

**2024 International Congress on Invertebrate  
Pathology and Microbial Control  
&  
56th Annual Meeting of the Society for  
Invertebrate Pathology**

**Vienna, July 28 – Aug. 1, 2024**



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WIEN



## Meeting at a Glance

| Day 1 Sunday, July 28, 2024    |                                          |                                 |
|--------------------------------|------------------------------------------|---------------------------------|
| Room                           | Seminar Room 363 (1 <sup>st</sup> floor) |                                 |
| Time                           | Foyer Gusshaus                           |                                 |
| 9:00 - 17:00/<br>13:00 - 17:00 | from 9:00<br>SIP Council Meeting         | from 13:00<br>Registration Desk |
| 18:30 - 22:00                  | Mixer (Foyer Gusshaus)                   |                                 |

| Day 2 Monday, July 29, 2024 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Room                        | EI 7<br>Lecture Hall                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| Time                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| 08:30 - 10:30               | <b>Opening Ceremony</b><br><b>Founders' Lecture</b><br>Honoree: Gisbert Zimmermann    Lecturer: Jørgen Eilenberg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| 10:30 - 11:00               | Refreshment Break                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| 11:00 - 13:00               | <b>Plenary Session:</b> Diseases of Mass-Reared Insects for Sterile Insect Technique<br>(Chairs: Adly Abdallah, Johannes Jehle)<br><i>Rui Cardoso Pereira:</i> The Sterile Insect Technique: its application and challenges<br><i>Erin Schuenzel:</i> The application of culturing, DNA and RNA community sequencing in identifying and developing diagnostic assays for microbial pathogens in <i>Anastrepha ludens</i> mass-rearing facilities<br><i>Irene Meki:</i> Management of viruses in insect mass rearing facilities for the sterile insect technique: Glossina pallidipes salivary gland hypertrophy virus (GpSGHV) as an example<br><i>Sean Moore:</i> Challenges and solutions to viral contamination in mass rearing of codling moth and false codling moth for the sterile insect technique |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| 13:00 - 14:00               | Lunch Break (Foyer Gusshaus)<br><b>Student Career Event (Seminar Room 363, 1<sup>st</sup> floor)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| Room                        | EI 7<br>Lecture hall                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | EI 8<br>Pötl                                                                                                                                              | EI 9<br>Hlawka                                                                                                                              | EI 10<br>Fritz Paschke                                                                                                                                                                                     |
| 14:00 - 16:00               | <b>Contributed Papers</b><br><b>Viruses 1:</b><br>Viral Infection, Discovery and Evolution<br>(Chairs: Astrid Bryon, Gaelen Burke)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Contributed Papers</b><br><b>Fungi 1:</b><br>Fungal Diversity and Biocontrol Application<br>(Chairs: Jørgen Eilenberg, Ann Hajek)                      | <b>Contributed Papers</b><br><b>Microbial Control 1:</b><br>Advances in Microbial Control Agents<br>(Chairs: Surendra Dara, Heiri Wandeler) | <b>Contributed Papers</b><br><b>Diseases of Beneficial Invertebrates 1:</b><br>Pathogen and Symbiont: Host Interactions in aquatic Invertebrates and Bees<br>(Chairs: Ronny van Earle, Ibtissem Ben Fekih) |
| 16:00 - 16:30               | Refreshment Break                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| 16:30 - 18:30               | <b>Symposium Viruses:</b><br>Endogenized Viruses<br>(Chair: Monique van Oers)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Symposium Nematodes:</b><br>Past, Present & Future of Entomopathogenic Nematodes: 100 Years of Research<br>(Chairs: David Shapiro-Ilan, Ivan Hiltbold) | <b>Contributed Papers Bacteria 1:</b><br>Structure and Mechanism of Action<br>(Chairs: Yanchao Yang, Juan Luis Jurat-Fuentes)               | <b>Symposium Microsporidia:</b><br>Current and Future Applications of Microsporidia Research<br>(Chair: Judy Chen)                                                                                         |
| 18:30 - 19:00               | Break                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| 19:00 - 20:00               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Student Business Meeting</b>                                                                                                                           |                                                                                                                                             |                                                                                                                                                                                                            |
| 20:00 - 21:30               | <b>Business Meeting Viruses</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Business Meeting Bacteria</b>                                                                                                                          | <b>Business Meeting Nematodes</b>                                                                                                           | <b>Business Meeting Microsporidia</b>                                                                                                                                                                      |

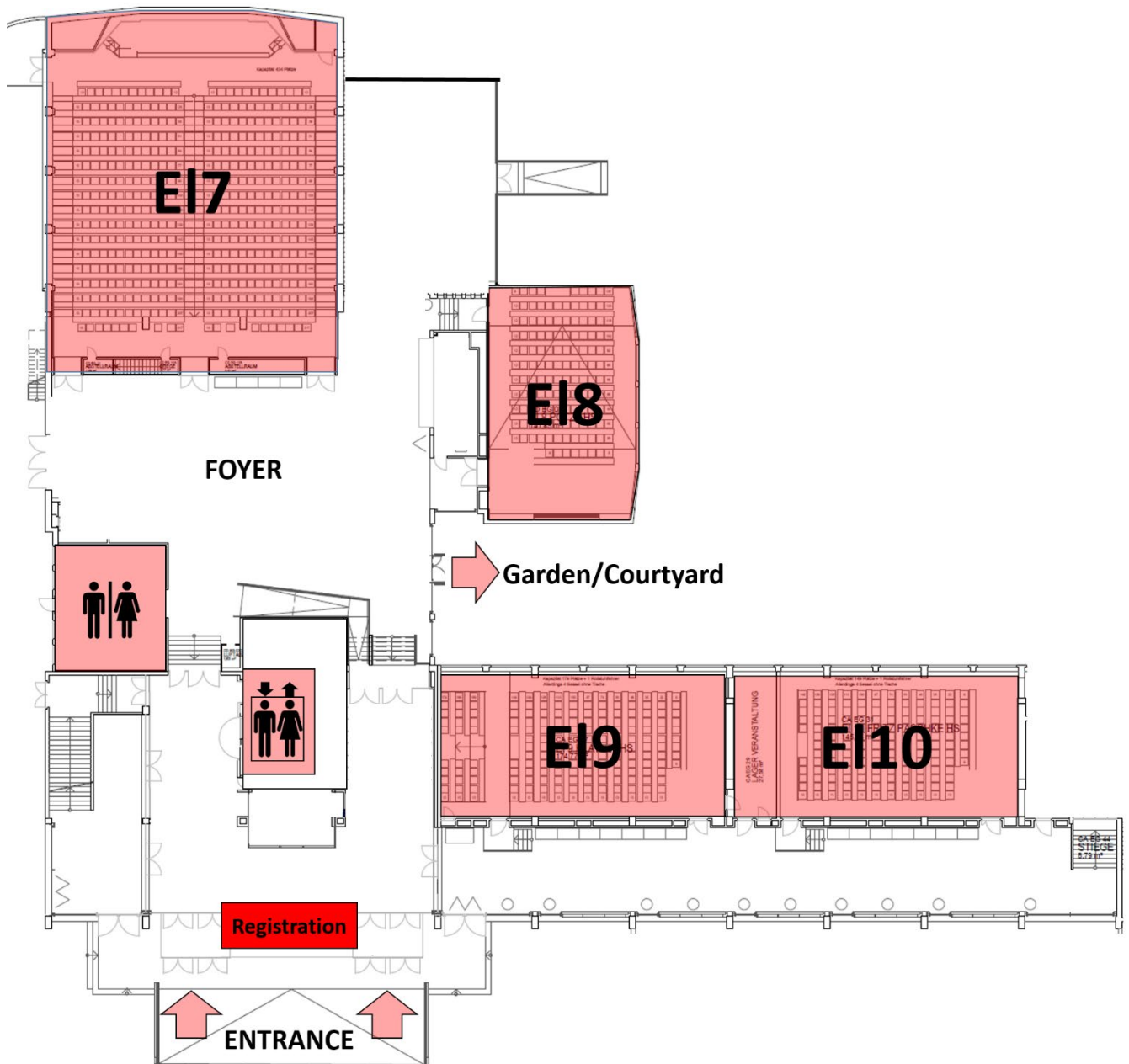
| Day 3 Tuesday, July 30, 2024 |                                                                                                                                    |                                                                                                                       |                                                                                                                                                         |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Room                         | EI 8<br>Pötl                                                                                                                       | EI 9<br>Hlawka                                                                                                        | EI 10<br>Fritz Paschke                                                                                                                                  |
| Time                         |                                                                                                                                    |                                                                                                                       |                                                                                                                                                         |
| 6:20 - 8:00                  | 5k run                                                                                                                             |                                                                                                                       |                                                                                                                                                         |
| 09:00 - 11:00                | <b>Contributed Papers Microbial Control 2:</b><br>Innovations in Fungal Pathogens for Pest Management<br>(Chair: Stefan Jaronski)  | <b>Contributed Papers Bacteria 2:</b><br>Resistance and Receptors<br>(Chairs: Susana Vilchez, María Lázaro-Berenguer) | <b>Workshop Fungi &amp; Nematodes:</b><br>Taxonomic Vandalism and its Implications in Invertebrate Pathology<br>(Chairs: Patricia Stock, Chengshu Wang) |
| 11:00 - 11:30                | Refreshment Break                                                                                                                  |                                                                                                                       |                                                                                                                                                         |
| 11:30 - 13:30                | <b>Symposium Microbial Control:</b><br>Microbial Marvels: Shaping the Future of Integrated Pest Management<br>(Chair: Chad Keyser) | <b>Contributed Papers Viruses 2:</b><br>Viral Population Genetics and Ecology<br>(Chairs: Zhihong Hu, Yang Kai)       | <b>Contributed Papers Nematodes:</b><br>Advances in EPN Research for sustainable Insect Pest Management<br>(Chairs: Ivan Hiltbold, Dana Ment)           |
| 13:30 - 14:30                | Lunch Break (Foyer Gusshaus)                                                                                                       |                                                                                                                       |                                                                                                                                                         |
| 14:30 - 17:30                | Excursion                                                                                                                          |                                                                                                                       |                                                                                                                                                         |
| 18:00 - 22:00                | BBQ (Brandauer Schlossbräu, Am Platz 5, 1130 Vienna)                                                                               |                                                                                                                       |                                                                                                                                                         |

| Day 4 Wednesday July 31, 2024 |                                                                                                                                                                                                           |                                                                                                                                                      |                                                                                                                              |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Room                          | EI 8<br>Pötl                                                                                                                                                                                              | EI 9<br>Hlawka                                                                                                                                       | EI 10<br>Fritz Paschke                                                                                                       |
| Time                          |                                                                                                                                                                                                           |                                                                                                                                                      |                                                                                                                              |
| 08:30 - 10:30                 | <b>Cross-Division Symposium Microbial Control &amp; Nematodes:</b><br>New under the Sun - Progress in Mass Production and Formulation of Microbials<br>(Chairs: Dana Ment, Patricia Navarro, Chad Keyser) | <b>Contributed Papers Viruses 3:</b><br>Viral covert Infections<br>(Chairs: Wang Xi, Michael Jukes)                                                  | <b>Contributed Papers Bacteria 3:</b><br>Engineering and applied Aspects<br>(Chairs: Luca Ruiu, Dafne Toledo)                |
| 10:30 - 11:00                 | Refreshment Break                                                                                                                                                                                         |                                                                                                                                                      |                                                                                                                              |
| 11:00 - 13:00                 | <b>Contributed Papers Microbial Control 3:</b><br>Integrated Pest Management and emerging Biocontrol Technologies<br>(Chair: Jarrod Leland)                                                               | <b>Symposium Diseases of Beneficial Invertebrates:</b><br>Sex-distorting Parasites: Pathological and ecological Consequences<br>(Chair: Jamie Bojko) | <b>Symposium Fungi:</b><br>Fungal Interaction and Management of beneficial Insects<br>(Chairs: Nemat Keyhani, Jae Su Kim)    |
| 13:00 - 14:00                 | Lunch Break (Foyer Gusshaus)<br><b>JIP Editorial Board Meeting (Seminar Room 363, 1<sup>st</sup> floor)</b><br><b>Student Workshop (EI 8)</b>                                                             |                                                                                                                                                      |                                                                                                                              |
| 14:00 - 16:00                 | <b>Contributed Papers Microsporidia:</b><br>Recent Advances in Microsporidia Research<br>(Chairs: Jonathan Snow, Courtney MacInnis)                                                                       | <b>Contributed Papers Viruses 4:</b><br>Virus-Host Interaction<br>(Chairs: Jean-Michel Drexler, Bryony Bonning)                                      | <b>Symposium Bacteria:</b><br>Physiology, Safety and Taxonomy of bacterial Pesticides<br>(Chairs: Ben Raymond, William Moar) |
| 16:00 - 16:30                 | Refreshment Break                                                                                                                                                                                         |                                                                                                                                                      |                                                                                                                              |
| 16:30 - 18:00                 | Poster (Foyer Gusshaus)                                                                                                                                                                                   |                                                                                                                                                      |                                                                                                                              |
| 18:00 - 19:30                 | Break                                                                                                                                                                                                     |                                                                                                                                                      |                                                                                                                              |
| 19:30 - 21:00                 | <b>Business Meeting Fungi</b>                                                                                                                                                                             | <b>Business Meeting Microbial Control</b>                                                                                                            | <b>Business Meeting DBI</b>                                                                                                  |
|                               | <b>ICTV Study Group (Seminar Room 363, 1<sup>st</sup> floor)</b>                                                                                                                                          |                                                                                                                                                      |                                                                                                                              |

| Day 5 Thursday August 1, 2024 |                                                                                                                                                                                                 |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Room                          | EI 7<br>Lecture hall                                                                                                                                                                            | EI 8<br>Pötl                                                                                                                     | EI 9<br>Hlawka                                                                                              | EI 10<br>Fritz Paschke                                                                                                                                                                                 |
| Time                          |                                                                                                                                                                                                 |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
| 08:30 - 10:30                 | <b>Contributed Papers Viruses 5:</b><br>Pathogenicity, Virulence and Biological Control<br>(Chairs: Elisabeth Huguët, Umut Toprak)                                                              | <b>Contributed Papers Fungi 2:</b><br>Fungal Interaction with Hosts and beyond<br>(Chairs: Jürg Enkerli, Enrique Quesada-Moraga) | <b>Contributed Papers Bacteria 4:</b><br>Ecology and Regulation<br>(Chairs: Omaththage Perera, Hannah Best) | <b>Contributed Papers Diseases of Beneficial Invertebrates 2:</b><br>Pathogen and Symbiont: Host Interactions in Invertebrate Mass Production<br>(Chairs: Elisabeth Herniou, Christina Nielsen-LeRoux) |
| 10:30 - 11:00                 | Refreshment Break                                                                                                                                                                               |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
| Room                          | EI 7<br>Lecture Hall                                                                                                                                                                            |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
| 11:00 - 13:00                 | Membership Meeting SIP                                                                                                                                                                          |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
| 13:00 - 14:00                 | Lunch Break (Foyer Gusshaus)<br><b>Student Jury Committee (Seminar Room 363, 1<sup>st</sup> floor)</b>                                                                                          |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
| Room                          | EI 7<br>Lecture Hall                                                                                                                                                                            |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
| 14:00 - 16:00                 | <b>Pan-Division Symposium Viruses &amp; DBI &amp; Bacteria:</b> Diseases in Invertebrates for Feed and Food: Global Perspectives<br>(Chairs: Vera Ros, Helen Hesketh, Christina Nielsen-LeRoux) |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |
| 18:30 - 0:00                  | Banquet - Arcotel Wimberger (Neubaugürtel 34-36, 1070 Vienna)                                                                                                                                   |                                                                                                                                  |                                                                                                             |                                                                                                                                                                                                        |



## The TU Vienna Conference Site



**Seminar  
room 363**

Seminar room 363 is located in  
the 1<sup>st</sup> floor. Follow the signs.



