15

Recent advances in reproductive biology of honeybees

Chair: Kenichi Harano (Tamagawa University), Shinya Hayashi (Fukuoka University)

16:15 **2-5-01** Factors influencing honeybee mating aggregation patterns
Shinya Hayashi

16:30 **2-5-02** What do we really know about where honeybee queens mate?
Gard W. Otis

16:45 **2-5-03** Unexpected complexity of sex-pheromone communication in honey bees
Axel Brockmann

17:00 **2-5-04** Dopamine as an activator of queen-specific behavior in honey bees and bumble bees
Ken Sasaki

17:15 **2-5-05** Regulation of dopamine biosynthesis in the brains of honey bee males
Tomohiro Watanabe

17:30 **2-5-06** Phenotypic plasticity of honey bee queens and the consequences of colony collective decision making
David R. Tarpy

17:45 **2-5-07** Exposure to miticides and agrochemicals during development affects the reproductive health of honey bee (*Apis mellifera*) queens and drones
Juliana Rangel

18:00 **2-5-08** Honey Bee Embryo Cryopreservation: Current Status and Advances
Arun Rajamohan

Room G

Symposium 11-6

9:45 - 11:45

Insects at the Helm: Driving Food Security, livelihoods, and Environmental Sustainability in Agri-Food Systems

Chair: Chrysantus Tanga (International Centre of Insect Physiology and Ecology (ICIPE))

9:45 **11-6-01** Growth performance and protein content of desert locust, *Schistocerca gregaria* raised on locally available plants for prospective domestication by small scale farmers.
Linnet Gohole

10:15 **11-6-02** Vitamin E: An assistant for black soldier fly to reduce cadmium accumulation and toxicity
Zhihui Shi

10:30 **11-6-03** Heterologous expression of phytases in an insect host for use in agriculture feed
Carly Carter

10:45 **11-6-04** Evaluating Impact of Dietary Inclusion of Yellow Mealworm (*Tenebrio molitor*) on Cultured Fish.
Atsushi Ido

11:00 **11-6-05** Black Soldier Fly Frass as Biofertilizer and Biostimulant for melon and lettuce
Marco Gebiola

11:15 **11-6-06** Exposing Ohio Students To Insect Based Foods: Preferences And Future Implications
James R Jasinski

11:30 **11-6-07** The metabolomic fingerprint of an edible insect species, *Prionoplus reticularis* (Coleoptera: Cerambycidae), along a latitudinal gradient.
Neil Birrell

Symposium 15-5

13:30 - 18:15

Molecular determinants driving pesticide resistance and selectivity in invertebrates

Chair: Ralf Nauen (Bayer AG, Crop Science Division), Gaelle Le Goff (INRAE), Thomas Van Leeuwen (Ghent University)

13:30 **15-5-01** Dominant versus recessive resistance: contrasting risks of chemical insecticides and Bt toxins
David G Heckel

13:45 **15-5-02** Low dose insecticide impacts on insects - Implications for pest control
Philip Batterham

14:00 **15-5-03** Understanding the evolution and function of xenobiotic detoxification enzymes in a global crop pest
Bartlomiej Troczka

14:15 **15-5-04** Genome Editing with CRISPR/Cas9 to Understand Molecular Mechanisms of Insecticide Resistance
Dylan Brown

14:30 **15-5-05** The development of a cost-efficient eQTL scanning strategy to unravel the broad transcriptional response of a generalist pest to novel hosts
Femke De Graeve

14:45 **15-5-06** Molecular insights into mechanisms mediating coumaphos tolerance in honeybees
Xingzhi Xiao

15:00 **15-5-07** Resistance incidence and mechanisms in *Frankliniella occidentalis* populations from Türkiye
Umut Toprak

15:15 **15-5-08** Monitoring resistance of *Spodoptera frugiperda* populations from Thailand
Marlen Saladini di Rovetino

15:30 **Coffee Break**

16:15 **15-5-09** Insect cytochrome P450s in pesticide resistance and selectivity
René Feyereisen

16:30 **15-5-10** Transcriptional regulation of detoxification gene expression in the two-spotted spider mite *Tetranychus urticae*
Dries Amezian

16:45 **15-5-11** Expansion of CYP9A subfamily P450s empowers spodopteran insects with diverse genetic options for evolving insecticide resistance
Yidong Wu

17:00 **15-5-12** Molecular bases of pyrethroid action, resistance and selectivity
Ke Dong

17:15 **15-5-13** New examples of resistance to bacterial insecticidal proteins always seems to surprise us: Western Corn Rootworm and Mpp75Aa1.1 and Vip4Da2
William Moar

17:30 **15-5-14** Binding affinities to "receptors" explain Cry protein toxicity
Haruka Endo

17:45 **15-5-15** Molecular Determinants in ABC Transporters Mediating Bt Cry1 Selectivity and Resistance
Roksaneh Sayadi Boroujeni

18:00 **15-5-16** Context-dependent selection on biopesticide resistance alleles and evolutionarily sustainable pest control
Luc Francois Bussiere

Room H

Symposium 1-2

9:45 - 11:45

The 3rd International Workshop of IOBC-APRS-Predatory Mites. Part 1. Vegetables

Chair: Xuenong Xu (Institute of Plant Protection, Chinese Academy of Agricultural Sciences), Jiale Lv (Institute of Plant Protection, Chinese Academy of Agricultural Sciences), Norihide Hinomoto (Kyoto University)

9:45 **1-2-01** Geostatistical distribution models for pest and predatory mites in strawberries
Lorena Lopez

10:15 **1-2-02** Effective use of sachet systems for enhancing the release of predatory mites to pest-infested crops
Takeshi Shimoda

10:30 **1-2-03** Predatory mites on mite pest management in greenhouses
Endong Wang

10:45 **1-2-04** Conservation biological control of onion thrips, *Thrips tabaci*, using native phytoseiid mite, *Gynaeseius liturivorus*, in Welsh onion fields in Japan
Hiroshi Oida

11:00 **1-2-05** Expression and functional characterization of Peptidoglycan recognition protein in the predatory mite *Neoseiulus barkeri*
Yaying Li

11:15 **1-2-06** Trends and future development of predatory mite products in Japan
Minori Sekiguchi

11:30 **1-2-07** From Sprays to Struggles; How Predatory Mites Respond to Fungicide Residues in Florida Strawberries
Allan Busuulwa

Symposium 1-3

13:30 - 15:30

The 3rd International Workshop of IOBC-APRS-Predatory Mites. Part 2. Fundamental biological studies

Chair: Jiale Lv (Institute of Plant Protection, Chinese Academy of Agricultural Sciences), Xuenong Xu (Institute of Plant Protection, Chinese Academy of Agricultural Sciences), Norihide Hinomoto (Kyoto University)

13:30 **1-3-01** Social isolation early in life disrupts personality expression in group-living predatory mites
Peter Schausberger

14:00 **1-3-02** Do predatory mites cannibalize conspecifics in environments with dispersal opportunities?
Masaaki Michiura

14:15 **1-3-03** Molecular mechanisms of mitogen activated protein kinase triggering heat shock protein 70 regulation on thermo-resistance of *Neoseiulus barkeri*
Huai Liu

14:30 **1-3-04** Heat tolerances of commercial predatory mite species in China
Bo Zhang

14:45 **1-3-05** Regulation and mechanism of cold acclimation on cold tolerance in *Neoseiulus bicaudus*
Si Qiong Tang

15:00 **1-3-06** Gut content analysis in predatory mites to assess the 'attract and reward' technique in vineyards
Saioa Legarrea

15:15 **1-3-07** Studies on timing of embryo development initiation in Phytoseiidae
Jiale Lv

Symposium 1-4

16:15 - 18:15

The 3rd International Workshop of IOBC-APRS-Predatory Mites. Part 3. Fruit orchards

Chair: Hidenari Kishimoto (Institute for Plant Protection, NARO), Xuenong Xu (Institute of Plant Protection, Chinese Academy of Agricultural Sciences), Norihide Hinomoto (Kyoto University)

16:15 **1-4-01** Controlling spider mites by using phytoseiid mites for improved fruit production in Japan
Masatoshi Toyama

16:30 **1-4-02** Effective utilization techniques of indigenous phytoseiid mites in a new spider mite control system of fruit trees in Japan
Hidenari Kishimoto

16:45 **1-4-03** Development of Banker-sheet™ technology and its use in fruit orchards
Kotaro Mori

17:00 **1-4-04** A new control of spider mites based on IPM in Japanese pear ~IPM after all~
Ken Shimizu

17:15 **1-4-05** Evaluation of Augmentative Biological Control with Predatory Mite Using a Sheltered Slow-release Sachet and Acaricide Spraying on Greenhouse-grown Satsuma Mandarins
Kiyoshiro Goto

17:30 **1-4-06** The population dynamics of phytoseiid mites on citrus orchards in Guangdong and the causes analysis
Zi-Wei Song

17:45 **1-4-07** Biological Control of Red Spider Mites *Oligonychus biharen* Using predatory mites *Neoseiulus barkeri* on Jujube Plants *Zizyphus mauritiana*
Xiao-Duan Fang