## **Presentation Guidelines**

### ***Oral Presentations***

Presenting authors for oral talks and posters are indicated in ***bold/italics*** type.

#### ***Divisional and Cross-Divisional Symposia***

Presentations are maximum of 25 minutes in length and 5 minutes for questions, unless otherwise specified by the chair of each symposium. Please refer to the program or contact your Symposium Chair for more information on your specific session.

#### ***Division Contributed Talks/Presentations***

Presentations are a maximum of 12 minutes in length and 3 minutes for questions. Please refer to the program for specific details about your presentation.

#### ***Presentation File Submission***

Please send your presentation as a .ppt file (not larger than 10 MB) not later than **24 h prior to your scheduled session** to the following address: [SIP2024upload@gmail.com](mailto:SIP2024upload@gmail.com)

Alternatively, you may upload your oral presentation file (.ppt) not later than **24 h prior to your scheduled session** at the registration desk.

For sending and uploading, please name your file with your **presentation number** (see programme) followed by the **presenter's name** (e.g. **MC-17\_Jehle.ppt** or **16-1\_Herniou.ppt**)

### ***Poster Presentations***

Poster presentations will be displayed throughout the meeting and the presentation will occur during a single day and session. This will take place on Wednesday July 31, 2024 from 16:30 to 18:00 in the **Foyer Gusshaus**. Stickers will be provided, pins may not be used.

Posters shall be put up after 8:00 AM on Monday, and they must be removed by noon on Thursday or they will be discarded.

- Posters should be approximately 840 mm (2.8 ft) wide by 1190 mm (3.9 ft) tall (DIN/ISO A0). Format: Portrait NOT Landscape must be used.
- Include the poster title at the top of your poster.
- The title should be followed by a list of authors and affiliations. Please highlight the presenting author.
- Text should be readable at a distance of 120 cm. A minimum font size of 28 is recommended.
- There will be no facilities at the conference venue for poster printing or editing.



# IMPORTANT

The abstracts included in this book should not be considered to be publications and should not be cited in print without the author's permission.

Participants shall **not take pictures** from projections during presentations.

[Division Initial] or [Symposium number]-00 indicates number of **ORAL** presentation  
[Division Initial]-P00 indicates number for **POSTER** presentation  
-STU indicates **STUDENT** oral or poster presentation



## Sunday, July 28, 2024

### Executive Council Meeting

Sunday, 9:00 – 17:00  
Seminar Room 363

### Registration

Sunday, 13:00 – 17:00  
Foyer

### Welcome Mixer

Sunday, 18:30 – 22:00  
Foyer

## Monday, July 29, 2024

### Registration Desk

Monday, 8:00 – 18:00  
Foyer

### Opening Ceremony and Awards Presentation Founder's Lecture

Honoree: Gisbert Zimmermann  
Lecturer: Jørgen Eilenberg

Monday, 8:30 – 10:30  
Lecture Hall EI 7

### Refreshment Break

Monday, 10:30 – 11:00  
Foyer

### PLENARY SESSION

Monday, 11:00 – 13:00  
Lecture Hall EI 7

#### Diseases of Mass-Reared Insects for Sterile Insect Technique Chairs: Adly Abd-Alla and Johannes Jehle

PLENARY SYMPOSIUM. Monday, 11:00 **8-1**

#### The Sterile Insect Technique: its application and challenges

*Rui Cardoso Pereira*

PLENARY SYMPOSIUM. Monday, 11:30 **8-2**

#### The application of culturing, DNA and RNA community sequencing in identifying and developing diagnostic assays for microbial pathogens in *Anastrepha ludens* mass-rearing facilities

*Erin Schuenzel, Don Vacek, Roxanne Farris*

PLENARY SYMPOSIUM. Monday, 12:00 **8-3**

#### Management of viruses in insect mass rearing facilities for the sterile insect technique: *Glossina pallidipes* salivary gland hypertrophy virus (GpSGHV) as an example

*Irene Kasindi Meki, Adly M. M. Abd-Alla*

PLENARY SYMPOSIUM. Monday, 12:30 **8-4**

#### Challenges and solutions to viral contamination in mass rearing of codling moth and false codling moth for the sterile insect technique

*Sean Moore, Michael Jukes, Clarissa Mouton, Theunis Lombard, Mathew Goddard, Martin Hill, Petrus Iita, David Taylor, Siviwe Tole, Caroline Knox, Daleen Stenekamp*

### Student Career Event

Monday, 13:00 – 14:00  
Seminar Room 363

### Lunch

Monday, 13:00 – 14:00  
Foyer

### Contributed Papers Viruses 1

Monday, 14:00 – 16:00  
Lecture Hall EI 7

#### Viral Infection, Discovery and Evolution

Chairs: Astrid Byron, Gaalen Burke

#### EARLY CAREER AWARD

Monday, 14:00

#### Introduction

EARLY CAREER AWARD PRESENTATION. Monday 14:05 **V-1**

#### An ancient and conserved viral entry mechanism mediated by PIFs

*Xi Wang, Just M. Vlak, Manli Wang, Zhihong Hu*

CONTRIBUTED PAPERS. Monday, 14:30 **V-2-STU**

#### The “nudist” viruses from prehistoric times: Data-driven discovery of novel nudiviruses from ectoparasitic insects prompts a taxonomic and evolutionary re-evaluation within the family Nudiviridae

*Jirka Manuel Petersen, Amy Burgess, Monique M. van Oers, Elisabeth Herniou, Jamie Bojko*

CONTRIBUTED PAPERS. Monday, 14:45 **V-3-STU**

#### The microbiome of continuous Asian citrus psyllid cell lines

*Emily Vu, Ke Wu, Saptarshi Ghosh, Bryony Bonning*

CONTRIBUTED PAPERS. Monday, 15:00 **V-4-STU**

#### The isolation, identification, and characterisation of a novel *Alphabaculovirus* isolated from *Serodes partita*

*Tahnee Bennett, Tapiwa Mushore, Martin Hill, Sean Moore, Michael Jukes, Caroline Knox*

CONTRIBUTED PAPERS. Monday, 15:15 **V-5**

#### Untangling the strings of the puppet master: investigating the role of biogenic amine signaling cascades in AcMNPV-infected *Spodoptera exigua* caterpillars

*Astrid Bryon, Simone Nordstrand Gasque, Alexander Haverkamp, Vera I.D. Ros*

CONTRIBUTED PAPERS. Monday, 15:30 **V-6**

#### AcMNPV P74 is cleaved at R325 and R334 by proteinases of both OB and BBMV to expose a potential fusion peptide for oral infection

*Zhuorui Li, Nan Zhang, Tao Zhang, Zhiying Wang, Jiang Li, Manli Wang, Zhihong Hu, Xi Wang*

CONTRIBUTED PAPERS. Monday, 15:45 **V-7**

#### Characterization of proteins packaged into *Venturia canescens* Virus-Like Particles and their transcriptional control

*Corinne M. Stouthamer, Ange Lorenzi, Gaalen R. Burke*

### Contributed Papers Fungi 1

Monday 14:00 – 16:00  
Plötzl EI 8

#### Fungal Diversity and Biocontrol Application

Chairs: Jørgen Eilenberg, Ann Hajek

CONTRIBUTED PAPERS. Monday, 14:00 **F-1**

#### *Strongwellsea*, a specialist genus of insect pathogenic fungi, shows remarkable species diversity

*Jørgen Eilenberg, Verner Michelsen, Annette Bruun Jensen, Richard A. Humber*

CONTRIBUTED PAPERS. Monday, 14:15 **F-2**

#### Diversity and impact of fungal pathogens infecting the spotted lanternfly, *Lycorma delicatula*

*Ann Hajek, Eric Clifton*





CONTRIBUTED PAPERS. Monday, 14:30 **F-3-STU**

The entomopathogenic genus *Beauveria* represents the predominant fungal pathogen among the adult *Popillia japonica* population in Europe

Noëmi Küng, Denise Baur, Klaus Schläppi, Franco Widmer, Jürg Enkerli

CONTRIBUTED PAPERS. Monday, 14:45 **F-4**

Exploration of intraspecific lineages and genetic diversity of *Beauveria pseudobassiana*

Chiara Pedrazzini, Stephen A. Rehner, Fiona Stewart-Smith, Sara Boschi, Franco Widmer, Jürg Enkerli

CONTRIBUTED PAPERS. Monday, 15:00 **F-5-STU**

Microbiome of North American Ash for Biocontrol of Emerald Ash Borer

Claire Yager, Judith Mogouong, Kathryn E. Bushley

CONTRIBUTED PAPERS. Monday, 15:15 **F-6**

Fungal parasites of nematode eggs for biocontrol of the soybean cyst nematode

Emily Green, Dong-gyu Kim, Deepak Haarith, Nin Knight, Senyu Chen, Kathryn E. Bushley

CONTRIBUTED PAPERS. Monday, 15:30 **F-7**

Production and formulation of nematopathogenic fungi for control of cyst nematodes

Maximilian Paluch, Tanja Seib, Dietrich Stephan

CONTRIBUTED PAPERS. Monday, 15:45 **F-8**

Soil treatments with *Metarhizium brunneum* Petch. (Ascomycota: Hypocreales) for the control of the olive fly *Bactrocera oleae* (Rossi) (Diptera: Tephritidae) can promote olive tree growth

Antonia Romero-Conde, Meelad Yousef-Yousef, Sid Ali Benazzeddine, Andres Sandoval-Lozano, Enrique Quesada-Moraga, Inmaculada Garrido-Jurado

#### Contributed Papers Microbial Control 1

Monday, 14:00 – 16:00  
Hlawka EI9

##### Advances in Microbial Control Agents

Chairs: Surendra Dara, Heiri Wandeler

CONTRIBUTED PAPERS. Monday, 14:00 **MC-1**

Opportunities and challenges for microbial control of arthropod pests on the US West Coast

Surendra K. Dara

CONTRIBUTED PAPERS. Monday, 14:15 **MC-2**

Development, characterization, formulation, and use of bioinsecticides based on *Baculovirus* and *Bacillus thuringiensis* in Brazil.

Fernando Valicente, Jean Pinho, Frederick Mendes, Tatiane Melo

CONTRIBUTED PAPERS. Monday, 14:30 **MC-3**

Use of baculoviruses into conventional agriculture in the United States

Scott Ludwig

CONTRIBUTED PAPERS. Monday, 14:45 **MC-4-STU**

Surviving a baculovirus infection: impact on life history traits and potential resistance development in the fall armyworm *Spodoptera frugiperda*

Ahmed G. Hussain, Renée A.H. van Schaijk, Emily Burdfield-Steel, Astrid T. Groot, Vera I.D. Ros

CONTRIBUTED PAPERS. Monday, 15:00 **MC-5**

A novel *Cydia pomonella* granulovirus (CpGV) isolate overcomes type II resistance in codling moth

Shili Yang, Sarah Biganski, Jiangbin Fan, Jörg T. Wennmann, Johannes A. Jehle

CONTRIBUTED PAPERS. Monday, 15:15 **MC-6-STU**

Efficacy of a spray-dried formulation of *Bacillus thuringiensis* subsp. *kurstaki* (strain LIP) produced on a wheat bran-based complex medium

Rayan Nasreddine, Gül Ayyildiz, Zhanerke Amangeldi, Asime Filiz Çalışkan Keçe, Zeynep Yurtkuran-Çeterez, Dietrich Stephan

CONTRIBUTED PAPERS. Monday, 15:30 **MC-7-STU**

Endophyte *Beauveria bassiana* (Balsamo) Vuill. modifies cotton aphid responses: RNAseq analysis of *Aphis gossypii* Glover in response to feeding on endophytically colonized plants

Maria Cuenca-Medina, J.V. Die, A. Pérez-Rial, E. Quesada-Moraga, N. González-Mas

CONTRIBUTED PAPERS. Monday, 15:45 **MC-8**

A mycoviral infection drives ecological fitness of the entomopathogenic fungus *Beauveria bassiana* (Balsamo) Vuill.

Fatima Ruedo Maillo, I Garrido-Jurado, I Kotta-Loizou, E Quesada-Moraga

#### Contributed Papers DBI 1

Monday, 14:00 – 16:00  
Fritz Paschke EI 10

##### Pathogen and Symbiont: Host Interactions in aquatic Invertebrates and Bees

Chairs: Ronny van Aerle, Ibtissem Ben Fekih

CONTRIBUTED PAPERS. Monday, 14:00 **DBI-1**

Exploring the Pathobiome of White Faeces Syndrome in *Penaeus vannamei*

David Bass, Chantelle Hooper, K. P. Jithendran, K. Vinay Kumar, Subhendu Kumar Otta, P. Ezhil Praveena, R. Saraswathi, M.S. Shekhar, Grant D. Stentiford, Ronny van Aerle

CONTRIBUTED PAPERS. Monday, 14:15 **DBI-2-STU**

Primed for success: Can immune priming be utilised in the Pacific oyster to improve resistance against *Vibrio aestuarianus*?