18:00 **1-4-08** Chinese biological control in transition: from government funded projects to commerce
Gongyu Lin

Room B-1

Symposium 18-7

9:45 - 11:45

Innovative technological solutions to accelerate the systematics of mega-diverse insect orders

Chair: Jurate De Prins (Commonwealth Scientific and Industrial Research Organisation), Andreas Zwick (Commonwealth Scientific and Industrial Research Organisation)

9:45 **18-7-01** Using high-throughput species discovery with robots and Nanopore sequencing to overcome taxon biases in biodiversity science
Rudolf Meier

10:00 **18-7-02** Accelerating Biodiversity Discovery: Automated Insect Processing with DiversityScanner and a Mini Gripper Technology
Lorenz Wuehrl

10:15 **18-7-03** Large-scale digitization of insect morphology: recent advances in synchrotron X-ray imaging and data analysis
Thomas Van De Kamp

10:30 **18-7-04** Interlinked online databases – a key prerogative for evidence-based decision-making and for AI applications
Jurate De Prins

10:45 **18-7-05** What was old is new again: recent advances and perspectives for museomics in Coleoptera
Romain Nattier

11:00 **18-7-06** Imaging internal structures of rare dried and pinned insect specimens using virtual dissection and micro-CT scanning
Mikael Englund

11:15 **18-7-07** The holistic specimen: from morphology to genomes
Emma Kärrnäs

11:30 **18-7-08** Widening the taxonomic bottleneck with high-throughput collection genomics
Andreas Zwick

Symposium 18-8

13:30 - 15:30

ad hoc session

Chair: Lazzat Aibekova (Okinawa Institute of Science and Technology), Makiko Fukui (Ehime University)

13:30 **18-8-01** Development of the cephalic endoskeleton in *Baculentulus morikawai* (Hexapoda: Protura, Acerentomidae)
Makiko Fukui

13:45 **18-8-02** Hypermetamorphosis in Leaf-miner: Comparative Morphology of the Larvae of *Cameraria* and *Chrysaster* (Lepidoptera: Gracillariidae)
Masayasu Sawada

14:00 **18-8-03** The recurrent evolution of biting mouthparts in non-biting midges
Andre P. Amaral

14:15 **18-8-04** Developmental Divergence of Trap-Jaw and Non-Trap-Jaw *Strumigenys* Ants During Metamorphosis
Leonardo Tozetto

14:30 **18-8-05** Unraveling the ecological drivers of the variability of mesosoma muscles in ants
Lazzat Aibekova

14:45 **18-8-06** Beyond the blast: the phylogeny of brachinine bombardier beetles
Raine Ikagawa

15:00 **18-8-07** Mimetic relationship between colorful *Doliops* longhorn beetles and *Pachyrhynchus* weevils
Shan-Min Chen

15:15 **18-8-08** Phylogenomics of Phengodidae (Elateroidea): classification of a bioluminescent and paedomorphic beetle lineage, with recognition of Cenophenginae
Vinicius S. Ferreira

Symposium 18-9

16:15 - 18:15

27th annual SOLA Scarab workers symposium

Chair: Nicole Gunter (The Cleveland Museum of Natural History), Sergei Tarasov (Finnish Museum of Natural History (LUOMUS))

16:15 **18-9-01** The enigmatic Madagascan endemic *Belohina inexpectata*, finally rediscovered: biology, morphology and phylogenetic position (Coleoptera, Scarabaeoidea, Belohinidae)
Alberto Ballerio

16:30 **18-9-02** Altitudinal dispersal drives genetic admixture of montane and hilly populations of the *Neolucanus swinhoei* complex (Coleoptera: Lucanidae) on the subtropical Taiwan Island
Cheng-Lung Tsai

16:45 **18-9-03** Climate-driven morphological variation and phylogeography of dung beetles from the Gobi Desert and Mongolian Steppe
Changseob Lim

17:00 **18-9-04** Learning the language of flowers: Phylogeny and evolution of anthophilous Cyclocephalini beetles (Melolonthidae)
Diane Dabir-Moghaddam

17:15 **18-9-05** Systematics and evolution of Malagasy dung beetles (Coleoptera: Scarabaeinae)
Sergei Tarasov

17:30 **18-9-06** Unrolling the evolution of Australasian endemic dung beetles
Natalie Saxton

17:45 **18-9-07** Macroevolution of the New World scarab beetle tribe Phanaeini (Coleoptera: Scarabaeidae: Scarabaeinae)
Conrad P.D.T. Gillett

18:00 **18-9-08** Towards an understanding of relationships and origins of the native Australian *Onthophagus* (Coleoptera: Scarabaeinae)
Nicole Gunter

Room B-2

Symposium 3-7

9:45 - 11:45

Indirect interactions in biological control programs.

Chair: Paul Ode (Colorado State University), Micky Eubanks (Colorado State University), William E. Snyder (Washington State University)

9:45 **3-7-01** Understanding how to turn your enemies into your friends
Sarina Macfadyen

10:00 **3-7-02** Intraguild predation or spatial separation? The efficacy of using two natural enemy species for the biological control of pear sucker (*Cacopsylla pyri*).
Laura Amy Reeves

10:15 **3-7-03** Can biological control be a strategy to control vector-borne plant viruses?
Joan Van Baaren

10:30 **3-7-04** Real and perceived parasitism risk delays the development of *Drosophila suzukii*
Juli Carrillo

10:45 **3-7-05** Indirect defenses in sorghum: Can plants attract killers and suppress insect pests?
Emily Russavage

11:00 **3-7-06** The role of extrafloral nectar in associational resistance within the Milpa: Insights from traditional Mesoamerican agriculture
Betty Benrey

11:15 **3-7-07** Indirect effects of host plant chemistry on caterpillar immunity against their endoparasitoids.
Paul Ode

11:30 **3-7-08** Apparent facilitation disrupts biological control by avian insectivores during an insect biomass pulse.
John Thomas Lill

Symposium 3-8

13:30 - 18:15

Recent advances on biological control of invasive insect pests

Chair: Lucia Zappala (University of Catania), Marco Valerio Rossi Stacconi (Fondazione Edmund Mach), Antonio Biondi (University of Catania)

13:30 **3-8-01** What influences the success of classical biological control of insect pests?
Lukas Seehausen

13:45 **3-8-02** Classical biological control of *Drosophila suzukii* in the US
Kent M Daane

14:00 **3-8-03** *Classical biological control of Drosophila suzukii in Italy*
Marco Valerio Rossi Stacconi

14:15 **3-8-04** The search for biological control agents for the management of the invasive strawberry blossom weevil, *Anthonomus rubi*
Michelle T Franklin

14:30 **3-8-05** Performances of four egg parasitoids from China on brown marmorated stink bug *Halyomorpha halys* with different host age regimes
Cheng-Jie Shang

14:45 **3-8-06** Biological control of stink bugs: the need for integration with other sustainable methods
Eric Conti

15:00 **3-8-07** Synopsis of indigenous and exotic egg parasitoids associated to *Halyomorpha halys* in Europe
Francesco Tortorici

15:15 **3-8-08** Interacting networks to understand parasitoid control of invasive pests
Blas Lavandero

15:30 **Coffee Break**

16:15 **3-8-09** Pre-emptive biological control: an innovative approach to enhance preparedness against high-risk pests
Gonzalo Avila

16:30 **3-8-10** Advances in Classical Biological Control of Key invasive Tephritidae in African: Opportunities and challenges
Samira Abuelgasim Mohamed

16:45 **3-8-11** Current status of biological control of *Tuta absoluta*
Lucia Zappala

17:00 **3-8-12** Resident predators against invaders: biocontrol for the tomato potato psyllid in Australia
Shovon Chandra Sarkar

17:15 **3-8-13** Behavioral approach to improved biological control of spotted lanternfly
Xingeng Wang

17:30 **3-8-14** Chemical identification of active CHC components and putative neural mechanism for repellent effect of a native ant's body odor on invasive species
Mamiko Ozaki

17:45 **3-8-15** Feasibility of successful biological control of paper wasps, *Polistes* spp. in an invaded range, New Zealand
Bob Brown

18:00 **3-8-16** Biological control of invasive *Euwallacea* species in California: pipe dream or attainable goal?
Paul F Rugman-Jones

Room I

Symposium 3-9

9:45 - 11:45

ad hoc session

Chair: Safieh Soleimannejad (University of Melbourne), Eko Andrianto (Kyoto University)

9:45 **3-9-01** Induced Thermotolerance & Associated Expression of two HSPs and Ecdysone Receptor (*EcR*) Genes in Trans-generational Adaptation of *Orius strigicollis*
Eko Andrianto

10:00 **3-9-02** Analysis of Olfactory Behavioral Responses of *Orius strigicollis* (Poppius) for Development of Odor-Based Pest Management Systems
Hirono Ohashi

10:15 **3-9-03** Toxic masculinity – Heterologous venom expression in pest insect seminal fluid reduces mated female lifespan
Samuel Beach

10:30 **3-9-04** Oral Administration of Quorum Sensing Control Chemicals Influences *Wolbachia* Density and Reproductive Manipulation in Dipteran and Lepidopteran Hosts
Ardhiani Kurnia Hidayanti

10:45 **3-9-05** The Utilization of Rifampicin in the Control of Herbivorous Ants: *Dolichoderus thoracicus*
Yu-En Hsieh

11:00 **3-9-06** Assessment of pathogenicity and sublethal effects of entomopathogenic fungi on *Aedes aegypti* and *Anopheles stephensi* mosquitoes via oral infection
Sikandar Hussain

11:15 **3-9-07** Screening of *vip*2 and *vip*3 gene in Thai *Bacillus thuringiensis* strains and their insecticidal activity towards *Phenococcus manihoti* MAT-FERR and *Spodoptera frugiperda*
Prakai Rajchanuwong

11:30 **3-9-08** Transinfection with bacteria, enhancing classical biological control of grain crop aphids?
Safieh Soleimannejad

Symposium 13-7

13:30 - 18:15

Epidemiology of Japanese Encephalitis in a changing climate

Chair: Lee Cohnstaedt (USDA-ARS-NBAF), Chad Mire (United States Department of Agriculture), Natalia Cernicchiaro (Kansas State University)

13:30 **13-7-01** Reassessing the risk of Japanese encephalitis introduction to and transmission in the United States.
Natalia Cernicchiaro

13:45 **13-7-02** Competency of North American culex mosquito to Japanese encephalitis virus, genotype II
Dana Mitzel

14:00 **13-7-03** Japanese encephalitis virus dynamics in Asia: genotypes, vectors, and putative amplifying hosts
Astri Nur Faizah

14:15 **13-7-04** New mosquito vector surveillance and management tools for mosuqito-borne disease outbreaks
Lee Cohnstaedt

14:45 **13-7-05** Species comparison of host-seeking behaviors and suppression in Culicidae mosquitos using behavioral tracking and machine-learning classification
Takuya Uehara

15:00 **13-7-06** Using mosquito sounds and machine learning to identify invasive mosquito species of medical importance
Julie Augustin

15:15 **13-7-07** Land use alters mosquito communities along altitudinal gradients in Taiwan
Jhen Liu

15:30 **Coffee Break**

16:15 **13-7-08** Effect of mating and blood meals on the demographic characteristics of *Culex pipiens* f. *pipiens* and of *Culex pipiens* f. *molestus*
Georgios Mastronikolos

16:30 **13-7-09** Infrared spectroscopy as a tool for monitoring biological age in mosquitoes.
Mauro Pazmino

16:45 **13-7-10** Life stage-dependent responses of medically relevant mosquitoes to heat waves
Isabelle Kramer

17:00 **13-7-11** An Integrated Vector Management Program for the Prevention and Control of *Aedes aegypti* in Puerto Rico
Julieanne Miranda

17:15 **13-7-12** Insecticide Resistance Testing Before a Public Health Emergency, I Rarely Spray so I Don't Need to Test, Right?
Janet McAllister

17:30 **13-7-13** LAMP detection of virus-derived DNA from vector mosquitoes for xenomonitoring
Hiroka Aonuma

17:45 **13-7-14** The Gulf South Vector Education Centers for Training, Outreach, and Resources: A regional partnership to strengthen the prevention and management of vector-borne diseases.
Claudia Riegel

18:00 **13-7-15** The Influence of ABO Human Blood Group on the Feeding Rate Preferences of *Aedes* and *Anopheles* Mosquitoes (Diptera: Culicidae)
Watthanasak Lertlumnaphakul

Room J

Symposium 13-8

9:45 - 11:45

Entomological approaches to tackle vector-borne zoonotic diseases

Chair: Chizu Sanjoba (The University of Tokyo), Yasuyuki Goto (The University of Tokyo)

9:45 **13-8-01** Diseases transmitted by sand flies
Seray Toz

10:00 **13-8-02** Habitat preferences of sand flies
Yusuf Ozbel

10:15 **13-8-03** Determination of sand fly fauna in the foci of canine leishmaniasis in Zambia
Tatsuki Sugi

10:30 **13-8-04** Behavior of *Leishmania*-infected sand flies reveals hidden biology critical to interruption of leishmaniasis transmission.
Shaden Kamhawi

10:45 **13-8-05** Vector Control for Tackling Vector-Borne Zoonotic Diseases in Zambia
Enala Tembo Mwase

11:00 **13-8-06** Trypanosome infection rates, host preference, and genetic structure of tsetse flies in the African trypanosomiasis endemic foci in Zambia and Malawi
Kyoko Hayashida

11:15 **13-8-07** Evidence-based tsetse control to reduce sleeping sickness transmission at the human-wildlife interface
Karina Mondragon-Shem

11:30 **13-8-08** Mapping the world of *Culex* mosquito feeding: Insights from a meta-analysis
Jet Sofie Griep

Symposium 20-8

13:30 - 18:15

Diversity Beyond Insects: Global Gathering of Entomologists with Shared Knowledge across Disciplines

Chair: Nannan Liu (Auburn Univeristy), Le Kang (Institute of Zoology, Chinese Academy of Sciences)

13:30 **20-8-01** A neural circuit tuning the olfactory conflicted cues in locust aggregation
Le Kang

14:00 **20-8-02** Coordination of immune responses by extracellular serine protease systems in multiple insects
Haobo Jiang

14:15 **20-8-03** CRISPR-Cas9 genome editing uncovers the mode of action of methoprene in the yellow fever mosquito, *Aedes aegypti*
Guan-Heng Zhu

14:30 **20-8-04** Architectures and potential roles of glutathione transferases on chemical adaptation of insect pollinators
Fang Zhu

14:45 **20-8-05** Both JA- and ABA-mediated signaling pathways regulate the ovicidal defense of rice against a phloem-feeding herbivore
Qing Gao

15:00 **20-8-06** Revolutionary botanical repellent discoveries and their applications in agricultural, medical and urban pest management
Junwei Jerry Zhu

15:15 **20-8-07** Fine tuning of behavioral plasticity by long noncoding RNAs in locusts
Bing Chen

15:30 **Coffee Break**

16:15 **20-8-08** Harnessing "Little Mighty" cockroaches: pest management and beneficial utilization
Sheng Li

16:30 **20-8-09** G-protein-coupled Receptor Mediated Signaling Pathways in in Cytochrome P450-mediated insecticide resistance
Nannan Liu

16:45 **20-8-10** Mechanisms of resistance to *Bacillus thuringiensis* Cry proteins in a generalist insect *Trichoplusia ni*
Ping Wang

17:00 **20-8-11** CRISPR and transgenic-based precision-guided sterile insect technique for *Aedes aegypti* population suppression
Ming Li

17:15 **20-8-12** Identification of novel transcriptional regulators to facilitate insect survival under hypoxia
Keyan Zhu-Salzman

17:30 **20-8-13** Engineering a complex, multiple enzymes-mediated synthesis of natural plant pigments in the silkworm, *Bombyx mori*
Kai Chen

17:45 **20-8-14** Molecular mechanisms of the systemic invasion of rice stripe virus in insect vectors
Feng Cui

18:00 **20-8-15** Expression Pattern of Olfactory Receptors in the Larval Mosquito
Feng Liu

Room K

Symposium 8-5

9:45 - 11:45

The genetic resources of domesticated silkmoth and wild silkmoth in the post-genomics era

Chair: Jung LEE (Gakushuin University), Tsuguru Fujii (Kyushu University)

9:45 **8-5-01** Determining W chromosome sequences of bombycid moths.
Jung Lee

10:00 **8-5-02** Complete understanding the tetrahydrobiopterin synthesis network in the domesticated silkworm *B. mori*
Yan Meng

10:15 **8-5-03** Silkworm and environment: sensitivity to juvenile hormone analogues
Silvia Cappellozza

10:30 **8-5-04** Collection, Breeding, and Preservation of Silkworm Bioresources at Kyushu University.
Tsuguru Fujii

10:45 **8-5-05** Unveiling the Immune Gene Repertoire of Muga Silkworm (*Antheraea assamensis* Helfer) through Genome-wide Analysis
Himanshu Dubey

11:00 **8-5-06** Wild silkworm genetic resources in Japan
Zenta Kajiura

11:15 **8-5-07** Intersexes as a consequence of ploidy changes in the eri silkmoth, *Samia cynthia ricini*
Atsuo Yoshido

11:30 **8-5-08** Molecular characterization, mode of transmission and tissue tropism of viruses infecting wild silkworms of India
Kangayam Muthusamy Ponnuvel

Symposium 8-6

13:30 - 15:30

ad hoc session

Chair: Rong Hu (Huazhong Agricultural University), Tatiana Teixeira Torres (University of São Paulo)

13:30 **8-6-01** Accumulative chromosome-scale genome information revealed Antheraea yamamai possesses a prototypic karyotype of Ditrysia
Shunsuke Sakurai

13:45 **8-6-02** Multi-omics Perspectives of Four Leptopilina Parasitoid Wasps Unravel Genomic Evolution and Offspring Fitness Adaptation
Zhi Dong