Sarah Woodsford, Irene Cano, Frederico Batista, Ronny van Aerle, Aaron Jeffries, Robert Ellis, Adele Cobb, Samuel Melrose, Andrew Joseph, Eduarda Santos

CONTRIBUTED PAPERS. Monday, 14:30 **DBI-3-STU**

Novel cell types and functions of *Crassostrea gigas* immune cells revealed by a comprehensive single cell transcriptomics and cytology atlas

Sébastien de la Forest Divonne, Juliette Pouzadoux, Guillaume Mitta, Delphine Destoumieux-Garzon, Benjamin Gourbal, Guillaume M. Charrière, Emmanuel Vignal

CONTRIBUTED PAPERS. Monday, 14:45 **DBI-4**

Growth of multiple strains of *Wolbachia* in the *Apis mellifera* cell line AME-711

Lesley Bell-Sakyi, Jing Jing Khoo, Catherine Hartley, Christine Reitmeyer, Benjamin Makepeace, Michael Goblirsch, Luke Alphey



CONTRIBUTED PAPERS. Monday, 15:00 **DBI-5**

**The first isolation of a lactic acid bacterium (*Apilactobacillus kunkeei*) from honey bee (*Apis mellifera anatoliaca*) honey stomach and identification of its potential probiotic feature**

**Mehtap Usta, Kübra Zengin, Serhat Solmaz, Samet Okuyan, Remziye Nalçacıoğlu, Zihni Demirbağ**

CONTRIBUTED PAPERS. Monday, 15:15 **DBI-6**

**CBPV exploits host AMPs to alter gut microbiota composition for viral infection**

**Yanchun Deng**

CONTRIBUTED PAPERS. Monday, 15:30 **DBI-7**

**Occurrence of honey bee pathogens in *Vespa orientalis***

**Karen Power, Rebecca Leandri, Giovanni Cilia, Ernesto Ragusa, Gionata De Vico, Paola Maiolino**

CONTRIBUTED PAPERS. Monday, 15:45 **DBI-8**

***Enterococcaceae* facilitates the proliferation of CSBV in honeybee by affecting metabolic disorder**

**Chunsheng Hou**

#### Refreshment Break

Monday, 16:00 – 16:30  
Foyer

#### Viruses Division Symposium

Monday, 16:30 – 18:30  
Lecture Hall EI 7

##### Endogenized Viruses

Chair: Monique van Oers

VIRUSES DIVISION SYMPOSIUM. Monday, 16:30 **10-1**

**The diversity and impact of endogenous viral elements in insects**

**Clement Gilbert**

VIRUSES DIVISION SYMPOSIUM. Monday, 17:30 **10-3**

**Endogenous Viral Elements in arboviral vectors: from discovery to functions**

**Laila Gasmı, Davide Sogliani, Claudia Alfaro, Hugo Perdomo, Ayda Khorramnejad, Stefano Quaranta, Nfamarā Cham, Alejandro Nabor Lozada-Chávez, Mariangela Bonizzoni**

VIRUSES DIVISION SYMPOSIUM. Monday, 18:00 **10-4**

**Endogenized nudiviruses in parasitic wasps and their fate in caterpillar hosts**

**Elisabeth Huguet, Thibaut Josse, Alexandra Cerqueira de Araujo, Matthieu Leobold, Camille Heisserer, Karine Musset, Annie Bézier, Germain Chevignon, Georges Périquet, Jean-Michel Drezen**

VIRUSES DIVISION SYMPOSIUM. Monday, 17:00 **10-2**

***Filamentoviridae*, an ancient family of DNA viruses influencing both the short- and long-term evolution in host-parasitoid systems**

**Julien Valardi, Benjamin Guinet, Matthieu Leobold, Elisabeth Herniou, Jean-Michel Drezen, Annie Bézier, Bastien Boussau, Jonathan Vogel, Ralph Peters, Jan Hrcék, Matt Buffington**

#### Nematodes Division Symposium

Monday, 16:30 – 18:30  
Plözl EI 8

##### Past, Present and Future of Entomopathogenic Nematodes: 100 Years of Research

Chairs: David Shapiro-Ilan, Ivan Hiltbold

NEMATODES DIVISION SYMPOSIUM. Monday, 16:30 **12-1**

**Past, Present and Future of *Xenorhabdus* and *Photorhabdus* bacteria**

**Selcuk Hazir, David Shapiro-Ilan**

NEMATODES DIVISION SYMPOSIUM. Monday, 16:54 **12-2**

**How molecules and molecular tools have intertwined in the discovery and life history of entomopathogenic nematodes**

**S. Patricia Stock**

NEMATODES DIVISION SYMPOSIUM. Monday, 17:18 **12-3**

**Bringing EPNs to higher levels – the journey for off-ground application**

**Dana Ment, Jayashree Ramakrishnan, Liora Salame, Itamar Glaze**

NEMATODES DIVISION SYMPOSIUM. Monday, 17:42 **12-4**

**Advances in Formulation and Application Technology for Entomopathogenic Nematodes**

**David Shapiro-Ilan**

NEMATODES DIVISION SYMPOSIUM. Monday, 18:06 **12-5**

**Chemical ecology of entomopathogenic nematodes: back to the future**

**Ivan Hiltbold, Sergio Rasmann, Jared, G. Ali**

#### Contributed Papers Bacteria 1

Monday 16:30 – 18:30  
Hlawka EI 9

##### Structure and Mechanism of Action

Chairs: Yanchao Yang, Juan Luis Jurat-Fuentes

CONTRIBUTED PAPERS. Monday, 16:30 **B-1-STU**

**Characterization of Cry1Aa binding through protein mutants in two lepidopteran pests**

**Dafne Toledo, Yolanda Bel, Baltasar Escriche**

CONTRIBUTED PAPERS. Monday, 16:45 **B-2**

**VIP3Cb1 structural & functional studies: Insecticidal toxin from *Paenibacillus* spp. effective for controlling Lepidopteran insect pests in crops**

**Tommi White, Meiyang Zheng, Timothy Rydel, Michael Rau, William Moar, Todd Ciche, David Bowen, Lucas Mckinnon, James Fitzpatrick, Adam Cutts, Colin Berry**

CONTRIBUTED PAPERS. Monday, 17:00 **B-3**

**Analysis of Synergism between Extracellular Polysaccharide from *Bacillus thuringiensis* and Insecticidal Protein**

**Meiling Wang, Bai Xue, Tianjiao Ma, Zeyu Wang, Changlong Shu, Lili Geng, Jie Zhang**

CONTRIBUTED PAPERS. Monday, 17:15 **B-4-STU**

**Receptor Interactions of Vip3Aa Protoxin and Activated-Protein Structural Conformations in *Spodoptera exigua***

**María Lázaro-Berenguer, Juan Ferré, Patricia Hernández-Martínez**





CONTRIBUTED PAPERS. Monday, 17:30 **B-5**

***Bacillus thuringiensis* Vip3Aa structural changes upon proteolytic activation trigger receptor binding necessary for insect toxicity**

Oscar Infante, Isabel Gómez, Angel E. Pélaez, Luis A. Verduzco-Rosas, Rosalina García-Suárez, Zeyu Wang, Jie Zhang, Alejandra Bravo, **Mario Soberón**

CONTRIBUTED PAPERS. Monday, 17:45 **B-6-STU**

**Interactions of vegetative insecticidal proteins with target membranes**

Adam Cutts, Paola Borri, William Moar, Tommi White, Colin Berry

CONTRIBUTED PAPERS. Monday, 18:00 **B-7**

**The folding-cane model to explain major conformational changes of *Bacillus thuringiensis* Cry1Ab required for membrane insertion and toxicity**

Sabino Pacheco, Jorge Sánchez, Isabel Gómez, Blanca García, Mario Soberón, **Alejandra Bravo**

CONTRIBUTED PAPERS. Monday, 18:30 **B-8-STU**

**The first pore structure of the independent and insecticidal Bacterial Exotoxin B protein Vpb4**

Raymond Wirawan, Bradley Spicer, Oliver Castell, Charles Bayly-Jones, Chris Lupton, David Jamieson, Hannah Baird, Dafydd Jones, Lainey Williamson, Husam Sabah Auhim, Hannah Best, Hari Venugopal, Colin Berry, Michelle Dunstone

#### Microsporidia Division Symposium

Monday, 16:30 – 18:30  
Fritz Paschke EI 10

**Current and Future Applications of Microsporidia Research**  
Chair: Judy Chen

MICROSPORIDIA DIVISION SYMPOSIUM. Monday, 16:30 **9-1**

**Microsporidian Taxonomy: Things to Tie Up**

Jamie Bojko

MICROSPORIDIA DIVISION SYMPOSIUM. Monday, 17:00 **9-2**

**Effects of *Vairimorpha* (*Nosema*) *ceranae* and *Lotmaria passim* infections on honey bee behaviour and physiology**

Courtney MacInnis, Lien Luong, Steve Pernal

MICROSPORIDIA DIVISION SYMPOSIUM. Monday, 17:30 **9-3**

**Microsporidian Genomes: Tales of polyploidy, rearrangements, and recombination**

Amjad Khalaf, Kamil Jaron, Mark Blaxter, Mara Lawniczak

MICROSPORIDIA DIVISION SYMPOSIUM. Monday, 18:00 **9-4**

**The molecular mechanisms underlying the vertical transmission of *Nosema bombycis* in silkworms provide an opportunity for molecular breeding**

Chunxia Wang, Bin Yu, Yongzhi Kong, Zishen Tang, Tongyu Luo, Tian Li

#### Student Business Meeting

Monday, 19:00 – 20:00  
Plötzl EI 8

#### Viruses Division Business Meeting

Monday, 20:00 – 21:30  
Lecture Hall EI 7

#### Bacteria Division Business Meeting

Monday, 20:00 – 21:30  
Plötzl EI 8

#### Nematodes Division Business Meeting

Monday, 20:00 – 21:30  
Hlawka EI 9

#### Microsporidia Division Business Meeting

Monday, 20:00 – 21:30  
Fritz Paschke EI 10

## Tuesday, July 30, 2024

#### 5K Run/Walk at Prater Stern

Tuesday, 6:20 – 8:00

Transportation by public transportation

**Runners meet at starting point at 6:20 (Start run 6:30)**

#### Registration Desk

Tuesday, 8:00 – 14:00  
Foyer

#### Contributed Papers Microbial Control 2

Tuesday, 9:00 – 10:30  
Plötzl EI 8

#### Innovations in Fungal Pathogens for Pest Management

Chair: Stefan Jaronski

CONTRIBUTED PAPERS. Tuesday, 9:00 **MC-9**

**Potential of entomopathogenic nematodes and entomopathogenic fungi against coconut rhinoceros beetle in Hawaii**

Zhiqiang Cheng

CONTRIBUTED PAPERS. Tuesday, 9:15 **MC-10**

**Innovative solutions to control *Asproparthenis punctiventris* with the entomopathogenic fungus *Metarhizium brunneum***

Maria Zottele, Martina Dokal, Jürg Enkerli, Hermann Strasser

CONTRIBUTED PAPERS. Tuesday, 9:30 **MC-11-STU**

**Potential of endophytic *Beauveria bassiana* for the management of *Coraebus undatus* (Coleoptera: Buprestidae) in cork oak forests**

Morda Walaa, Lentini Andrea, Mannu Roberto, Olivieri Maurizio, Luca Rui

CONTRIBUTED PAPERS. Tuesday, 9:45 **MC-12**

**Comparative genomics study on commercial strains of *Beauveria bassiana*: how genetic variability affects insecticidal activity**

Gabriele Moro, Maria Giovanna Marche

CONTRIBUTED PAPERS. Tuesday, 10:00 **MC-13**

**Strategising the all-season usage of *Hirsutella thompsonii* [ICAR-NBAIR-MF(Ag)66] to manage the broad mite in mulberry**

Sreerama Kumar Prakya, Nanjundaiah Sheela, Chikkalingaiah Bindushree

CONTRIBUTED PAPERS. Tuesday, 10:15 **MC-14**

**Implementing indirect effects of entomopathogenic fungi in biocontrol of spider mites**

Stine K. Jacobsen, Nicolai V. Meyling



## Contributed Papers Bacteria 2

Tuesday, 9:00 – 11:00  
Hlawka EI 9

### Resistance and Receptors

Chairs: Susana Vilchez, María Lázaro-Berenguer

CONTRIBUTED PAPERS. Tuesday, 9:00 **B-9**

**Development and characterization of western corn rootworm, *Diabrotica virgifera virgifera* LeConte Resistant to Mpp75Aa1.1 from *Brevibacillus laterosporus* and Vpb4Da2 from *Bacillus thuringiensis***

William Moar, Chitvan Khajuria, Kaylee Miller, Michael Pleau, Brent Werner, Yong Yin, Paula Price, Juan Ferré, Graham Head

CONTRIBUTED PAPERS. Tuesday, 9:15 **B-10**

**Characterization of a *Caenorhabditis elegans* strain highly resistant to Cry14A family proteins**

YouMie Kim, Thanh-Thanh Nguyen, Takao Ishidate, Daniel Durning, Ozkan Aydemir, Craig Mello, Yan Hu, Raffi Aroian

CONTRIBUTED PAPERS. Tuesday, 9:30 **B-11 STU**

**Lack of tolerance development following sublethal Cry1 protein exposure in *Spodoptera exigua* (Hübner)**

Sandy Valdiviezo-Orellana, Patricia Hernández-Martínez, Baltasar Escriche

CONTRIBUTED PAPERS. Tuesday, 9:45 **B-12-STU**

**Knockdown of *Egfr* and *Stmn4* by using an efficient oral feeding RNAi system increases the susceptibility of *Spodoptera frugiperda* larvae to Cry1F protein**

Yanchao Yang, Zeyu Wang, Jie Zhang

CONTRIBUTED PAPERS. Tuesday, 10:00 **B-13**

**Impacts of gene introgression from invasive *Helicoverpa armigera* into native *Helicoverpa zea* on the efficacy of transgenic crops in the USA**

Marissa I. Nufer, Brad S. Coates, Craig A. Abel, Patrick O'Neill, Morgan McCracken, Devendra Jain, Calvin A. Pierce, James Glover, Tyler Towles, Gadi V. P. Reddy, Omathage P. Perera

CONTRIBUTED PAPERS. Tuesday, 10:15 **B-14**

**Identifying resistance alleles to Bt corn in European corn borer with multiplexed targeted sequencing**

Yasmine Farhan, Yamikani Ngona, Tom Ruttink, Peter Tandy, Kurt Lamour, Jocelyn Smith, Andrew Michel, Juan Luis Jurat-Fuentes

CONTRIBUTED PAPERS. Tuesday, 10:30 **B-15**

**New paralogs of the *Heliothis virescens* ABCC2 transporter as potential receptors for Bt Cry1A proteins**

Daniel Pinos, Anabel Millán-Leiva, Juan Ferré, Patricia Hernández-Martínez

CONTRIBUTED PAPERS. Tuesday, 10:45 **B-16**

**Genetics of insect resistance to Vip3Aa**

Zhenxing Liu, Chongyu Liao, Luming Zou, Minghui Jin, Yinxue Shan, Yan Peng, Huihui Zhang, Hui Yao, Lei Zhang, Peng Wang, Zhuangzhuang Liu, Na Wang, Yutao Xiao, Anjing Li, Kaiyu Liu, Wenhui Wang, Yudong Quan, Kongming Wu, Bruce Tabashnik, David Heckel

## Panel Discussion Workshop Nematodes and Fungi Divisions

Tuesday, 9:00 – 11:00  
Fritz Paschke EI 10

### Taxonomic Vandalism and its Implications in Invertebrate Pathology

Chairs: Patricia Stock, Chengshu Wang

WORKSHOP NEMATODES & FUNGI DIVIS. Tuesday, 9:00  
**Introduction**

Patricia Stock, Chengshu Wang

WORKSHOP NEMATODES & FUNGI DIVIS. Tuesday, 9:10 **18-1**

**Back to Basics: Reconciling Conflicting Taxonomic Practices**

Richard A. Humber

WORKSHOP NEMATODES & FUNGI DIVIS. Tuesday, 9:22 **18-2**

**Understanding the environmental context of entomopathogenic fungi: Fungal community dynamics surrounding mycosed invertebrates and isolation of new entomopathogenic fungal species**