14:00 **8-6-03** Exploring Genetic Convergence: Insights into Trophic Specialization in the Calliphoridae Family
Tatiana Teixeira Torres

14:15 **8-6-04** Mitochondrial DNA markers and their limitations in entomological research
Stanislav Ožana

14:30 **8-6-05** Recent Proliferation of Three Key Transposons Drives Genome Expansion in the Brown Planthopper
Bingbing He

14:45 **8-6-06** Evolution of novel insertion site specific retrotransposable elements in anophelines with potential as a gene drive component
Colin A Malcolm

15:00 **8-6-07** Horizontally transferred carotenoid biosynthetic genes widely present in aphids
Rong Hu

15:15 **8-6-08** The Evolution of Horizontal Gene Transer in Termites
Cong Liu

Symposium 8-7

16:15 - 18:15

International sequencing initiatives: Building genomic resources and bridging research disciplines

Chair: Brad Steven Coates (USDA-ARS), Li Fei (Zhejiang University)

16:15 **8-7-01** USDA ARS's Ag100Pest Initiative and Beenome100: From Pests to Pollinators and Beyond
Anna K Childers

16:30 **8-7-02** The Global Ant Genomics Alliance (GAGA): towards a phylogenomic understanding of ant social evolution
Guojie Zhang

16:45 **8-7-03** The Darwin Tree of Life Project: The practicalities and applications of sequencing a complete regional fauna.
Liam Crowley

17:00 **8-7-04** Cementing the link between genomics and museum collections: the Darwin Tree of Life Project
Inez Januszczak

17:15 **8-7-05** Gevol: Genomic Basis of Evolutionary Innovations
Erich Bornberg-Bauer

17:30 **8-7-06** Genomic applications for uncovering the early stages of viral mutualism in parasitoid wasps
Kelsey A. Coffman

17:45 **8-7-07** Evolution and Adaptation of Multiple Weevil Pests Using Pangenomics
Zachary Cohen

18:00 **8-7-08** Population structure of the Kamehameha butterfly, a threatened Hawaiian endemic, may show early signs of early allopatric divergence
Haley Arnold

Room 554

Symposium 4-5

9:45 - 11:45

Chemical ecology and beyond by early-career scientists

Chair: Hajime Ono (Kyoto University), Hisashi Omura (Hiroshima University), Koji Noge (Akita Prefectural University)

9:45 **4-5-01** The links between plant volatiles and host plant specialization of herbivores
Po-An Lin

10:00 **4-5-02** Smell vs Taste: What drives bee pollinator preference between two species of nectar dwelling yeast?
Megan Elizabeth Moore

10:15 **4-5-03** Ant-like floral scent attracts kleptoparasitic fly pollinators in *Vincetoxicum magnificum*
Ko Mochizuki

10:30 **4-5-04** Molecular and evolutionary bases of *Pieris* butterflies for overcoming diverse chemical defenses in their Brassicaceae host plants
Yu Okamura

10:45 **4-5-05** Functional plasticity of salivary proteins in Heteroptera and their role in dietary shifts and expansions
Maike Laura Fischer

11:00 **4-5-06** Alternative splicing of TRPA1 channel underlies the gustatory evolution in a mustard-feeding drosophilid fly
Hiromu Suzuki

11:15 **4-5-07** Sensory basis for detection of contact chemical cues associated with host and mate recognition in *Galerucella grisescens* (Coleoptera: Chrysomelidae)
Yuki Chiba

11:30 **4-5-08** *De Novo* Synthesized Pyrazines in Tiger Moths: Ecology, Evolution and Prevalence
Zowi Oudendijk

Symposium 20-9

13:30 - 18:15

Diverse approaches to meeting pest management needs

Chair: Lauren Diepenbrock (University of Florida), Anh Kim Tran (ISK Biosciences)

13:30 **20-9-01** Rebuilding IPM in Florida citrus with a grower-centric approach
Lauren Diepenbrock

13:45 **20-9-02** Adopting inundative biological control using mass-reared predatory insects and mites against arthropod pests in Florida: Experiences from the field
Steven Arthurs

14:00 **20-9-03** From classical to conservation biological control: management of invasive pests in Mediterranean orchards.
Alejandro Tena

14:15 **20-9-04** Rising to the challenge and meeting the pest management needs of new invaders in remote Western Australia.
Helen Spafford

14:30 **20-9-05** Multi-trophic interactions for more sustainable insect pest control in winter oilseed rape
Chloë Raderschall

14:45 **20-9-06** Agroecological strategy of biodiversity levels of landscape in Satoyama of Japan, associated with SSD of insects populations in rice fields
Kazuamsa Hitaka

15:00 **20-9-07** Interagency Collaboration for the Distribution of Biological Control Agents
Emily C Kraus

15:15 **20-9-08** KABURI Canvas: Can action game reproduce the dynamics of biocontrol agents?
Masaaki Sudo

15:30 **Coffee Break**

16:15 **20-9-09** Exploring the ecology of invasive species in their native range: insights with focus on the bark beetle *Polygraphus proximus*
Etsuro Takagi

16:30 **20-9-10** Exploring the early stages of IPM plan development and implementation for the invasive European Green Crab in Washington State
Laura Kraft

16:45 **20-9-11** Developing semiochemical tools for pests in the United States by exploiting structures from overseas taxa
Jacqueline Serrano

17:00 **20-9-12** Current achievements on the sustainable control of the South Tomato Pinworm in Europe
Antonio Biondi

17:15 **20-9-13** Ultrasonic katydid calls (*Conocephalus* spp.) suppress fall armyworm (*Spodoptera frugiperda*) orientation flights and oviposition
Jodi Sedlock

17:30 **20-9-14** The applications of Machine learning in streamlining the process of sticky card in agricultural setting
Jamal Hunter

17:45 **20-9-15** Daisy-chain gene drives: performance modeling and demonstration in *Drosophila melanogaster*
Jialiang Guo

18:00 **20-9-16** Doctor of Plant Medicine: An Interdisciplinary Program Focusing on Pest Management and Plant Health
Md Tafsir Nur Nabi Rashed

Room 555

Symposium 6-3

9:45 - 11:45

Chromatin and its dynamics in insect development and reproduction

Chair: Subba Reddy Palli (University of Kentucky), Alexander Raikhel (University of California Riverside)

9:45 **6-3-01** Epigenetic Regulation of Development and Reproduction
Subba Reddy Palli

10:00 **6-3-02** Gene transcription regulation by DNA advanced structures
Qili Feng

10:15 **6-3-03** Chromatin remodeling and regulatory elements of hormone signaling network in the fat body during *Drosophila* metamorphosis.
Dongwei Yuan

10:30 **6-3-04** Sublethal exposure to insecticides and inheritance of epigenetic modifications in the Colorado potato beetle
Yolanda H Chen

10:45 **6-3-05** Regulation of Maternal mRNAs Involved in Chromatin Formation and Configuration in the Fall Armyworm
Pengcheng Liu

11:00 **6-3-06** Unpacking DNMT1's role in reproductive phenotypic plasticity
Emily A. Shelby

11:15 **6-3-07** No father, no daughters: maternal epigenetic imprinting determines sex in parasitoid wasps
Filippo Guerra

11:30 **6-3-08** The mitotic spindle drives diploidization of haploid chromosome complements in *Drosophila* fertilized and parthenogenetic embryos
Kazuyuki Hirai

Symposium 20-10

13:30 - 18:15

Perspectives on Forensic Entomology Research, Casework, and Protocols: Working Toward International Standards

Chair: Lauren M Weidner (Arizona State University), Denise Gemmellaro (Kean University), Krystal R. Hans (Purdue University)

13:30 **20-10-01** Medicocriminal Entomology in Italy and the Italian Group for Forensic Entomology (GIEF): past, present and future.
Carlo Pietro Campobasso

14:00 **20-10-02** Insect Evidence: an Overview of Forensic Entomology Casework in the Midwestern United States
Krystal R. Hans

14:15 **20-10-03** Decomposition in the Desert: Considerations for Forensic Entomologists
Lauren M Weidner

14:30 **20-10-04** Applications of Medico-Legal Entomology in South Korea: Three Case Studies
Min-Gyu Kang

14:45 **20-10-05** Experimental field validation of post-mortem interval estimates based on insect development
Szymon Matuszewski

15:00 **20-10-06** Decomposition in Water: Designing New Protocols to Maximize the Recovery of Entomological and Non-Entomological Evidence
Denise Gemmellaro

15:15 **20-10-07** Seasonal and habitat impacts on biodiversity of forensically important blowflies (Diptera: Calliphoridae) in Gyeongsangnam-do, South Korea
Hyeon-Seok Oh

15:30 **Coffee Break**

16:15 **20-10-08** Insect Fauna of South Korean Carcasses: A Comprehensive Medicolegal Entomology Study (2015-2022)
In-Seong Baek

16:30 **20-10-09** The effect of air humidity on the development and thermogenesis in *Necrodes littoralis* beetles - forensic implications
Anna Madra-Bielewicz

16:45 **20-10-10** Competition, cooperation and parental effects in larval aggregations formed by communally breeding carrion beetles *Necrodes littoralis* L. (Staphylinidae: Silphinae)
Natalia Lis

17:00 **20-10-11** Blow fly Oviposition Behavior on Aged Substrates
Vanessa Cooper

17:15 **20-10-12** Morphological identification of larvae of necrophagous blowflies (Diptera, Calliphoridae) – where we are and where we are going?
Krzysztof Szpila

17:30 **20-10-13** Understanding the distribution of target microbial pathogens in adult blow fly (Calliphoridae) gut tissue at three sites in New Jersey, USA
Michael A. Monzon

17:45 **20-10-14** Gotta Decompose 'Em All: Black Soldier Flies in Human Remains Decomposition
Rudy Caparros Megido

18:00 **20-10-15** Population assessment, and silphid beetle community association with the American burying beetle (*Nicrophorus americanus*): Implications for future conservation efforts
William Wyatt Hoback

Room 509

Symposium 17-4

9:45 - 11:45

Recent advances in the study of complex behaviors in honey bees

Chair: Axel Brockmann (National Centre for Biological Sciences - Tata Institute of Fundamental Research), Takeo Kubo (The University of Tokyo)

9:45 **17-4-01** The unsuspected role of honey bee pheromones as cognitive agents
Martin Giurfa

10:15 **17-4-02** Neurogenetic tools to record neural activity in the honey bee
Julie Carcaud

10:30 **17-4-03** Integrating automated tracking and molecular neurobiology to elucidate social behavior in Apidae
Ian Michael Traniello

10:45 **17-4-04** Molecular studies on time-trained honey bees reveal functional connections between the circadian clock and mushroom bodies
Tiyasa Roy

11:00 **17-4-05** Analyses of *mKast* functions in the mushroom bodies and optic lobes of the honey bee using knocked-out mutants produced by CRISPR/Cas9
Hiroki Kohno

11:15 **17-4-06** Colony reproduction needs motivate pollen foraging through the E-β-ocimene-leucokinin axis in the Asian honeybee
Shiqi Luo

11:30 **17-4-07** Neuroethology of honey bee dance
Hiroyuki Ai

Symposium 17-5

13:30 - 18:15

Genetics & Genomics in Ecology and Evolution of Social Insects

Chair: Elaine Françoso (Royal Holloway University of London), Natalia de Souza Araujo (Université Libre de Bruxelles), Cintia Akemi Oi (UCL)

13:30 **17-5-01** Genomic basis of life-history innovations in bees and wasps
Seirian Sumner

14:00 **17-5-02** Sociogenetic structures of two parthenogenetic ants with contrasting modes of nest founding
Naoto Idogawa

14:15 **17-5-03** The social brain of termites: investigating gene co-expression network in the Blattodea
Cedric Aumont

14:30 **17-5-04** Evolutionary genomics of sociality in beetles
Julius Rombach

14:45 **17-5-05** Deciphering the puzzle of *Tetragonula* species from Australia: a tale of numts, rapid evolution, whole mitogenome duplication & rearrangements
Elaine Françoso

15:00 **17-5-06** A supergene underlying sexual antagonism promotes genetic diversity in an invasive ant
Edward Vargo

15:15 **17-5-07** A supergene underlies social polymorphism in the desert ant *Cataglyphis niger*
Eyal Privman

15:30 **Coffee Break**

16:15 **17-5-08** Using eDNA to advance knowldge on bee-plant interactions.
Amro Zayed

16:30 **17-5-09** Uncovering Floral Composition of Paper Wasp Nests (Hymenoptera: Vespidae: Polistes) through DNA Metabarcoding
Saeed Mohamadzade Namin

16:45 **17-5-10** Genomic mechanisms of caste determination in stingless bees
Natalia de Souza Araujo

17:00 **17-5-11** How inquilinism shapes reproductive systems within an inquiline-host relationship in termites
Johanne Timmermans

17:15 **17-5-12** Adaptation through Thermal Tolerance in the Urban Invader *Tapinoma sessile*
Kuan-Ling Kelly Liu

17:30 **17-5-13** Individual level long-read genome assemblies reveal co-evolution of DNA methylation and transposable elements in termite genomes
Bitao Qiu

17:45 **17-5-14** The genomic basis for high-altitude adaptation in a bumblebee
Chunyan Jiang

18:00 **17-5-15** Global historical biogeography and diversification dynamics of ponerine ants unravel current evolutionary hotspots of biodiversity
Maël Doré

Room 510

Symposium 10-6

9:45 - 11:45

How do insects evolve to manage symbioses with microbes?

Chair: Allison Hansen (University of California, Riverside), Gordon M Bennett (University of California Merced), Minoru Moriyama (AIST)

9:45 **10-6-01** Horizontal gene transfer facilitates the persistence of whitefly-microbe symbiosis
Jun-Bo Luan

10:00 **10-6-02** Navigating development and metabolism as an intracellular reproductive symbiont
Amelia Lindsey

10:15 **10-6-03** Evolution of host support in beneficial leafhopper-bacterial symbioses
Gordon M Bennett

10:30 **10-6-04** Conservation and divergence of insect host gene expression patterns in symbiotic organs of Hemipterans
Allison Hansen

10:45 **10-6-05** Gut mutualistic bacterial symbiont confers stinkbug's cryptic green coloration
Minoru Moriyama

11:00 **10-6-06** A cell atlas of the honey bee hindgut
Ana Claudia Campos

11:15 **10-6-07** Origin and evolution of a beetle-fungal defensive symbiosis
Aileen Berasategui

11:30 **10-6-08** Host offense and microbial defense mechanisms to establish the *Riptortus* and *Caballeronia* symbiosis
Tsubasa Ohbayashi

Symposium 10-7

13:30 - 18:15

Harnessing insect vector-plant-pathogen interactions to innovate pest management

Chair: Kiran Ramesh Gadhave (Texas A&M University), Rajagopalbabu Srinivasan (University of Georgia)

13:30 **10-7-01** Sweet surprise: Unraveling beet leafhopper and beet curly top virus interaction to identify novel strategies for pest control in sugar beets
Punya Nachappa

13:45 **10-7-02** Comparing the localization patterns of the proteins of divergent orthotospoviruses in Alabama to understand infection.
Kathleen Martin

14:00 **10-7-03** Plant expression of viral silencing suppressor proteins shows that antiviral immunity in plants and aphids is functionally coupled
Stephanie Eliza Preising

14:15 **10-7-04** Fighting fire with fire: using a novel virus-like RNA to develop targeted interventions against vector-transmitted plant pandemic virus
Kiran Ramesh Gadhave

14:30 **10-7-05** Vitellogenin-Cas9 protein chimeras for targeted germline gene editing of aphids
Reuben Philip James

14:45 **10-7-06** MCMV-infected maize attracts its insect vector *Frankliniella occidentalis* by volatile β-myrcene
Weiling Huang

15:00 **10-7-07** Harnessing mature plant resistance in sugar beet to inhibit virus transmission by aphids
Veronique Brault

15:15 **10-7-08** Virus and vector IPM in cucurbits: trying to hit a moving target.
Kerry Elizabeth Mauck

15:30 **Coffee Break**

16:15 **10-7-09** Increasing within-crop genetic diversity as a tool with which to manage aphid vectors of plant viruses
Tom Pope

16:30 **10-7-10** Mitigating psyllid transmission of bacterial phytopathogens with antisense oligonucleotides and antibiotics: biological and practical outcomes
Lukasz Stelinski

16:45 **10-7-11** The interface between crop and grazing lands: Can cereal aphid and barley yellow dwarf virus (BYDV) spread be influenced by endophytic and non-endophytic tall fescue forages?
Arash Rashed

17:00 **10-7-12** Challenges and opportunities: Improving the management of thrips-transmitted viruses driving epidemics in California lettuce
Daniel Kazuo Hasegawa

17:15 **10-7-13** Virus-virus interaction in a common vector: antagonistic effects and competitive dynamics between two tomato-infecting begomoviruses in *Bemisia tabaci*
Wei-Hua Li

17:30 **10-7-14** Psyllid salivary proteins and their effect on plant immunity
Julien Gad levy

17:45 **10-7-15** Silencing horizontally transferred biotin genes disrupts whitefly fitness but compromises parasitoid performance
Tian-Yu Wang

18:00 **10-7-16** Impacts of plant-associated bacteria on aphid survival and behavior.
Tory Hendry

Thursday 29 August

Event Hall

Poster 18 11:45 - 13:30

Biological Control

P0636 Combining biopesticides increases efficacy against the fall armyworm, *Spodoptera frugiperda*
Steven James Harte

P0637 Biocontrol of the red palm weevil, *Rhynchophorus ferrugineus* (Olivier, 1791)
Tabone Elisabeth Tabone

P0638 Effect of the inoculation density on the rearing of *Dastarcus longulus* (Coleoptera: Bothrideridae) using an alternative host
Tianyi Zheng

P0639 Management and Current Status of the Invasive Ant *Wasmannia Auropunctata* in Taiwan
Hsiang-Ming Huang