Ross Joseph, Abolfazl Masoudi, Nemat Oliver Keyhani

WORKSHOP NEMATODES & FUNGI DIVIS. Tuesday, 9:34 **18-3**

**A brief history of *Beauveria bassiana* and *Metarhizium anisopliae*: Resolving historical problems and anticipating future challenges**

Kathryn E. Bushley, Stephen A. Rehner

WORKSHOP NEMATODES & FUNGI DIVIS. Tuesday, 9:46 **18-4**

**Addressing Taxonomic Vandalism in Entomothogenic Nematodes: Reflections on Past Successes and Future Challenges**

Vladimír Půža

WORKSHOP NEMATODES & FUNGI DIVIS. Tuesday, 9:58 **18-5**

**Current methods for the taxonomy and systematics of the entomopathogenic bacterial genera *Photorhabdus* and *Xenorhabdus***

Ricardo Machado

WORKSHOP NEMATODES & FUNGI DIVIS. Tuesday, 10:10

**Discussion, Q&A with Panelist and audience**

## Refreshment Break

Tuesday, 11:00 – 11:30  
Foyer

## Microbial Control Division Symposium

Tuesday, 11:30 – 13:00  
Plötzl EI 8

### Microbial Marvels: Shaping the Future of Integrated Pest Management

Chair: Chad Keyser

MC DIVISION SYMPOSIUM. Tuesday, 11:30 **15-1**

**Getting more for your money. Can we exploit interactions of microbial and chemical pesticides for increased pest control?**

Eleanor L. Dearlove, David Chandler, Steve Edgington, Shaun D. Berry, Gareth Martin, Claus Svendsen, Helen Hesketh

MC DIVISION SYMPOSIUM. Tuesday, 12:00 **15-2**

**Testing Microbial Pest Control Products as components of IPM programs: considerations for appropriate trial design**

Edith Ladurner

MC DIVISION SYMPOSIUM. Tuesday, 12:30 **15-3**

**Future position of Biocontrol in Integrated Pest Management**

Roma Gwynn



## Contributed Papers Viruses 2

Tuesday, 11:30 – 13:30  
Hlawka EI 9

### Viral Population Genetics and Ecology

Chairs: Zhihong Hu, Yang Kai

CONTRIBUTED PAPERS. Tuesday, 11:30 **V-8**

#### Genetic diversity of RNA viruses infecting invertebrate pests of rice

Haoran Wang, Shufen Chao, Qing Yan, Shu Zhang, Guoqing Chen, **Guozhong Feng**

CONTRIBUTED PAPERS. Tuesday, 11:45 **V-9**

#### The haplotypic structure in baculovirus isolates deciphered by SNV linkage and machine learning

**Jörg T. Wennmann**, Jens Keilwagen, Mudasir Gani, Ahmed G. Hussain, Vera I.D. Ros, Johannes A. Jehle

CONTRIBUTED PAPERS. Tuesday, 12:00 **V-10**

#### A cis-acting negative regulator of baculovirus spread catalyzes natural selection of deletion genotypes in cell culture

**Just M. Vlak**, Amaya Serrano, Delia Munoz, Corinne Geertsema, Primitivo Caballero, Gorben Pijlman

CONTRIBUTED PAPERS. Tuesday, 12:15 **V-11**

#### Gene flow analysis of Cnaphalocrocis medinalis granulovirus in southern China Yun Gu, Baoding Chen, Junxiong Yang, Yachao Zuo, Meijin Yuan, **Kai Yang**

CONTRIBUTED PAPERS. Tuesday, 12:30 **V-12**

#### Erv family proteins are the relics of pre-cellular life

**Huanyu Zhang**, Wenhua Kuang, Shu Liu, Qiuhui Hou, Xinyu Zhang, Jiang Li, Zhihong Hu, Manli Wang.

CONTRIBUTED PAPERS. Tuesday, 12:45 **V-13**

#### Construction of an AcMNPV minigenome by synthetic biology

Yijia Guo, Hengrui Hu, Han Xiao, Xi Wang, Jiang Li, Manli Wang, **Zhihong Hu**

CONTRIBUTED PAPERS. Tuesday, 13:00 **V-14**

#### Insights into the Cell Fusing Agent Virus infection dynamics and its regulation by Aedes albopictus non retroviral endogenous viral elements

**Laila Gasmi**, Davide Sogliani, Claudia Alfaro, Claudio Casali, Marco Biggiogera, Mariangela Bonizzoni

CONTRIBUTED PAPERS. Tuesday, 13:15 **V-15**

#### Assessment of insect specificity and pathogenicity of RNA and DNA viruses for GMO safety evaluation

**Just M. Vlak**

## Contributed Papers Nematodes

Tuesday, 11:30 – 12:15  
Fritz Paschke EI 10

### Advances in EPN Research for sustainable Insect Pest Management

Chairs: Ivan Hiltbold, Dana Ment

CONTRIBUTED PAPERS. Tuesday, 11:30 **N-1**

#### A safe and effective control method against the fall armyworm with entomopathogenic nematodes

**Patrick Fallet**, Didace Bazagwira, Carlos Bustos-Segura, Joelle Kajuga, Stefan Toepfer, Ted C.J. Turlings

CONTRIBUTED PAPERS. Tuesday, 11:45 **N-2**

#### Increasing the efficacy of Steinernema australe after fourteen generations by using volatile root signals of blueberry plants

**Patricia D. Navarro**, Almendra J. Monje, Valentina Gallegos

CONTRIBUTED PAPERS. Tuesday, 12:00 **N-3**

#### Integrating host plant resistance with biocontrol: silicon supplementation and entomopathogenic nematodes to control major turfgrass insects

*Tarikul Islam, Matthew Brown, **Albrecht Koppenhöfer***

## Lunch

Tuesday, 13:30 – 14:30  
Foyer

## Excursions

Tuesday, 14:30 – 17:30  
Bottled water will be provided before starting

### Excursion 1

#### Schloss Schönbrunn

Guides will pick you up at the conference site. Public transportation (7-day-ticket) will be used. Meet at 14:25 for grouping of attendees.

### Excursion 2

#### City Walk

Guides will pick you up at the conference site. Public transportation (7-day-ticket) will be used. Meet at 14:25 for grouping of attendees. At the end of the tour, the guides will bring you to the BBQ place via public transportation.

### Excursion 3

#### Vienna Zoo

Guides will pick you up at the conference site. Public transportation (7-day-ticket) will be used. Meet at 14:25 for grouping of attendees.

Tuesday, 18:30 – 22:00

#### BBQ – Brandauer Schlossbräu, Am Platz 5, 1130 Vienna

It is in walking distance from Schloss Schönbrunn and the Vienna Zoo.

No transportation will be provided to and from the BBQ place as it can be easily reached using public transportation.

## Wednesday, July 31, 2024

## Registration Desk

Wednesday, 8:00 – 18:00  
Foyer

## Cross-Div. Symposium Microbial Control and Nematodes

Wednesday, 8:30 – 10:00  
Plötzl EI 8

### New under the Sun - Progress in Mass Production and Formulation of Microbials

Chairs: Dana Ment, Patricia Navarro, Chad Keyser

CDS Microbial Control and Nematodes. Wednesday, 8:30 **17-1**

#### Worldwide microbial pest control agents or environmentally competent ones?

**Enrique Quesada-Moraga**

CDS Microbial Control and Nematodes. Wednesday, 9:00 **17-2**

#### From Legacy to Weapon: Unveiling a New Biopesticide

**Omri Mayer**



CDS Microbial Control and Nematodes. Wednesday, 9:30 **17-3**

**Innovative mass production and novel formulation of baculovirus biopesticides for false codling moth management**

**Sean Moore, John Opoku-Debrah, Tamryn Marsberg, Michael Jukes, Marcel van der Merwe, Theunis Lombard, Mathew Goddard, Anne Grobler, Wanda Booyens, Caroline Knox, Martin Hill**

**Contributed Papers Viruses 3**

Wednesday, 8:30 – 10:15  
Hlawka EI 9

**Viral covert Infections**

Chairs: Wang Xi, Michael Jukes

CONTRIBUTED PAPERS. Wednesday, 8:30 **V-16-STU**

**The perks of being a wallflower: exploration of “silent” Iflavirus infections in *S. exigua***

**Annamaria Mattia, Astrid Bryon, Mitchel Schreurs, Jemma Fourie, Salvador Herrero, Vera I.D. Ros**

CONTRIBUTED PAPERS. Wednesday, 8:45 **V-17**

**Unveiling Covert Baculovirus Infection: Insights from Laboratory Trials on *Helicoverpa armigera* under Stress Conditions**

**Olivia Osterwalder, Anna Landwehr, Silvan Bosshard, Heiri Wandeler**

CONTRIBUTED PAPERS. Wednesday, 9:00 **V-18-STU**

**MARTIGNONI AWARD**

**Effect of domestication on the repertoire of viruses and bacteria associated with the Mediterranean fruit fly, *Ceratitis capitata***

**Luis Hernández-Pelegrín, Fang-Shiang Lim, Pablo García-Castillo, Joel González-Cabrera, Vera I.D. Ros, Jörg T. Wennmann, Salvador Herrero**

CONTRIBUTED PAPERS. Wednesday, 9:15 **V-19**

**Potential of a new *Glossina morsitans morsitans* cell line for isolation and propagation of tsetse fly viruses**

**Lesley Bell-Sakyi, Giovanni Petrucci, Catherine Hartley, Benjamin Makepeace, Alistair C. Darby, Adly Abd-Alla**

CONTRIBUTED PAPERS. Wednesday, 9:30 **V-20**

**Isolation of Iflaviruses of the testse fly *Glossina morsitans morsitans***

**Hannah-Isadora Huditz, Giovanni Petrucci, Davor Skaric, Ben Raymond, Monique M. van Oers, Adly M.M. Abd-Alla**

CONTRIBUTED PAPERS. Wednesday, 9:45 **V-21 STU**

**Novel RNA viruses of the tomato leafminer *Tuta absoluta***

**Rosa Esmeralda Becerra García, Luis Hernández Pelegrín, Cristina Crava, Salvador Herrero**

CONTRIBUTED PAPERS. Wednesday, 10:00 **V-22 STU**

**Re-emergence of homeostatic microbiome of mud crab *Scylla serrata* post-dysbiotic shift triggered by White Spot Syndrome Virus (WSSV) infection**

**Angela Camille Aguila-Toral, Gardel Xyza Libunao, Edgar Amar, Rachel Ravago-Gotanco**

**Contributed Papers Bacteria 3**

Wednesday, 8:30 – 10:30  
Fritz Paschke EI 10

**Engineering and applied Aspects**

Chairs: Luca Rui, Dafne Toledo

CONTRIBUTED PAPERS. Wednesday, 8:30 **B-17**

***Bacillus thuringiensis* serovar *kurstaki* (Btk) Strains for Industrial Production in wheat bran based medium: Insights from Genomic Exploration and Nutritional Optimization**

**Rita Barssoum, Nancy Fayad, Rayan Nasreddine, Séphanie Dupoirron, César Arturo Aceves-Lara, Julien Cescut, Luc Fillaudeau, Dietrich Stephan, Mireille Kallassy**

CONTRIBUTED PAPERS. Wednesday, 8:45 **B-18**

***Bacillus thuringiensis* Spores and Cry Toxins Act Synergistically to Expedite Colorado Potato Beetle Mortality: Mechanisms, Application and Perspectives**

**Ivan Dubovskiy, Ekaterina Grizanov, Daria Tereshchenko, Tatiana Krytsyna**

CONTRIBUTED PAPERS. Wednesday, 9:00 **B-19**

**The use of *Bacillus thuringiensis* to control root-knot nematodes**

**Yolanda Bel, Magda Galeano, Mireya Baños-Salmeron, Baltasar Escriche**

CONTRIBUTED PAPERS. Wednesday, 9:15 **B-20**

***Bacillus thuringiensis* Cry proteins - an arsenal of anti-parasitics**

**Raffi Aroian, Kelly Flanagan, Qian Ding, Duy Hoang, Nicholas Cazeault, Hanchen Li, Stefani Diaz Valerio, Florentina Rus, Ernesto Soto, Yasushi Kageyama, Heiko Liesegang, Gary Ostroff**

CONTRIBUTED PAPERS. Wednesday, 9:30 **B-21**

**Building an insecticidal protein gene library: deep expansion**

**Yang Geng, Jialu Li, Hanxiao Wang, Jialin Pu, Jinshui Zheng, Donghai Peng, Ming Sun<sup>2</sup>**

CONTRIBUTED PAPERS. Wednesday, 9:45 **B-22**

**Selecting a customised Crybody for the Mediterranean fruit fly *Ceratitis capitata***

**Carolina Macarena Araya-Aracena, Susana Vilchez**

CONTRIBUTED PAPERS. Wednesday, 10:00 **B-23**

**How pest resistance to *Bacillus thuringiensis* helps to improve bioinsecticides?**

**Ekaterina Grizanov, Tatiana Krytsyna, Ivan Dubovskiy**

CONTRIBUTED PAPERS. Wednesday, 10:15 **B-24**

**Risk Assessment of New Btk Isolates BLB1 and LIP Biopesticides via Toxicity Assays on Lab Animals**

**Gül Ayyildiz, Hazar Kraïem, Sayda Dhaouadi, Rim El Jeni, Zeynep Yurtkuran-Çeterez, Dietrich Stephan, Zakaria Benlasfar, Balkiss Bouhaouala-Zahar**

**Refreshment Break**

Wednesday, 10:30 – 11:00  
Foyer





### Contributed Papers Microbial Control 3

Wednesday, 11:00 – 13:00  
Plötzl EI 8

#### Integrated Pest Management and emerging Biocontrol Technologies

Chair: Jarrod Leland

CONTRIBUTED PAPERS. Wednesday, 11:00 **MC-15**

#### Constitutive and inducible tomato defenses contribute to *Bacillus thuringiensis* lethality against *Spodoptera exigua*

**Ada Frattini Llorens**, Rosa María González Martínez, Juan García, Zhivko Minchev, María José Pozo, Víctor Flors, Cristina Crava, Salvador Herrero

CONTRIBUTED PAPERS. Wednesday, 11:15 **MC-16**

#### Benefits of Baculovirus Use in IPM Strategies

Anna Landwehr, **Heiri Wandeler**

CONTRIBUTED PAPERS. Wednesday, 11:30 **MC-17**

#### CpGV Resistance – Where we are and where to go

**Johannes A. Jehle**, Sarah Biganski, Birgit Ruoff, Jutta Kienzle, Jiangbin Fan, Jörg T. Wennmann, Karin Undorf-Spahn, Eva Fritsch

CONTRIBUTED PAPERS. Wednesday, 11:45 **MC18**

#### Chromosome-level comparison between susceptible and resistant codling moth strains to decoding the mechanism of CpGV resistance of codling moth