P0640 Applications of entomopathogenic fungus (*Purpureocillium takamizusanense*) in the biological control of agricultural pests
Ying-Cheng Chen

P0641 Improvements of the rearing method of *Dastarcus longulus* using frozen pupae of *Zophobas atratus*
Ayane Kayamori

P0642 Experimental parasitism of the parasitoid beetle *Dastarcus longlus* larvae to the invaded longhorn beetle *Apriona swainsoni swainsoni* larvae
Kyo Itoyama

P0643 Functional Analysis of Transcriptome and Flight-Related Genes in Female Adults of Asian and European Spongy Moths
Juan Shi

P0644 Exploring bio-inspired tools against the invasive mealybug *Phenacoccus solenopsis*
Michele Ricupero

P0645 Biological control of polyphagous agricultural pests on native plants: the case of cottony cushion scale in Sicily
Emanuele Porcu

P0646 Using Rapid Molecular Diagnostics to Inform Conservation Biocontrol Strategies of Forestry Pests: A Case Study of Oak Processionary Moth (*Thaumetopoea processionea*)
Kyle Alexander Miller

P0647 The biological control agents *Carvalhotingis visenda* and *Hedwigiella jureceki* as vectors on an adventive pathogen *Cercosporella unguis-cati* in South Africa
Thabo Moabi

P0648 *Massospora* in Japan, a cicada-pathogenic fungal genus
Takashi Ohbayashi

P0649 Histopathological appearance in the coffee berry borer, *Hypothenemus hampei* (Ferrari, 1867) after the infected *Metarhizium guizhouense* PSUM04
Narit Thaochan

P0650 Harnessing microbial volatile blends to attract *Aphidius* parasitoids and boost aphid biocontrol
Francine van Neerbos

P0651 Comparison of area-wide population structure between *Orius strigicollis* and *O. sauteri*
Lan Kong

P0652 Abundance of Japanese beetle adults and its tachinid parasite *Istocheta aldrichi* in a commercial vineyard of Quebec, Canada
Charles Vincent

P0653 Comparison of two diets for rearing *Nesidiocoris tenuis* in the laboratory
Yui Tamada

P0654 Scaling up from laboratory to field: the intricate case of quasi-social parasitoids in the genus *Sclerodermus*
Daniela Lupi

P0655 Assessing the Influence of Agricultural Practices on Functional Biodiversity: A Comparative Study in Conventional and Agroecological Tomato Crop
Vasileia Chatzaki

P0656 Elevational Gradients of Entomopathogenic Nematode Activity in Oak (*Quercus*) Trees' Rhizosphere are Contingent on Plant Ontogeny
Rubén Blanco Pérez

P0657 The behaviour and ecology of cabbage stem flea beetle and the parasitoid of its adult stage: good prospects for conservation biological control
Sam Cook

P0658 Evaluation of chitinolytic activity and virulence of *Purpureocillium takamizusanense* strains against *Tessaratoma papillosa* (Drury)
Hsiao-Han Tsai

P0659 Parasitic castration as a biological control tool to manage carrot weevil populations
Annie-Eve Gagnon

P0660 Trends of Pests and Natural Enemies in the Organic Cultivation of Green Onions in the Hilly and Mountainous Areas of Western Japan
Toshio Kitamura

P0661 Comparison of some characteristics related to the conservation of *Orius* spp. between the two varieties of okra
AKinobu Nakamura

P0662 Impacts of site characteristics and plant genetics on the efficacy of a weed biological control agent
Dale Halbritter

P0663 On the Eco-Friendly Control for Pine Wilt Disease in Korea National Parks
Taeman Han

P0664 Tracking secondary plant feeding in generalist predators as a guide to rethink predator-prey interactions in agricultural landscapes
Arash Kheirodin

P0665 Establishment of behavioral assay system to evaluate locomotor activity of predatory bugs in *Orius strigicollis*.
Kohei Honda

P0666 A Cell Phone for Bees
Ghorban Ali Miarkiani

P0667 Study on the safety of five neonicotinoid pesticides to the predatory lady beetle Propylaea japonica
Kairan Zuo

P0668 Naturally occurring pathogen as a potential biological control tool for *Atta sexdens* (Formicidae: Attini)
Gustavo Tsujimoto

Poster 19

11:45 - 13:30

Ecology and Evolution

P0669 Impact of delayed larval growth caused by the anti-herbivore defense of apple fruits on the diapause induction and voltinism of *Carposina sasakii*
Yoichi Ishiguri

P0670 Don't Eat Us: Understanding variation and sexual dimorphism in aposematic signals in diurnal Australian moths
Georgina Erika Binns

P0671 The Influence of Disturbance and Vine Proliferation on Invertebrate predation. A study using plasticine caterpillars.
Charlotte Raven

P0672 Sex allocation in natural populations of a parasitoid wasp *Monodontomerus obscurus* (Hymenoptera: Torymidae) examined with single-nucleotide polymorphism data.
Nakatada Wachi

P0673 The nature of sex-determining genes in *Thermobia domestica* (Zygentoma: Lepismatidae) and the evolution of sex-determining mechanisms in insects
Yasuhiko Chikami

P0674 Relationship between playback order of parts of calling song and response from males in cicada *Meimuna opalifera*
Takeru Kodama

P0675 Plasticity for the win: Flexible transcriptional response to host plant switches in the comma butterfly (*Polygonia c-album*)
Katharina Schneider

P0676 Systematics of Strepsiptera: The evolution of the twisted-wing parasites
Rebecca Jean Arizapa Millena

P0677 The greyish-white granulated weevil, *Episomus turritus*, has the remarkable ability to revive even after being submerged in water for several days
Kazuki Tamura

P0678 Survivability of summer females, eggs and nymphs of two-spotted spider mite *Tetranychus urticae* Koch (Acari: Tetranychidae) in water
Sergei Ya. Popov

P0679 Left-handed sperm removal in the damselfly *Calopteryx cornelia*: Why can't right-handers invade the populations?
Yoshitaka Kamimura

P0680 Evolution of realised niche breadth diversity driven by community dynamics
Daisuke Kyogoku

P0681 Distribution of litter-dwelling insect communities according to microclimate changes in broad-leaved forests
Ji-Won Kang

P0682 Spider mites exposed to extracts of injured conspecifics disperse from protective webs.
Junri Kubo

P0683 Does the kinship of the first mates affect the receptivity of females remating in a sweet potato weevil *Euscepes postfasciatus*?
Norikuni Kumano

P0684 Symbiotic Evolutions of Xystodesmid Millipedes and Parasitic Nematodes Suborder Spirulina
Seiya Nagae

P0685 Many wild bee genera are competent hosts of *Crithia bombi*, but host competence cannot fully explain patterns of natural prevalence
Wee Hao Ng

P0686 Comparative diversity and abundance of insects in *Agave tequilana* Weber, native vegetation, and perturbed area in Arandas, Jalisco, Mexico
Rosaura Torres Moreno

P0687 Microhabitat selection of caterpillars in the two sympatric *Papilio* butterfly species with different anti-predator strategies
Gakuto Nihei

P0688 Does genetic diversity change dispersal tendency in the two-spotted spider mite,*Tetranychus urticae*?
Yuta Fukunaga

P0689 Ecology of *Cephalcia koreana* (Hymenoptera: Pamphiliidae) damaging to *Abies holophylla* plantations: wax and wane in their population
Jong-Kook Jung

P0690 Searching for genes responsible for the formation of ectopic campaniform sensillum in *Drosophila guttifera*
Fuka Hiramatsu

P0691 The life history of *Blissoxenos esakii* (Strepsiptera: Corioxenidae): superparasitism, first instar larva, and female adults
Hayato Kanto

P0692 The difference of male courtship behaviors in response to female body size between two closely related species in *Pieris* butterflies.
Masaaki Ohata

P0693 Nidicolous parasites in nests of some wild birds in Tottori, Japan
Kyeongsoon Kim

P0694 A novel sawfly-plant mutualism between *Nipponorhynchus* and *Macrostemon*: Did proboscis length co-evolve with floral characters?
Marika Yamaguchi

P0695 Leaf colour preference of herbivorous insects: tests of the warning signal hypothesis of red/purple young leaves
Jun-Ya Ide

P0696 Predator avoidance in herbivorous mites: Effects of physiological state of predators
Tatsuya Yoshida

P0697 *Harmonia axyridis* Immigration and Oviposition in Response to Variable Aphid Density
Kelley Tilmon

P0698 How does insect biomass differ between temperate and tropical climates?
Ayco J. M. Tack

P0699 Defense responses and growth balance toward two herbivore species in goldenrod
Kaori Shiojiri

P0700 Do periodical cicada emergences alter ant-mediated ecosystem services?
Martha Weiss

P0701 Extremely high relative growth rate makes the cabbage white, *Pieris rapae*, an abundant global pest with migratoriness: RGR decrease and defaunation
Kotaro Konno

P0702 Why *Lymantria dispar* females in Hiroshima Prefecture prefer to lay egg masses on the undersurfaces of leaves of *Quercus glauca*, an evergreen broad-leaved tree species?
Shota Jikumaru