**Jiangbin Fan**, Fang-Shiang Lim, Jörg T. Wennmann, David Heckel, Petr Nguyen, Johannes A. Jehle

CONTRIBUTED PAPERS. Wednesday, 12:00 **MC-19**

#### Fungal Entomopathogens for pest biocontrol in multitrophic approaches

**Frederic Francis**, Marcellin C. Cokola, Kenza Dessauvages, Kouanda Nongamanégré, Lallie Glacet, Athanase Badolo, Ibtissem Ben Fekih

CONTRIBUTED PAPERS. Wednesday, 12:15 **MC-20**

#### Prospects of NoVil (*Metarhizium robertsii* strain CPD006) in controlling *Frankliniella occidentalis*, *Myzus persicae* and *Tetranychus urticae* on greenhouse crops

**Jean Nguya K. Maniania**, Fayaz M. Amnulla, Andrei Darie, Nicole Stewart, Jeff Reitsma, Ishtiaq M. Rao

CONTRIBUTED PAPERS. Wednesday, 12:30 **MC-21**

#### Api-vectoring of *Beauveria bassiana* for thrips control in strawberry tunnels

Morgane Ourry, Marta Montoro, Katja K. Nielsen, Zhicong Wu, Antoine Lecocq, Annette B. Jensen, **Nicolai V. Meyling**

CONTRIBUTED PAPERS. Wednesday, 12:45 **MC-22**

#### Antagonistic potential of entomopathogenic and endophytic fungi against fusarium wilt pathogen of tomato *Fusarium oxysporum f. sp. lycopersici*

Marie Cecile Muhorakeye, Everlyne Samita Namikoye, Fathiya Mbarak Khamis, Waceke Wanjohi, **Komivi Senyo Akutse**

### DBI Division Symposium

Wednesday, 11:00 – 13:00  
Hlawka EI 9

#### Sex-distorting Parasites: Pathological and ecological Consequences

Chair: Jamie Bojko

DBI DIVISION SYMPOSIUM. Wednesday, 11:00 **11-1**

#### Sex ratio distorters and the evolution of host sex determination mechanisms

**Richard Cordaux**

DBI DIVISION SYMPOSIUM. Wednesday, 11:30 **11-2**

#### A tale of two endosymbionts that affect host fitness and sex allocation via egg-size provisioning in a haplodiploid insect species

Alihan Katlav, Amir Tourani, James Cook, **Markus Riegler**

DBI DIVISION SYMPOSIUM. Wednesday, 12:00 **11-3**

#### Invasion of the body snatchers: the role of parasite introduction in host distribution and response to salinity in invaded estuaries

**April Blakeslee**

DBI DIVISION SYMPOSIUM. Wednesday, 12:30 **11-4**

#### Pathological dynamics of the sexually transmitted betanodivirus *Heliothis zea nudivir* 1

**Jirka Manuel Petersen**, Annie Bézier, Jean-Michel Drezen, Astrid Bryon, Monique van Oers

### Fungi Division Symposium

Wednesday, 11:00 – 13:00  
Fritz Paschke EI 10

#### Fungal Interaction and Management of beneficial Insects

Chairs: Nemat Keyhani, Jae Su Kim

FUNGI DIVISION SYMPOSIUM. Wednesday, 11:00 **13-1**

#### Integrative investigations into the strategies of zombie-making *Ophiocordyceps* to manipulate carpenter ant behavior

**Charissa de Bekker**

FUNGI DIVISION SYMPOSIUM. Wednesday, 11:24 **13-2**

#### A biosynthetic survey of entomopathogenic fungi

**Pablo Cruz-Morales**

FUNGI DIVISION SYMPOSIUM. Wednesday, 11:48 **13-3**

#### Entomopathogenic fungi and insect predators teaming up against aphids: Friend or foe?

**Ibtissem Ben Fekih**, Annette B. Jensen, Jørgen Eilenberg, Kris A.G. Wyckhuys, Frederic Francis, Gabor Pozsgai

FUNGI DIVISION SYMPOSIUM. Wednesday, 12:12 **13-4**

#### Isolation of a probiotic bacterium to protect silkworms against fungal parasites

Pengfei Zhao, Song Hong, **Chengshu Wang**

FUNGI DIVISION SYMPOSIUM. Wednesday, 12:36 **13-5**

#### Interaction of endophytic *Beauveria bassiana* with predators and parasitoids for hemipteran pest control in horticulture

**Natalia González-Mas**, María Cuenca-Medina, Enrique Quesada-Moraga

### Lunch

Wednesday, 13:00 – 14:00  
Foyer

### JIP Editorial Board

Wednesday, 13:00 – 14:00  
Seminar Room 363





## Student Workshop

Wednesday, 13:00 – 14:00  
Plötzl EI 8

## Contributed Papers Microsporidia

Wednesday, 14:15 – 15:45  
Plötzl EI 8

### Recent Advances in Microsporidia Research

Chairs: Jonathan Snow, Courtney MacInnis

CONTRIBUTED PAPERS. Wednesday, 14:15 **MS-1-STU**

**Data mining reveals diversity and host spectrum of cryptic microsporidian parasites across the Panarthropods**

**Sam Edwards**, Edouard Bessette, Bryony Williams

CONTRIBUTED PAPERS. Wednesday, 14:30 **MS-2**

**Lithium Chloride reduces *Vairimorpha (Nosema) ceranae* infection in honey bees**

Parker Parrella, Victoria Cordero, **Jonathan Snow**

CONTRIBUTED PAPERS. Wednesday, 14:45 **MS-3**

**A protease associated with microsporidian spore germination**

Fangyan Liu, **Jie Chen**, Quan Sun, Rong Wang, Bing Han, Ying Wang, Xiaoyun Dang, Xianzhi Meng, Guoqing Pan, Zeyang Zhou

CONTRIBUTED PAPERS. Wednesday, 15:00 **MS-4-STU**

**The diversity and co-infections of microsporidia in coexisting cryptic lineages of an amphipod crustacean: what can we learn from Nanopore amplicon sequencing?**

**Nataša Katanić**, Pavel Karel Bystřický, Denis Copilaș-Ciocianu, Magdalena Gajdošová, Jacqueline Grimm, Christoph Hahn, Tereza Rutová, Kristina Sefc, Adam Petrusek

CONTRIBUTED PAPERS. Wednesday, 15:15 **MS-5**

**Molecular, Morphological identification and whole genomic sequencing of a microsporidium from cucumber moth, *Diaphania indica* (Saunders)**

**Yu-Yun Kuo**, Chun-Yan Lee, Yu-Shin Nai

CONTRIBUTED PAPERS. Wednesday, 15:30 **MS-6**

**First record of *Nosema maddoxi* (Microsporidia, Nosematidae) in populations of *Nezera viridula* (L) and *Palomena prasina* (L) in Georgia**

**Manana Kereselidze**, Marek Barta, Nika Guntadze, Daniela Pilarska, Andreas Linde, Ann Hajek

## Contributed Papers Viruses 4

Wednesday, 14:00 – 16:00  
Hlawka EI 9

### Virus - Host Interaction

Chairs: Jean-Michel Drezen, Bryony Bonning

CONTRIBUTED PAPERS. Wednesday, 14:00 **V-23-STU**

**Comparative transcriptome analysis unveils varied host responses to sacbrood virus infection in *Apis cerana* and *Apis mellifera***

**Zih Ting Chang**, Yu-Feng Huang, Tzu-Han Chen, Li-Hung Chang, Chung-Yu Ko, Yu-Shin Nai, Yue-Wen Chen

CONTRIBUTED PAPERS. Wednesday, 14:15 **V-24-STU**

**Exploring the virome of honey bee (*Apis mellifera*) and Varroa mite (*Varroa destructor*) in Taiwan through viral metagenomics**

**Fang-Min Chang**, Yen-Hou Chen, Ming-Cheng Wu, Yu-Shin Nai

CONTRIBUTED PAPERS. Wednesday, 14:30 **V-25**

**Comparison of bracovirus in incipient parasitoid species specialized on different hosts**

Camille Heisserer, Elisabeth Huguet, Karen Kester, Dawn Gundersen-Rindal, Thibaut Josse, **Jean-Michel Drezen**

CONTRIBUTED PAPERS. Wednesday, 14:45 **V-26-STU**

**Transcriptomic evidence for a conserved, nudiviral RNA polymerase in the parasitoid wasp, *Microplitis demolitor*, and the implications on *Bracovirus* gene discovery**

**Kelly Tims**, Gaelen R. Burke

CONTRIBUTED PAPERS. Wednesday, 15:00 **V-27**

**Suppressors: Ancient Nudivirus Virions Exapted to Form Parasitoid Organelles that Suppress Host Immunity**

**Brian Federici**

CONTRIBUTED PAPERS. Wednesday, 15:15 **V-28**

**Using AmE-711 Honey Bee Cells to Examine Virus - Fungicide Interactions at the Cell Level**

**Michael Goblirsch**, John Adamczyk

CONTRIBUTED PAPERS. Wednesday, 15:30 **V-29**

**Inhibition of medically important mosquito-borne viruses by the Insect-Specific Flavivirus Binjari across acute and persistent states in mosquito cells**

Wessel Willemsen, Nick Helmes, Marleen Henkens, Ruben Spruijt, Monique M. van Oers, Gorben Pijlman, **Jelke Fros**

CONTRIBUTED PAPERS. Wednesday, 15:45 **V-30**

***Aedes albopictus* response to Cell fusing Agent virus infection in relation to temperature**

**Hugo Perdomo**, Ayda Khorramnejad, Nfamara Cham, Alida Kropf, Davide Sogliani, Mariangela Bonizzoni

## Bacteria Division Symposium

Wednesday, 14:00 – 16:00  
Fritz Paschke EI 10

### Physiology, Safety and Taxonomy of bacterial Pesticides

Chairs: Ben Raymond, William Moar

BACTERIA DIVISION SYMPOSIUM. Wednesday, 14:00 **14-1**

***Bacillus thuringiensis* at the cross roads: Insights into enteropathogenicity of *Bacillus cereus* group**

**Monika Ehling-Schulz**

BACTERIA DIVISION SYMPOSIUM. Wednesday, 14:30 **14-2**

**Phenotypic heterogeneity and sporulation-independent persistence in *Bacillus thuringiensis* during infection**

Hasna Toukabri, Didier Lereclus, **Leyla Slamti**

BACTERIA DIVISION SYMPOSIUM. Wednesday, 15:00 **14-3**

**Assessing insecticidal protein safety without HOSU or source organism**

**Concepción Novillo**, Pascale Delzenne, Katherine Karberg, Huixin Lin, William Moar, Yong Yin

BACTERIA DIVISION SYMPOSIUM. Wednesday, 15:30 **14-4**

**Towards a consensus taxonomy of the *Bacillus cereus* group of bacteria in the sequencing era**

**Annika Gillis**, Niels Bohse Hendriksen, Ole Andreas Økstad

## Refreshment Break

Wednesday, 16:00 – 16:30  
Foyer



## Poster Session

Wednesday, 16:30 – 18:00  
Foyer

### POSTER SESSION B-P1

**Receptor recognition site of insecticidal pore-forming toxin Cry46Ab**

So Takebe, Yoshinao Azuma, Tohru Hayakawa

### POSTER SESSION B-P2-STU

**The Construction of Secretory Expression Engineering Bacteria for the Trans-Cry3Aa-T-HasA Fusion Protein against the *Monochamus alternatus***

Xiaohong Han

### POSTER SESSION B-P3-STU

**Potential of feed-born bacteria for phytopathogen and insect pest management**

Manuela Casada, Francesco Fancello, Lucia Maddau, Severino Zara, Luca Rui

### POSTER SESSION B-P4-STU

**Bacterial entomopathogens for the management of insecticide-resistant mosquito populations**

Alessia Vinci, Cipriano Foxi, Valentina Sini, Giuseppe Satta, Luca Rui

### POSTER SESSION B-P5

**Nanoparticle-loaded microcapsules providing effective UV protection for Cry protein**

Yongjing Zhang, Aijing Zhang, Mengyuan Li, Kanglai He, Shuyuan Guo

### POSTER SESSION B-P6

**NupR is involved in the control of PlcR, a pleiotropic regulator of extracellular virulence factors**

Jiaxin Qin, Yizhuo Zhang, Cheng Qian, Bing Yan, Jun Cai

### POSTER SESSION DBI-P1-STU

**Flagella of *Paenibacillus larvae* – influence on multicellular behavior and virulence**

Josefine Göbel, Anne Fünfhaus, Julia Ebeling, Elke Genersch

### POSTER SESSION DBI-P2

**Epidemiological study of *Paenibacillus larvae* via MLVA using the example of a major European city**

Anne Fünfhaus, Julia Ebeling, Elke Genersch

### POSTER SESSION DBI-P3-STU

**Establishment of an exposure bioassay for experimental infection of honey bee larvae with SBV**

Sarah Riebschläger, Runlin Li, Sebastian Gisder, Elke Genersch

### POSTER SESSION DBI-P4-STU

**Evolution of virulence in *Paenibacillus larvae*, a honey bee pathogenic bacterium**

Antonia Reinecke, Juliane Schreiber, Tristan Aretz, Elke Genersch

### POSTER SESSION DBI-P5-STU

**The necrotrophic lifestyle of *Paenibacillus larvae*: Suppression of carcass microbiota in honey bee larvae**

Niklas Sibum, Anne Fünfhaus, Elke Genersch

### POSTER SESSION F-P1

**Evaluation of the toxicity and mode of action of novel fungal lectins and protease inhibitors against *Drosophila suzukii* (Diptera: Drosophilidae)**

Jaka Razinger, Igor Nekrep, Eva Praprotnik, Nada Žnidaršič, Urban Bogataj, Polona Mrak, Tjaša Sentjurc, Sergej Praček, Katarina Karničar, Dušan Turk, Jerica Sabotič

### POSTER SESSION F-P2

**Natural incidence of *Beauveria bassiana* as biological control agent of tarnished plan bug and stink bugs in Mississippi Delta**

Maribel Portilla, Yuzhe Du, James Glover, Gadi V. P. Reddy

### POSTER SESSION F-P3

**Transcriptome analysis of *Beauveria bassiana* infected coffee berry borer *Hypothenemus hampei* (Ferrari)**

Fang-Min Chang, Hsiao-Ling Lu, Yu-Shin Nai

### POSTER SESSION F-P4

**Characterization of *Beauveria bassiana* 331R to control the two-spotted spider mite, *Tetranychus urticae***

Seo Yeong Mun, Kyu Seek Kim, Ra Mi Woo, Hyuk Jin Moon, Soo Dong Woo

### POSTER SESSION F-P5

**Storage stability of encapsulated *Batkoa* sp. spores dried in a fluidized bed**

Daniela Milanez Silva, Linda Muskat, Natasha Sant Anna Iwanicki, Anant Patel, Italo Delalibera Júnior

### POSTER SESSION F-P6

***Beauveria caledonica*: Microsclerotia formation and virulence against two lepidopteran species**

Lorena García-Riaño, Juliana Gómez-Valderrama, Carlos Espinel, Gloria Barrera-Cubillos, Laura Villamizar

### POSTER SESSION F-P7-STU

**Fungal formulations against *Drosophila suzukii*, related drosophilids, without detrimental effects on *Apis mellifera***

Ricardo Alberto Toledo Hernández, Rodrigo Lasa, Pablo Montoya, Pablo Liedo, Daniel Sánchez, Douglas Rodríguez, Mónica Pulido, Jorge Toledo

### POSTER SESSION F-P8-STU

**Medium optimization and bioefficacy of *Hirsutella thompsonii* microsclerotia and blastospores for biological control of mites and ticks**

Daniela Milanez Silva, Yuri Dantas, Natasha Sant Anna Iwanicki, Italo Delalibera Júnior

### POSTER SESSION F-P9

**The MICOTI project: towards a fungal-based integrated pest management against *Scaphoideus titanus*.**

Marika Rossi, Marta Vallino, Paola Dolci, Simona Abbà

### POSTER SESSION MC-P1-STU

**In search of entomopathogens of the oak processionary moth in Germany**

Shin Yee Tan, Regina G. Kleespies, Aikaterini Dounavi, Nicola M. Fischer, Jérôme Morinière, Johannes A. Jehle, Jörg T. Wennmann, Dietrich Stephan

### POSTER SESSION MC-P2

**Investigations on the efficiency of microbial control agents, natural substances and copper compounds for the control of *Halyomorpha halys***

Martin Parth, Angelika Gruber, Manfred Wolf

### POSTER SESSION MC-P3

**Novel biopesticide solutions for UK pests and diseases, introducing two UKRI projects**

Steve Edgington, Rhian Whelan, Archita Barua

### POSTER SESSION MC-P4

**Bioprospecting environmental fungi of Crete for the development of mosquito biopesticides**

Joel Couceiro, Iliana Sidira, Martyn Wood, Juan Silva, Andronikos Papadopoulos, Stefanos Mastis, John Vontas, George Dimopoulos

### POSTER SESSION MC-P5

**Using nanoparticles to enhance dsRNA uptake efficiency in *Phthorimaea absoluta***

Ayaovi Agbessenou, Jiangbin Fan, Christian Borgemeister, Johannes A. Jehle

### POSTER SESSION MC-P6

**Environmental Constraints to *Beauveria* Efficacy for *Cimex lectularis* (Bedbug)**

Stefan Jaronski, Morgan Wilson, Dini Miller

### POSTER SESSION MC-P7

**Spore Persistence of *Beauveria* Wettable Powder and Emulsifiable Concentrate Formulations Under Lower Rio Grande Valley, Texas, Climate Variables**

Yareny Ramirez, Daniela Sanchez, Stefan Jaronski, Mayra Reyes, Isaiah Garza, Justin Wendel, Christopher Vitek, Daniel Flores



#### POSTER SESSION MC-P8

**Engineering of multiple trypsin/chymotrypsin sites in Cry3A to enhance its activity against *Monochamus alternatus* Hope larvae**  
Songqing Wu

#### POSTER SESSION MC-P9

**Cadherin gene is involved in the toxicity of *Bacillus thuringiensis* subsp. *aizawai* to *Spodoptera frugiperda***  
Youngjin Park

#### POSTER SESSION MC-P10-STU

**Insights into Insects-Fungus Interplay: Transcriptomic Profiling of *Metarhizium anisopliae* Treatment**  
Hyeon Wook Jung, Hoe Ri Kim, Se Jin Lee

#### POSTER SESSION MC-P11

**Proteomics for studying the microbiome in non-model insects**  
Simona Abbà, Marta Vallino, Simona Cirrincione, Cristina Lamberti, Marika Rossi

#### POSTER SESSION MC-P12

**Effect of beneficial microbes on aphid development and predatory hoverflies host choice-selection**  
Ibtissem Ben Fekih, Marc Ongena, Magali Deleu, Marie-Laure Fauconnier, Kenza Dessauvages, Marcellin C. Cokola, Frederic Francis

#### POSTER SESSION MS-P1

**Ultrastructure of *Tubulinosema loxostegi* Malysh Tokarev Issi 2013 re-isolated from West Siberian populations of beet webworms and propagated in Siberian silkmoth *Dendrolimus sibiricus***  
Yuliya Sokolova, Arina Rumiantseva, Yuliya Malysh, Yuri Tokarev

#### POSTER SESSION MS-P2

**Olfactory recognition of microsporidia-infected *Drosophila suzukii* by parasitic wasps has consequences for wasps' fitness**  
Sarah Biganski, Lara Alicia Winterwerber, Jannicke Gallinger, Jürgen Gross, Johannes A. Jehle

#### POSTER SESSION MS-P3-STU

**Effect of the chitosan-based dsRNA nanocomplex on microsporidian parasites *Nosema ceranae* in the honey bee**  
Hyun Goo Kim, Kyu Seek Kim, Ra Mi Woo, Hyuk Jin Moon, Soo Dong Woo

#### POSTER SESSION MS-P4

**Analysis of the genetic diversity of the honey bee (*Apis mellifera*) pathogen *Nosema* spp. based on Short Tandem Repeats (STR)**  
Sebastian Gisder, Lucas Lannutti, Leonhard Schnittger, Elke Genersch

#### POSTER SESSION MS-P5

**Genomic variations among *Vairimorpha ceranae* different isolates revealing microsporidia might adapt to thermal stress in Taiwan**  
Yi-Hsuan Li, Fang-Min Chang, Ming-Cheng Wu, Yu-Shin Nai

#### POSTER SESSION N-P1

**Resolution of efficiency of entomopathogenic nematode *Steinernema germanica* sp. (Rhabditida: Steinernematidae) on the potato tuber moth (*Phthorimaea operculella* (Zeller)) (Lepidoptera: Gelechiidae) under laboratory conditions**  
Nona V Mikaia, Irina A. Khelisupali, Zaira R. Tkhebuchava, Narimanishvili V. Tamara

#### POSTER SESSION V-P1

**Genomic analysis of different American strains of SfNPV baculovirus isolated from *Spodoptera frugiperda***  
Ma. de los Angeles Bivián-Hernández, Jonatan C. Rangel-Núñez, Elisabeth Herniou, Ma. Cristina Del Rincón-Castro

#### POSTER SESSION V-P2

**Identification of the molecular basis of CpGV resistance in codling moth, *Cydia pomonella***  
Jiangbin Fan, Jörg T. Wennmann, Johannes A. Jehle

#### POSTER SESSION V-P3

**The genomes of an alphabaculovirus and a betabaculovirus from the tufted apple bud moth, *Platynota idaeusalis*, reveal recent recombination between baculoviruses that share a host**  
Robert L. Harrison, Daniel Rowley

#### POSTER SESSION V-P4

**Autographa californica Multiple Nucleopolyhedrovirus ac106 Is Required for Intranuclear Microvesicle Formation, and Intranuclear Microvesicle Formation is Essential for the Intranuclear Transport of ODV Integral Envelope Proteins**  
Jiannan Chen, Mei Mo, Yushan Yang, Yinyin Yu, Wenbi Wu, Kai Yang, Meijin Yuan

#### POSTER SESSION V-P5

**Recombinant SpfrGV enhancin proteins improve the insecticidal activity of SfMNPV-CoIA on *Spodoptera frugiperda* larvae**  
Kewin Rodriguez-Obediente, Mariano Nicolás Belaich, Juliana Gómez-Valderrama, Gloria Barrera-Cubillos

#### POSTER SESSION V-P6-STU

**Increasing production efficiency of target proteins by regulating VLF-1 in baculovirus expression system**  
Seo Yeong Mun, Min Kong, Hyuk Jin Moon, Soo Dong Woo

#### POSTER SESSION V-P7

**Function of AcMNPV-miR-2 in AcMNPV infection**  
Xinghua Yu, Tingkai Teng, Zhuowen Duan, Jinwen Wang

#### POSTER SESSION V-P8

**Combining SIT and baculovirus application in an integrated approach to management of the false codling moth**  
Windy Sekgele, Sean Moore, Tamryn Marsberg

#### POSTER SESSION V-P9-STU

**Whole genomic sequencing and analysis of Rhagastis binoculata nucleopolyhedrovirus (NPV) in Taiwan**  
Yu-Yun Kuo, Ju-Chun Chang, Yi-Hsuan Li, Yu-Feng Huang, Tzong-Yuan Wu, Yu-Shin Nai

#### POSTER SESSION V-P10-STU

**Improving recombination efficiency in the baculovirus expression system for foreign gene expression**  
Juul Steeghs, Linda King, Robert Possee, Adam Chambers, Gorben Pijlman

#### POSTER SESSION V-P11-STU

**Transmission of nudivirus among *Oryctes rhinoceros* at the different developmental stages**  
Mayuho Yamauchi, Christopher Kitalong, Madoka Nakai

#### POSTER SESSION V-P12-STU

**Quality control of baculovirus propagation based on single nucleotide variants (SNVs)**  
Christian Oehlmann, Birgit Ruoff, Jörg T. Wennmann, Johannes A. Jehle

#### POSTER SESSION V-P13

**Development of a multiplex PCR assay for the detection of nudiviruses in *Drosophila suzukii* using artificial positive controls**  
Sevgi Gezer, Sarah Biganski, Johannes A. Jehle, Annette Herz, Jörg T. Wennmann

#### POSTER SESSION V-P14

**Covert infections caused by cypovirus in Noctuidae and Erebidae soybean pests**  
Alini de Almeida, Andrews Fisch, Maria Cristina Neves de Oliveira, Bergmann Moraes Ribeiro, Daniel Ricardo Sosa-Gómez

#### POSTER SESSION V-P15

**Identification of mycoviruses through the transcriptomic data of entomopathogenic fungi, *Beauveria bassiana* NCHU-271 and *Metarhizium pinghaense* NCHU-125**  
Yu-Shin Nai, Fang-Min Chang, Cheng-Yu Hsieh

#### POSTER SESSION V-P16

**The importance of ORF amv133 on *Amsacta moorei* entomopoxvirus replication**  
Emine Ozsahin, Peter Krell, Eva Nagy, Zihni Demirbağ



#### POSTER SESSION V-P17

**Developing potential intervention strategies for SFTSV group bandaviruses based on their phylogeny**

Xiaoli Wu, Liyan Fu, Jin Qian, Shuang Tang, Shu Shen, **Fei Deng**

#### POSTER SESSION V-P18-STU

**Expression of respiratory syncytial virus fusion protein using an insect virus surface-display system**

**Hyuk Jin Moon**, Soo Dong Woo

#### POSTER SESSION V-P19

**Viromes of tick tissues revealed different capabilities to vector and transmit viruses in nine tick species.**

Jun Ni, Hongfeng Chen, Shouwei Huang, Yaohui Fang, Fei Deng, **Shu Shen**

#### POSTER SESSION V-P20-STU

**Estimation of regions responsible for the lethal activity of parasitoid killing factors encoded in entomopoxvirus by point mutation**

**Haru Migita**, Taku Onodera, Madoka Nakai

#### POSTER SESSION V-P21-STU

**Development of a DWV-specific immunohistochemistry protocol to analyze tissue and cell tropism of DWV**

**Sarah Riebschläger**, Sebastian Gisder, Elke Genersch

#### POSTER SESSION V-P22

**Use of Insect Gut Binding Peptides to Identify Pathogen Binding Domains and Receptors**

**Bryony Bonning**, Ruchir Mishra

#### POSTER SESSION V-P23-STU

**Efficient production of hand, foot, and mouth disease virus-like particles (HFMD-VLPs) in insect cells**

**Hyun Jung Kim**, Hyuk Jin Moon, Soo Dong Woo

#### POSTER SESSION V-P24-STU

**Development of a Bioinformatic Pipeline for Defining Orthology Groups in *Baculoviridae* Protein Genes.**

**Franco Uriel Cuccovia Warlet**, Lucas Federico Motta, Jorge Alejandro Simonin, Fernando Maku Lassalle, Carolina Susana Cerrudo, Mariano Nicolás Belaich

#### ICTV Study Groups Meeting

Wednesday, 19:30 – 21:00  
Seminar Room 363

#### Fungi Division Business Meeting

Wednesday, 19:30 – 21:00  
Plötl EI 8

#### Microbial Control Division Business Meeting

Wednesday, 19:30 – 21:00  
Hlawka EI 9

#### DBI Division Business Meeting

Wednesday, 19:30 – 21:00  
Fritz Paschke EI 10

## Thursday, August 1, 2024

#### Registration Desk

Thursday, 8:00 – 14:00  
Foyer

#### Contributed Papers Viruses 5

Thursday, 9:15 – 10:30  
Lecture Hall EI 7

#### Pathogenicity, Virulence and Biological Control

Chairs: Elisabeth Huguet, Umut Toprak

#### CONTRIBUTED PAPERS. Thursday, 9:15 V-31

**Efficacy of sixteen nucleopolyhedrovirus isolates against *Helicoverpa armigera*, *Spodoptera litura*, and *Trichoplusia ni* in Sri Lanka**

W.M.N.Kaumadie K. Kulasinghe, K. M. D. W. Prabath Nishantha, Robert L. Harrison, K. S. Hemachandra, Lionel Nugalayadde, **Omaththage P. Perera**

#### CONTRIBUTED PAPERS. Thursday, 9:30 V-32

**The expression of CrpeNPV gp37 as a formulation additive for improved infectivity with CrleGV against *Thaumatotibia leucotreta***

Naho Muleya, Siyabonga Phoswa, Caroline Knox, Sean Moore, Martin Hill, **Michael Jukes**

#### CONTRIBUTED PAPERS. Thursday, 9:45 V-33

**Carbon quantum dot nanoparticles increase the efficacy of *Spodoptera littoralis* nucleopolyhedrovirus suspoemulsion**

Ali Mehrvar, **Umut Toprak**, Gökhan Söylemezoğlu, Solmaz Ghanbari

#### CONTRIBUTED PAPERS. Thursday, 10:00 V-34

**A CRM1-Dependent Nuclear Export Signal in *Autographa californica* Multiple Nucleopolyhedrovirus Ac93 Is Important for the Formation of Intranuclear Microvesicles**

**Guoqing Chen**, Jing Yang, Yihong Wu, Haoran Wang, Xinxin Zhang, Guozhong Feng

#### CONTRIBUTED PAPERS. Thursday, 10:15 V-35

**Expression of viral antiapoptotic genes during the development of SfNPV-Ar baculovirus infection in its host *Spodoptera frugiperda***

Jonatan C. Rangel-Núñez, Ma. de los Angeles Bivián-Hernández, Jorge E. Ibarra, **Ma. Cristina Del Rincón-Castro**

#### Contributed Papers DBI 2

Thursday, 8:30 – 10:15  
Plötl EI 8

#### Pathogen and Symbiont: Host Interactions in Invertebrate Mass Production

Chairs: Elisabeth Herniou, Christina Nielsen-LeRoux

#### CONTRIBUTED PAPERS. Thursday, 8:30 DBI-9-STU

***In vitro* cultivation of tsetse fly *Glossina fuscipes fuscipes* endosymbiont *Spiroplasma*: Genome sequencing and potential implications for disease transmission**