P0703 Evolutionary potential of wing shape mimicry in mimetic females of *Papilio polytes*
Tomohiro Suzuki

P0704 A fossilized fairy world: Paleodiversity and evolutionary history of fairy wasps and false fairy wasps (Hymenoptera: Mymaridae, Mymarommatidae)
Sergio Álvarez-Parra

P0705 Proportional processing explains mite preference for larger host burying beetles
Yi-Ta Wu

P0706 Functional adaptations to distinct feeding modes, reflected by morphology and material composition in the larval mandibles of Trichoptera (Insecta, Neoptera)
Wencke Krings

P0707 Assessing parasitoidism strategies and life history traits as promoters of diversification rate shifts in the parasitoid wasp family Braconidae
Jovana M. Jasso-Martinez

P0708 Extreme shapes of the Cretaceous: long legs in larvae of mites and lacewings from 100 million years ago.
Sofía Irene Arce

P0709 Current understanding of the ecology and evolution of Grylloblattidae and future research directions
Noelle Gamett

P0710 Biology of *Gampsocleis buergeri* complex: phylogeny, mating behavior, and chirp synchronization
Hideshi Naka

P0711 Diversification of aposematic coloration in the context of Müllerian mimicry: Investigating the evolutionary patterns and mechanisms in millipedes
Tsutomu Tanabe

P0712 Do harmful males maintain sexual reproduction? reproductive interference between sexual and thelytokous lineages in *Thrips tabaci*
Tatsumi Kudo

P0713 Seasonal variations of Aculeata communities in deciduous broadleaved forests, revealed by trophic level and detritus dependency
Kazushige Uemori

P0714 Historical population cycles in a multivoltine insect suggest substantial plasticity in the thermal reaction norm
William Nelson

P0715 Physical performance for male-male combat declines with aging in the Japanese rhinoceros beetle
Asahi Kanda

P0716 How does ecosystem functioning relate to temporal fluctuations in species evenness?
Daniel Anderson

P0717 Hijack of her host: successful parasitism by a specialist endoparasitoid in sympatric 'non-host' caterpillars through multiparasitism
Kazumu Kuramitsu

P0718 Population genetics and ecological niche modeling of a massively emerging burrowing mayfly species, *Ephemera orientalis* (Ephemeroptera: Ephemeridae), in South Korea
Ji Hyoun Kang

P0719 Differences in the functional traits of ant assemblages between vertical strata of a temperate forest
Kanata Inoue

P0720 Hidden ecological diversity in the earliest ants: incorporating estimates of fossil ecology in ancestral state reconstruction
Christine Sosiak

P0721 Invertebrate biodiversity in bryophyte habitats: epigeic vs. epiphytic bryophytes
Veronika Ohainková

P0722 Population monitoring of *Halyomorpha halys* (Hemiptera: Pentatomidae) in kiwi orchards in Northern Greece
Stefanos Andreadis

P0723 Morphology, molecules & mating behaviour: An integrative study of reproductive isolation & incipient speciation in a widespread dung fly (Sepsidae)
Nalini Puniamoorthy

P0724 Phytophagous insect interactions with ferns and lycophytes: network analysis & new global perspective.
Javier Fuentes-Jacques

P0725 Molecular evolution of sex-determining genes in the carambola fruit fly and its related species
Nidchaya Aketarawong

P0726 Spring and early summer migration of *Mythimna separata* to Japan
Akira Otuka

P0727 Active vision: Bees tell us where to look - elegant & simple solutions to complex problem-solving
Marie-Genevieve Guiraud

Poster 20

11:45 - 13:30

Alien insects

P0728 Chemical profiles of three European ash species (*Fraxinus* spp.) in response to emerald ash borer and ash dieback pathogen
Beatrice Tolio

P0729 Chromosome-level genome assembly of *Monochamus saltuarius* and its interaction mechanism with pine wood nematode
Lili Ren

P0730 Detection of three invasive beetle species within host trees by chemical analysis of frass
Nao Fujiwara-Tsujii

P0731 Habitat and population dynamics of an alien praying mantis, *Hierodula chinensis*
Raito Ioka

P0732 Distribution and seasonal dynamics of the *Euwallacea fornicatus* species complex (Coleoptera: Curculionidae) in Taiwan
Yi-Chang Liao

P0733 The BiCEP biocontrol collaboration: past, present and future
Simon Andrew Lawson

P0734 Ecological characteristics of *Anoplophora horsfieldii* (Coleoptera: Cerambycidae), a newly identified exotic insect in Jeju Island, South Korea
Sun Keun Lee

P0735 Options for an insecticide-free management of the black stem borer, *Xylosandrus germanus*, a non-native bark beetle in Germany
Christiane Helbig

P0736 Optimizing trapping methods for the black stem borer, *Xylosandrus germanus*
Moritz Brunkau

P0737 Outbreak of a new *Sirex* sp. (Hymenoptera: Siricidae) in pine plantations in Brazil
Carlos Wilcken

P0738 Evidence of gallery initiation by *Ips typographus* solitary females in natural conditions (Coleoptera, Curculionidae, Scolytinae).
Emilio Caiti

P0739 Identification, characterization and expression analysis of transient receptor potential channel genes in *Bactrocera dorsali*
Hongai Su

P0740 Molecular Basis of Symbiont Enhanced Insecticide Resistance in the Oriental Fruit Fly
Tian Zeng

P0741 Characterization of an agmatine N-acetyltransferase from *Bactrocera dorsalis* that modulates ovary development
Feiyue Teng

P0742 Presentation Withdrawn

P0743 Effect of insect galls formed by *Obolodiplosis robiniae* on the decomposition of *Robinia pseudoacacia* leaves in a stream.
Mizuki Hirota

P0744 First detection of the red palm weevil *Rhynchophorus ferrugineus* (Olivier) (Coleoptera: Curculionidae) in mainland South America
Vitor Cezar Pacheco Da Silva

P0745 Unravelling the invasive patterns of the exotic Antarctic fly *Trichocera maculipennis: A genetic and morphometric approach*
Hugo Benítez

P0746 Citizen Science as a valuable multilevel tool for study of alien invertebrates
Jiri Skuhrovec

P0747 Impaired fitness in *Ostrinia furnacalis* (Lepidoptera: Crambidae) due to interactions with *Spodoptera frugiperda* (Lepidoptera: Noctuidae)
Yuwatida Sripontan

P0748 Mitochondrial DNA analysis supports a domestic expansion of the southern green stink bug *Nezara viridula* Linnaeus in Japan.
Takahiro Setoguchi

P0749 Investigating the presence and potential invasion risk of *Lycorma delicatula* (spotted lanternfly) in Taiwan: a multidimensional approach
Jhih-Rong Liao

P0750 Sensing volatiles to monitor and manage invasive pests in agriculture and forestry
Riccardo Favaro

P0751 Exploring Supercoloniality and Novel Microsatellite Markers in *Odontomachus troglodytes*: Insights into a Recently Invaded Ponerinae Ant in Taiwan.
Matthew Hsiao-Yang Chu

P0752 The importance of individual species of the genus *Attagenus* Latreille, 1802 (Coleoptera, Dermestidae) in human economic activity
Yakov Kovalenko

P0753 Invasive Insect in Abu Dhabi, United Arab Emirate; Identifying Species and evaluating the impacts.
Zamzam Salem Alrashdi

P0754 Urban ecology of invasive mosquito species *Culex pipiens* (Diptera: Culicidae) in Calgary, Alberta
Michaela Seal

P0755 Identifying potential eucalypt invasive pests and improving biosecurity in Brazil.
Leonardo Rodrigues Barbosa

P0756 A new quarantine pest in Romania-case of fall armyworm (*Spodoptera frugiperda* Smith)
Emil Georgescu

P0757 Invasive European Earwigs in the Falklands: How Big is the Threat?
Stephen Gillanders

P0758 Assessing the Climatic Suitability for the Drywood Termite, *Cryptotermes domesticus* Haviland (Blattodea: Kalotermitidae), in South Korea
Yonghwan Park

P0759 Current status and control options for the invasive species *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) in southern and central Romania
Maria Iamandei

P0760 Present status of invasive insect species in vineyards from Romania
Constantina Chireceanu

P0761 Presentation Withdrawn

P0762 Survey on an introduced species of the genus *Aleurocanthus* in northern Italy and record of a new association with a parasitoid species
Lara Maistrello

P0763 A post in an internet forum led to a discovery of an invasive drywood termite in Korea, *Cryptotermes domesticus* (Haviland, 1898) (Blattodea: Kalotermitidae)
Na Ra Jeong

P0764 First report on the natural occurrence of entomopathogenic fungi in populations of *Singapora shinshana* (Hemiptera: Cicadellidae) in Hiroshima Prefecture, Japan.
Takeshi Toriumi

Poster 21

11:45 - 13:30

Pest Management

P0765 Acetylated Glyceride (BEMIDETACH™) regulates several behavioral traits in the tea green leafhopper, *Empoasca onukii* Matsuda
Azusa Morito