**Fabian Gstöttenmayer**

#### CONTRIBUTED PAPERS. Thursday, 8:45 DBI-10-STU

**Iflavirus and Negevirus dynamics in mass-reared tsetse flies**

**Hannah-Isadora Huditz**, Giovanni Petrucci, Adly M.M. Abd-Alla, Ben Raymond, Monique M. van Oers





CONTRIBUTED PAPERS. Thursday, 9:00 **DBI-11-STU**

**Reinfection and genetic diversity of *Tenebrio molitor* densovirus (TmDV) from Europe**

**Fang-Shiang Lim**, Joel González Cabrera, Johannes A. Jehle, Jörg T. Wennmann

CONTRIBUTED PAPERS. Thursday, 9:15 **DBI-12**

**Applying Ecotoxicology Principles in Mass-Reared Insects to Understand Stressor Interactions**

**Eleanor L. Dearlove**, C.A.M. van Gestel, S. Loureiro, C. Svendsen, M. Lloyd, L. Mugo-Kamiri, J.M. Petersen, E. Bessette, S. Edwards, Fang-Shiang Lim, P. Herren, Luis Hernández-Pelegri, R. Pienaar, H. Huditz, A. Mostafaie, J. Pinto, A. Roman, C. Savio, A.R. Slowik, J. Takacs, J.K. Upfold, H. Hesketh

CONTRIBUTED PAPERS. Thursday, 9:30 **DBI-13**

**The Tick Cell Biobank – cell lines for research on biology and control of insects, ticks, and their associated microorganisms**

**Catherine Hartley**, Jing Jing Khoo, Alistair C. Darby, Benjamin Makepeace, Lesley Bell-Sakyi

CONTRIBUTED PAPERS. Thursday, 9:45 **DBI-14**

**Near-complete bacterial genome insertion in a tick nuclear genome: evidence from tick cell lines and ticks**

**Jing Jing Khoo**, Alexandra Belavskaja, Catherine Hartley, Alaa Al-Khafaji, Grace Ward, Stuart Armstrong, Germanus Bah, Maria Kazimirova, Alistair C. Darby, Benjamin L. Makepeace, Lesley Bell-Sakyi

CONTRIBUTED PAPERS. Thursday, 10:00 **DBI-15**

**Monitoring of larval growth and persistence of *Bacillus thuringiensis* and *Clostridioides difficile* spores during bio-conversion of waste streams by black soldier fly larva (*Hermetia illucens*)**

Agnès Rejasse, Christophe Buisson, Ludovic Bridoux, Isabelle Poquet, Vincent Sanchis, **Christina Nielsen-Le Roux**

**Contributed Papers Bacteria 4**

Thursday, 8:30 – 10:15  
Hlawka EI 9

**Ecology and Regulation**

Chairs: Omaththage Perera, Hannah Best

CHRIS LOMER AWARD

Thursday, 8:30 **B-25**

**Linocin M18 protein from the insect pathogenic bacterium *Brevibacillus laterosporus* isolates**

**Tauseef K. Babar**, Travis R. Glare, John G. Hampton, Mark R. H. Hurst, Josefina Narciso, Campbell R. Sheen, Barbara Koch

CONTRIBUTED PAPERS. Thursday, 8:45 **B-26-STU**

**A novel approach for transforming *Bacillus thuringiensis* strain without the use of antibiotics**

**Siyi Liu**, Dong Hwan Park, Minghui Wang, Jae Young Choi, Yeon Ho Je

CONTRIBUTED PAPERS. Thursday, 9:00 **B-27**

**Sporulation-independent Cry toxin production in *Bt kurstaki* strains**

**Emilie Verplaetse**, Leyla Slamti, Didier Lereclus

CONTRIBUTED PAPERS. Thursday, 9:15 **B-28**

**Endophytic *Bacillus thuringiensis* strains: an unusual habitat and a potential biotechnological development**

Rosalina García-Suárez, Gabriela Espinoza-Vergara, Areli Cando-Narváez, Lucía Rodríguez-Maldonado, Ma. Cristina Del Rincón-Castro, **Jorge E. Ibarra**

CONTRIBUTED PAPERS. Thursday, 9:30 **B-29**

**Plants recruit insecticidal bacteria to defend against herbivore attacks**

Wenyue Xu, Xiaoxiao Sun, Liang Mi, **Changlong Shu**, Jie Zhang, Lili Geng

CONTRIBUTED PAPERS. Thursday, 9:45 **B-30**

**Insights on *Pseudomonas protegens* ecology and bioinsecticidal properties**

**Luca Ruii**

CONTRIBUTED PAPERS. Thursday, 10:00 **B-31**

**Rapid adaptation of *Bacillus thuringiensis* to alkaline environments via the L-lactate metabolism pathway regulated by CRP/FNR family regulator LtmR**

**Qi Peng**, Jiaxin Qin, Hong Xu, Guiwei Kao, Fan Yang, Zhongqin Sun, Leyla Slamti, Shuyuan Guo, Fuping Song

**Contributed Papers Fungi 2**

Thursday, 8:30 – 10:30  
Fritz Paschke EI 10

**Fungal Interaction with Hosts and beyond**

Chairs: Jürg Enkerli, Enrique Quesada-Moraga

CONTRIBUTED PAPERS. Thursday, 8:30 **F-9-STU**

**Symbiotic bacterial abundance and protective response of two-spotted spider mites against *Akanthomyces attenuatus* JEF-147**

**Gahyeon Song**

CONTRIBUTED PAPERS. Thursday, 8:45 **F-10-STU**

**Unraveling DNA methylation in the entomopathogenic fungus *Metarhizium pinghaense* NCHU-125**

**Yi-Hsuan Li**, Ming-Ren Yen, Nian-Tong Ni, Fang-Min Chang, Yu-Shin Nai

CONTRIBUTED PAPERS. Thursday, 9:00 **F-11**

**Unraveling multi-organismal interactions in the mosquito holobiont to enhance microbial control**

**Jose Luis Ramirez**

CONTRIBUTED PAPERS. Thursday, 9:15 **F-12**

**The body-surface associated microbiome of soil-dwelling larvae of *Melolontha melolontha* increases resistance to its fungal pathogen *Beauveria brongniartii***

Denise Baur, Noëmi Küng, Chiara Pedrazzini, Franco Widmer, **Jürg Enkerli**

CONTRIBUTED PAPERS. Thursday, 9:30 **F-13**

**Influence of defense mechanisms of *Euschistus heros* (Hemiptera: Pentatomidae) during the infective process of *Metarhizium* spp.**

Aline Nunes da Silva, Janaína Brandão Seibert, Jhonattan Rodríguez Guerrero, Diego Magalhães, **Italo Delalibera Júnior**

CONTRIBUTED PAPERS. Thursday, 9:45 **F-14**

**RNA-sequencing of entomopathogenic fungus-infected *Thrips plami* reveals change of host defense and homeostasis**

Yu Jin Jeong, Jong-Cheol Kim, Mi Rong Lee, Gahyeon Song, **Jae Su Kim**

CONTRIBUTED PAPERS. Thursday, 10:00 **F-15**

**To be or not to be entomopathogenic depends on a mycovirus**

Fátima Rueda-Maillo, Inmaculada Garrido-Jurado, **Enrique Quesada-Moraga**





CONTRIBUTED PAPERS. Thursday, 10:15 **F-16**

**Zinc solubilization and organic acid production by the entomopathogenic fungus, *Metarhizium pingshaense* sheds light on its key ecological role in the environment**

**C. M. Senthil Kumar**, Sharon D'Silva, R. Praveena, Anees Kaprakkaden, L. R. Athira Krishnan, M. Balaji Rajkumar, V. Srinivasan, R. Dinesh

**Refreshment Break**

Thursday, 10:30 – 11:00  
Foyer

**SIP Membership Meeting**

Thursday, 11:00 – 13:00  
Lecture Hall EI 7

**Lunch**

Thursday, 13:00 – 14:00  
Foyer

**Pan-Division Symposium Viruses & DBI & Bacteria**

Thursday, 14:00 – 16:00  
Lecture Hall EI 7

**Diseases in Invertebrates for Feed and Food: Global Perspectives**

Chairs: Vera Ros, Helen Hesketh, Christina Nielsen-LeRoux

CDS VIRUSES, DBI, BACTERIA. Thursday, 14:00 **16-1**

**Challenges of pathogens detection in insect mass rearing: Advances from the Insect Doctors program for improved diagnostic**

**Elisabeth Herniou**

CDS VIRUSES, DBI, BACTERIA. Thursday, 14:30 **16-2**

**Emerging Threats to Black Soldier Fly Farming in Africa**

*Inusa J. Ajene*, **Chrysantus M. Tanga**, *Fathiya M. Khamis*

CDS VIRUSES, DBI, BACTERIA. Thursday, 15:00 **16-3**

**Diseases in shrimp aquaculture**

**Kelly Bateman**

CDS VIRUSES, DBI, BACTERIA. Thursday, 15:30 **16-4**

**Microsporidia and protist parasites in reared insect hosts**

**Edouard Bessette**, *Bryony Williams*, *Nicolai V. Meyling*

**- End of Scientific Program**

**Banquet**

**Arcotel Wimberger**

Neubaugürtel 34-36, 1070 Vienna

Thursday, 18:30 – 00:00

Transportation to the venue and back via public transportation ticket. No transportation by the Conference organizers.



## AUTHOR INDEX

Abbà, Simona **F-P9, MC-P11**,  
 Abd-Alla, Adly M.M. **DBI-10-STU, V-20, V-19, 8-3**,  
 Abel, Craig A. **B-13**,  
 Aceves-Lara, César Arturo **B-17**,  
 Adamczyk, John **V-28**,  
 Agbessenou, Ayaovi **MC-P5**,  
 Aguila-Toral, Angela Camille **V-22-STU**,  
 Akutse, Komivi Senyo **MC-22**,  
 Al-Khafaji, Alaa **DBI-14**,  
 Alfaro, Claudia **10-3, V-14**,  
 Ali, Jared, G. **12-5**,  
 Almeida, Alini de **V-P14**,  
 Alphey, Luke **DBI-4**,  
 Amangeldi, Zhanerke **MC-6-STU**,  
 Amar, Edgar **V-22-STU**,  
 Amnulla, Fayaz M. **MC-20**,  
 Andrea, Lentini **MC-11-STU**,  
 Araya-Aracena, Carolina Macarena **B-22**,  
 Aretz, Tristan **DBI-P4-STU**,  
 Armstrong, Stuart **DBI-14**,  
 Aroian, Raffi **B-10, B-20**,  
 Athira Krishnan, L.R. **F-16**,  
 Auhim, Husam Sabah **B-8-STU**,  
 Aydemir, Ozkan **B-10**,  
 Ayyildiz, Gül **B-24, MC-6-STU**,  
 Azuma, Yoshinao **B-P1**,  
 Babar, Tauseef K. **B-25**,  
 Badolo, Athanase **MC-19**,  
 Bah, Germanus **DBI-14**,  
 Baird, Hannah **B-8-STU**,  
 Balaji Rajkumar, M. **F-16**,  
 Baños-Salmeron, Mireya **B-19**,  
 Barrera-Cubillos, Gloria **V-P5, F-P6**,  
 Barssoum, Rita **B-17**,  
 Barta, Marek **MS-6**,  
 Barua, Archita **MC-P3**,  
 Bass, David **DBI-1**,  
 Bateman, Kelly **16-3**,  
 Batista, Frederico **DBI-2-STU**,  
 Baur, Denise **F-12, F-3-STU**,  
 Bayly-Jones, Charles **B-8-STU**,  
 Bazagwira, Didace **N-1**,  
 Becerra García, Rosa Esmeralda **V-21-STU**,  
 Bel, Yolanda **B-1-STU, B-19**,  
 Belaich, Mariano Nicolás **V-P5, V-P24-STU**,  
 Beliavskaia, Alexandra **DBI-14**,  
 Bell-Sakyi, Lesley **DBI-14, DBI-13, DBI-4, V-19**,  
 Ben Fekih, Ibtissem **MC-19, 13-3, MC-P12**,  
 Benazzeddine, Sid Ali **F-8**,  
 Benlasfar, Zakaria **B-24**,  
 Bennett, Tahnee **V-4-STU**,  
 Berry, Colin **B-8-STU, B-6-STU, B-2**,  
 Berry, Shaun D. **15-1**,  
 Bessette, Edouard **MS-1-STU, 16-4, DBI-12**,  
 Best, Hannah **B-8-STU**,  
 Bézier, Annie **10-1, 10-2, 11-4**,  
 Biganski, Sarah **MC-17, MS-P2, MC-5, V-P13**,  
 Biggiogera, Marco **V-14**,  
 Bindushree, Chikkalingaiah **MC-13**,  
 Bivián-Hernández, Ma. de los Angeles **V-35, V-P1**,  
 Blakeslee, April **11-3**,  
 Blaxter, Mark **MS-3**,

Bogataj, Urban **F-P1**,  
 Bojko, Jamie **V-2-STU, MS-1**,  
 Bonizzoni, Mariangela **10-3, V-14, V-30**,  
 Bonning, Bryony **V-3-STU, V-P22**,  
 Booyens, Wanda **17-3**,  
 Borgemeister, Christian **MC-P5**,  
 Borri, Paola **B-6-STU**,  
 Boschi, Sara **F-4**,  
 Bosshard, Silvan **V-17**,  
 Bouhaouala-Zahar, Balkiss **B-24**,  
 Boussau, Bastien **10-2**,  
 Bowen, David **B-2**,  
 Brandão Seibert, Janaina **F-13**,  
 Bravo, Alejandra **B-7, B-5**,  
 Bridoux, Ludovic **DBI-15**,  
 Brown, Matthew **N-3**,  
 Bryon, Astrid **11-4, V-5, V-16-STU**,  
 Buffington, Matt **10-2**,  
 Buisson, Christophe **DBI-15**,  
 Burdfield-Steel, Emily **MC-4-STU**,  
 Burgess, Amy **V-2-STU**,  
 Burke, Gaelen R. **V-7, V-26-STU**,  
 Bushley, Kathryn E. **18-3, F-6, F-5-STU**,  
 Bustos-Segura, Carlos **N-1**,  
 Bystřický, Pavel Karel **MS-4-STU**,  
 Caballero, Primitivo **V-10**,  
 Cabrera, Joel González **DBI-11-STU**,  
 Cai, Jun **B-P6**,  
 Çalışkan Keçe, Asime Filiz **MC-6-STU**,  
 Cando-Narváez, Areli **B-28**,  
 Cano, Irene **DBI-2-STU**,  
 Cardoso Pereira, Rui **8-1**,  
 Casada, Manuela **B-P3-STU**,  
 Casali, Claudio **V-14**,  
 Castell, Oliver **B-8-STU**,  
 Cazeault, Nicholas **B-20**,  
 Cerqueira de Araujo, Alexandra **10-1**,  
 Cerrudo, Carolina Susana **V-P24-STU**,  
 Cescut, Julien **B-17**,  
 Cham, Nfamara **10-3, V-30**,  
 Chambers, Adam **V-P10-STU**,  
 Chandler, David **15-1**,  
 Chang, Fang-Min **F-P3, V-P15, V-24-STU, MS-P3, F-10-STU**,  
 Chang, Ju-Chun **V-P9-STU**,  
 Chang, Li-Hung **V-23-STU**,  
 Chang, Zih Ting **V-23-STU**,  
 Chao, Shufen **V-8**,  
 Charrière, Guillaume M. **DBI-3-STU**,  
 Chen, Baoding **V-11**,  
 Chen, Guoqing **V-8, V-34**,  
 Chen, Hongfeng **V-P19**,  
 Chen, Jiannan **V-P4**,  
 Chen, Jie **MS-3**,  
 Chen, Senyu **F-6**,  
 Chen, Tzu-Han **V-23-STU**,  
 Chen, Yen-Hou **V-24-STU**,  
 Chen, Yue-Wen **V-23-STU**,  
 Cheng, Zhiqiang **MC-9**,  
 Cheignon, Germain **10-1**,  
 Choi, Jae Young **B-26-STU**,  
 Ciche, Todd **B-2**,  
 Cilia, Giovanni **DBI-7**,  
 Cirrincione, Simona **MC-P11**,  
 Clifton, Eric **F-2**,  
 Coates, Brad S. **B-13**,  
 Cobb, Adele **DBI-2-STU**,