P0766 Selective foraging behavior of ladybird to aphids parasitized by parasitic wasp
Kutta Doi

P0767 Potato signalling influences the prformance of aphid *Myzus persicae* and behavior of its parasitoid *Diaeretiella rapae*
Jamin Ali

P0768 Rise of the clones: population structure and clonal diversity in *Myzus persicae*
Bart A Pannebakker

P0769 The intrinsic rate of natural increase for three types of vivipara in *Aphis gossypii* Glover (Sternorrhyncha: Aphididae) on Lily (Lilium x formolongi Hort.)
Yutaka Narai

P0770 Distribution and seasonal occurrence of *Stictotettix cleyarae* (Hemiptera: Cicadellidae) in Saga, northern Kyushu, Japan and its developmental traits
Ayano Mori

P0771 Specific transcription factors regulate the expression of *Rh6* in two tephritid fruit flies
Haoran Wang

P0772 From food to flirt: Choosing light for a perfect IPM-date! Spectrum guides the predation, reproductive & developmental performances of the beneficial *Orius insidiosus* (Say)
Morgane Louise Canovas

P0773 Effects of visual stimulation with LED strip lights on orientation flight of male moths in a sex pheromone plume
Ryusuke Miyamoto

P0774 Evaluation methods of effective monitoring fall armyworm (*Spodoptera frugiperda*)
Yi-Chen Chen

P0775 NNGR-A14 and NNGR-A15 are two functional G protein-coupled receptors for CCHamide neuropeptides in the brown planthopper, *Nilaparvata lugens*
Xumei Luo

P0776 Use of geometric morphometrics as a monitoring technique in insect pests: An example on Croatian olive fly populations
Ivana Pajač Živković

P0777 Population dynamics of *Drosophila suzukii* and two related species in cherry orchard in Wenchuan, China
Zhen Cao

P0778 Oviposition deterrent effect of natural zeolites on the olive fruit fly and the Mediterranean fruit fly
Nikos A. Kouloussis

P0779 Toward effective control of fungus gnat pests of the shiitake cultivations
Masahiro Sueyoshi

P0780 Effects of nanoemulsions and pure essential oils on larvae of the predator *Chrysoperla carnea* (Stephens) (Neuroptera: Chrysopidae).
Elisa Viñuela

P0781 Repellent activity of nanocrystalline ammonium paratungstate on the German cockroach, *Blattella germanica*
Keiji Nakamura

P0782 Invertebrate Sampling in Australian Sugarcane: Challenges, Diversity, and Future Prospects
Hang Xu

P0783 Optimizing integrated controls for sugarcane stem borer management in Louisiana, USA
Blake Wilson

P0784 Chemical and Biological Control of Oriental Flower Beetle, *Protaetia orientalis*, in Hawaii
Zhiqiang Cheng

P0785 How do termite detection dogs sense termites?
Wakako Ohmura

P0786 The effect of drive performance, density dependence, and life history traits on spatial models of suppression gene drive
Xinyue Zhang

P0787 Integrated pest management of chilli thrips in open-field strawberry crop in the USA
Sriyanka Lahiri

P0788 Noninvasive assessment of internal status of king cherry trees, *Prunus* × *yedoensis*, using sonic tomography related to red-necked longhorned beetle, *Aromia bungii*
Byeongjong Lee

P0789 Suction trap for targetting exotic winged pests at Australian import facilities
Mizuki Uemura

P0790 Insect response to canola with modified sterol metabolism
Afroja Rahman

P0791 Spread and increased frequency of pyrethroid resistance gene *kdr* mutation in houseflies in Japan.
Mikie Nakagawa

P0792 An Insect Behavior Regulator, Acetylated Glyceride (Bemidetouch™), for Controlling the Tea Green Leafhopper, *Jacobiasca formosana*
Takayuki Kashima

P0793 A homing rescue gene drive with multiplexed gRNAs reaches high frequency in cage populations but generates functional resistance
Shibo Hou

P0794 Efficacy of different Garlic essential oil nano-emulsions against *Planococcus citri Risso* and selectivity towards *Apis mellifera* L.
Antonino Modafferi

P0795 Improving onion thrips surveillance in onion with a strategic sequential sampling plan and accessible digital application
Lidia Komondy

P0796 Hit the road of plant usages to consilience with Knomana
Pierre Martin

P0797 Silicon-mediated rice plant resistance: a case of laboratory-field study of rice leaf folder
Maolin Hou

P0798 Susceptibility of spongy moth egg masses to allylisothiocyanate (AITC)
Shunya Murase

P0799 Can IoT-based automated pest monitoring traps replace existing traps?
Satoshi Kawakita

P0800 Performance of insecticide seed treatments for managing *Delia spp.* in onion fields
Leonardo David Salgado

P0801 Insect pests monitoring using machine learning modeling in greenhouses
Taechul Park

P0802 Detection of locust swarms using a hyperspectral sensor
Atsuo Yamazaki

P0803 Role of metabolic methanol in Plant-Plant communication
Praveen C. Verma

Poster 22

11:45 - 13:30

Physiology, Neurobiology and Molecular Biology

P0804 Rapid intracellular acidification is a novel plant defense response countered by the brown planthopper
Xiaoya Zhang

P0805 Tick probing behavior and rapid phase of tick feeding facilitated by salivary secretion via two dopamine receptors in *Haemaphysalis longicornis*.
Seoyul Hwang

P0806 Host adjustment of the generalist herbivore *Myzus persicae* may be driven by transcriptional regulation of genes encoding candidate effectors.
George Seddon-Roberts

P0807 Extreme expansion of Apolipoprotein D in spider mites as an evolutionary strategy to feed on plants
Siyu Wei

P0808 The salivary protein *MpHPXS3* mediated aggregation behavior of *Mtzus persicae*
Ziguo Wang

P0809 How acclimation to thermal variability shapes behaviour and associated energetic costs in a temperate dung beetle.
Alexander Coverley

P0810 Presentation Withdrawn

P0811 Transcriptional analysis reveals sex-based differences in gene expression in diapausing Colorado potato beetles
Joe Rinehart

P0812 Studies on the low-temperature stress tolerance of *Streltzoviella insularis* (Staudinger) larvae
Jiahe Pei

P0813 Flies with circadian activity rhythms have a better chance of survival.
Sae Aikawa

P0814 Effects of PDF on the circadian clock under red light conditions in *Drosophila melanogaster*.
Aika Saito

P0815 A mathematical model for the two-day rhythm and its light response of *Holotrichia parallela*
Teruya Ota

P0816 Role of steroid receptor activator TAIMAN in insect circadian clock
Ping Chen

P0817 miR-274 functions as a pheromone to modulate hypoxia response of Drosophila melanogaster larvae during feeding.
Debasish Biswal

P0818 cDNA cloning and partial characterization of Superoxide dismutase 1 in *Tribolium castaneum*
Arisu Inaba

P0819 Analysis of molecular mechanism of polyembryony in the polyembryonic parasitoid wasp *Copidosoma floridanum*
Takuma Sakamoto

P0820 Distribution of JH III and JHSB3 in Hemiptera
Shin G. Goto

P0821 Neuroethology of the cicada *Cryptotympana facialis*
Masaki Sakai

P0822 Oviducal Mechanosensory Neurons Control Ovulation in *Drosophila melanogaster*
Shao-Cong Su

P0823 The Ecological Interplay between *Drosophila* and Decomposing Cacti: Unveiling Adaptative Mechanisms in a Toxic Environment
Lidane Audrey C Noronha

P0824 Exploration of the invasion factor invasion into the host insect embryo in the *Copidosoma floridanum*
Saki Kitamura

P0825 Food preferences and population growth of the long-tailed silverfish (*Ctenolepisma longicaudatum*)
Bjørn Arne Rukke

P0826 Fuel securement for pollen collection in a solitary bee, *Andrena taraxaci orienticola*
Kenichi Harano

P0827 Quantifying the energetic cost of pollen collection
Beth Nicholls

P0828 Fat synthesis, host size and habitat type in natural populations of parasitoid wasps.
Maude Quicray

P0829 sNPF signaling-mediated redox regulation maintains the embryo development
hong fei li

P0830 Post-translational modifications increase the structural diversity and metabolic stability of smORF-encoded peptides destined for the seminal fluid of *Drosophila melanogaster*
Elwyn Isaac

P0831 Photoperiodic response observed in the Bolwig organ of *Sarcophaga similis* larvae
Masamichi Ae

P0832 Population crosses show variation in the genotype-phenotype map for differences in seasonal adaptation across the northern distribution of a butterfly
Anna Brødsgaard Shoshan

P0833 Life-cycle adaptation of the white-spotted longicorn beetle *Anoplophora malasiaca* (Coleoptera: Cerambycidae) to seasonal change and geographical gradient of temperature
Morio Higaki

P0834 Circannual rhythms in two *Anthrenus* carpet beetles: comparison between spring- and autumn-pupation types
Yosuke Miyazaki

P0835 Involvement of *cryptochrome* genes in photoperiodism of the silkworm, *Bombyx mori*.
Hisashi Tobita