Cokola, Marcellin C. **MC-P12**,  
Cook, James **11-2**,  
Copilaş-Ciocianu, Denis **MS-4-STU**,  
Cordaux, Richard **11-1**,  
Cordero, Victoria **MS-2**,  
Couceiro, Joel **MC-P4**,  
Crava, Cristina **MC-15, V-21-STU**,  
Cruz-Morales, Pablo **13-2**,  
Cuccovia Warlet, Franco Uriel **V-P24-STU**,  
Cuenca-Medina, María **13-5, MC-7-STU**,  
Cutts, Adam **B-6-STU, B-2**,  
D'Silva, Sharon **F-16**,  
Dang, Xiaoqun **MS-3**,  
Dantas, Yuri **F-P8-STU**,  
Dara, Surendra K. **MC-1**,  
Darby, Alistair C. **DBI-14, DBI-13, V-19**,  
Darie, Andrei **MC-20**,  
de Bekker, Charissa **13-1**,  
de la Forest Divonne, Sébastien **DBI-3-STU**,  
De Vico, Gionata **DBI-7**,  
Dearlove, Eleanor L. **15-1, DBI-12**,  
Del Rincón-Castro, Ma. Cristina **V-35, B-28, V-P1**,  
Delalibera Júnior, Italo **F-P8-STU, F-P5, F-13**,  
Deleu, Magali **MC-P12**,  
Delzenne, Pascale **14-3**,  
Demirbağ, Zihni **V-P16, DBI-5**,  
Deng, Fei **V-P17, V-P19**,  
Deng, Yanchun **DBI-6, DBI-6**,  
Dessauvages, Kenza **MC-19, MC-P12**,  
Destoumieux-Garzon, Delphine **DBI-3-STU**,  
Dhaouadi, Sayda **B-24**,  
Diaz Valerio, Stefani **B-20**,  
Die, J.V. **MC-7-STU**,  
Dimopoulos, George **MC-P4**,  
Dinesh, R. **F-16**,  
Ding, Qian **B-20**,  
Dokal, Martina **MC-10**,  
Dolci, Paola **F-P9**,  
Dounavi, Aikaterini **MC-P1-STU**,  
Drezen, Jean-Michel **10-1, V-25, 10-2, 11-4**,  
Du, Yuzhe **F-P2**,  
Duan, Zhuowen **V-P7**,  
Dubovskiy, Ivan **B-18, B-23**,  
Dunstone, Michelle **B-8-STU**,  
Dupoirion, Séphanie **B-17**,  
Durning, Daniel **B-10**,  
Ebeling, Julia **DBI-P2, DBI-P1-STU**,  
Edgington, Steve **15-1, MC-P3**,  
Edwards, Sam **MS-1-STU, DBI-12**,  
Ehling-Schulz, Monika **14-1**,  
Eilenberg, Jørgen **F-1, 13-3**,  
El Jeni, Rim **B-24**,  
Ellis, Robert **DBI-2-STU**,  
Enkerli, Jürg **F-4, MC-10, F-12, F-3-STU**,  
Escrache, Baltasar **B-1-STU, B-19, B-11-STU**,  
Espinel, Carlos **F-P6**,  
Espinoza-Vergara, Gabriela **B-28**,  
Fallet, Patrick **N-1**,  
Fan, Jiangbin **MC-17, MC-5, MC-P5, MC-18, V-P2**,  
Fancello, Francesco **B-P3-STU**,  
Fang, Yaohui **V-P19**,  
Farhan, Yasmine **B-14**,  
Farris, Roxanne **8-2**,  
Fauconnier, Marie-Laure **MC-P12**,  
Fayad, Nancy **B-17**,  
Federici, Brian **V-27**,

Feng, Guozhong **V-8, V-34**,  
Ferré, Juan **B-4-STU, B-15, B-9**,  
Fillaudeau, Luc **B-17**,  
Fisch, Andrews **V-P14**,  
Fischer, Nicola M. **MC-P1-STU**,  
Fitzpatrick, James **B-2**,  
Flanagan, Kelly **B-20**,  
Flores, Daniel **MC-P7**,  
Flors, Víctor **MC-15**,  
Fourie, Jemma **V-16-STU**,  
Foxi, Cipriano **B-P4-STU**,  
Francis, Frederic **MC-19, 13-3, MC-P12**,  
Frattini Llorens, Ada **MC-15**,  
Fritsch, Eva **MC-17**,  
Fros, Jelke **V-29**,  
Fu, Liyan **V-P17**,  
Fünfhaus, Anne **DBI-P2, DBI-P1-STU, DBI-P5-STU**,  
Gajdošová, Magdalena **MS-4-STU**,  
Galeano, Magda **B-19**,  
Gallegos, Valentina **N-2**,  
Gallinger, Jannicke **MS-P2**,  
Gani, Mudasir **V-9**,  
García, Blanca **B-7**,  
García, Juan **MC-15**,  
García-Castillo, Pablo **V-18-STU**,  
García-Riaño, Lorena **F-P6**,  
García-Suárez, Rosalina **B-5, B-28**,  
Garrido-Jurado, Inmaculada **F-15, F-8, MC-8**,  
Garza, Isaiah **MC-P7**,  
Gasmi, Laila **10-3, V-14**,  
Gasque, Simone Nordstrand **V-5**,  
Geertsema, Corinne **V-10**,  
Genersch, Elke **DBI-P1-STU, DBI-P2, MS-P4, DBI-P5-STU, DBI-P4-STU, DBI-P3-STU, V-P21-STU**,  
Geng, Lili **B-29, B-3**,  
Geng, Yang **B-21**,  
Gezer, Sevgi **V-P13**,  
Ghanbari, Solmaz **V-33**,  
Ghosh, Saptarshi **V-3-STU**,  
Gilbert, Clement **10-4**,  
Gillis, Annika **B-4**,  
Gisder, Sebastian **MS-P4, DBI-P3-STU, V-P21-STU**,  
Glacet, Lallie **MC-19**,  
Glare, Travis R. **B-25**,  
Glazer, Itamar **12-3**,  
Glover, James **F-P2, B-13**,  
Göbel, Josefina **DBI-P1-STU**,  
Goblirsch, Michael **DBI-4, V-28**,  
Goddard, Mathew **8-4, 17-3**,  
Gómez, Isabel **B-7, B-5**,  
Gómez-Valderrama, Juliana **V-P5, F-P6**,  
González Martínez, Rosa María **MC-15**,  
González-Cabrera, Joel **V-18-STU**,  
González-Mas, Natalia **13-5, MC-7-STU**,  
Gourbal, Benjamin **DBI-3-STU**,  
Green, Emily **F-6**,  
Grimm, Jacqueline **MS-4-STU**,  
Grizanova, Ekaterina **B-18, B-23**,  
Grobler, Anne **17-3**,  
Groot, Astrid T. **MC-4-STU**,  
Gross, Jürgen **MS-P2**,  
Gruber, Angelika **MC-P2**,  
Gstöttenmayer, Fabian **DBI-9-STU**,  
Gu, Yun **V-11**,  
Guinet, Benjamin **10-2**,  
Gundersen-Rindal, Dawn **V-25**,



Guntadze, Nika **MS-6**,  
Guo, Shuyuan **B-31, B-P5**,  
Guo, Yijia **V-13**,  
Gwynn, Roma **15-3**,  
',  
Haarith, Deepak **F-6**,  
Hahn, Christoph **MS-4-STU**,  
Hajek, Ann **MS-6, F-2**,  
Hampton, John G. **B-25**,  
Han, Bing **MS-3**,  
Han, Xiaohong **B-P2-STU**,  
Harrison, Robert L. **V-31, V-P3**,  
Hartley, Catherine **DBI-14, DBI-13, DBI-4, V-19**,  
Haverkamp, Alexander **V-5**,  
Hayakawa, Tohru **B-P1**,  
Hazir, Selcuk **12-1**,  
He, Kanglai **B-P5**,  
Head, Graham **B-9**,  
Heckel, David **B-16, MC-18**,  
Heisserer, Camille **10-1, V-25**,  
Helmes, Nick **V-29**,  
Hemachandra, K. S. **V-31**,  
Hendriksen, Niels Bohse **B-4**,  
Henkens, Marleen **V-29**,  
Hernández-Martínez, Patricia **B-4-STU, B-11-STU, B-15**,  
Hernández-Pelegrín, Luis **V-18-STU, DBI-12, V-21-STU**,  
Herniou, Elisabeth **V-P1, 10-2, V-2-STU, 16-1**,  
Herren, P. **DBI-12**,  
Herrero, Salvador **MC-15, V-18-STU, V-21-STU, V-16-STU**,  
Herz, Annette **V-P13**,  
Hesketh, Helen **15-1, DBI-12**,  
Hill, Martin **V-32, V-4-STU, 8-4, 17-3**,  
Hiltpold, Ivan **12-5, N-P2**,  
Hoang, Duy **B-20**,  
Hong, Song **13-4**,  
Hooper, Chantelle **DBI-1**,  
Hou, Chunsheng **DBI-8, DBI-8**,  
Hou, Qiuhui **V-12**,  
Hrcek, Jan **10-2**,  
Hsieh, Cheng-Yu **V-P15**,  
Hu, Hengrui **V-13**,  
Hu, Yan **B-10**,  
Hu, Zhihong **V-6, V-12, V-13, V-1**,  
Huang, Shouwei **V-P19**,  
Huang, Yu-Feng **V-23-STU, V-P9-STU**,  
Huditz, Hannah-Isadora **DBI-10-STU, V-20, DBI-12**,  
Huguet, Elisabeth **10-1, V-25**,  
Humber, Richard A. **F-1, 18-1**,  
Hurst, Mark R. H. **B-25**,  
Hussain, Ahmed G. **MC-4-STU, V-9**,  
Ibarra, Jorge E. **V-35, B-28**,  
Iita, Petrus **8-4**,  
Infante, Oscar **B-5**,  
Ishidate, Takao **B-10**,  
Islam, Tarikul **N-3**,  
J. Ajene, Inusa **16-2**,  
Jacobsen, Stine K. **MC-14**,  
Jain, Devendra **B-13**,  
Jamieson, David **B-8-STU**,  
Jaron, Kamil **MS-3**,  
Jaronski, Stefan **MC-P6, MC-P7**,  
Je, Yeon Ho **B-26-STU**,  
Jeffries, Aaron **DBI-2-STU**,  
Jehle, Johannes A. **MS-P2, MC-17, MC-5, MC-P1-STU, V-9, V-P13, V-P12-STU, MC-P5, MC-18, V-P2, DBI-11-STU**,  
Jensen, Annette Bruun **F-1, MC-21, 13-3**,

Jeong, Yu Jin **F-14**,  
Jin, Minghui **B-16**,  
Jithendran, K. P. **DBI-1**,  
Jones, Dafydd **B-8-STU**,  
Joseph, Andrew **DBI-2-STU**,  
Joseph, Ross **18-2**,  
Josse, Thibaut **10-1, V-25**,  
Jukes, Michael **V-32, V-4-STU, 8-4, 17-3**,  
Jung, Hyeon Wook **MC-P10-STU**,  
Jurat-Fuentes, Juan Luis **B-14**,  
Kageyama, Yasushi **B-20**,  
Kajuga, Joelle **N-1**,  
Kallassy, Mireille **B-17**,  
Kao, Guiwei **B-31**,  
Kaprákkaden, Anees **F-16**,  
Karberg, Katherine **14-3**,  
Karničar, Katarina **F-P1**,  
Katanić, Nataša **MS-4-STU**,  
Katlav, Alihan **11-2**,  
Kazimirova, Maria **DBI-14**,  
Keilwagen, Jens **V-9**,  
Kereselidze, Manana **MS-6**,  
Kester, Karen **V-25**,  
Keyhani, Nemat Oliver **18-2**,  
Khajuria, Chitvan **B-9**,  
Khalaf, Amjad **MS-3**,  
Khamis, Fathiya Mbarak **MC-22**,  
Khelisupali, Irina A. **N-P1**,  
Khoo, Jing Jing **DBI-14, DBI-13, DBI-4**,  
Khorramnejad, Ayda **10-3, V-30**,  
Kienzle, Jutta **MC-17**,  
Kim, Dong-gyu **F-6**,  
Kim, Hoe Ri **MC-P10-STU**,  
Kim, Hyun Goo **MS-P3-STU**,  
Kim, Hyun Jung **V-P23-STU**,  
Kim, Jae Su **F-14**,  
Kim, Jong-Cheol **F-14**,  
Kim, Kyu Seek **F-P4, MS-P3-STU**,  
Kim, YouMie **B-10**,  
King, Linda **V-P10-STU**,  
Kitalong, Christopher **V-P11-STU**,  
Kleespies, Regina G. **MC-P1-STU**,  
Knight, Nin **F-6**,  
Knox, Caroline **V-32, V-4-STU, 17-3, 8-4**,  
Ko, Chung-Yu **V-23-STU**,  
Koch, Barbara **B-25**,  
Kong, Min **V-P6-STU**,  
Kong, Yongzhi **MS-4**,  
Koppenhöfer, Albrecht **N-3**,  
Kotta-Loizou, I. **MC-8**,  
Kraïem, Hazar **B-24**,  
Krell, Peter **V-P16**,  
Kropf, Alida **V-30**,  
Krytsyna, Tatiana **B-18, B-23**,  
Kuang, Wenhua **V-12**,  
Kulasinghe, W.M.N. Kaumadie K. **V-31**,  
Kumar, K. Vinay **DBI-1**,  
Küng, Noëmi **F-12, F-3-STU**,  
Kuo, Yu-Yun **V-P9-STU, MS-5**,  
Ladurner, Edith **15-2**,  
Lamberti, Cristina **MC-P11**,  
Lamour, Kurt **B-14**,  
Landwehr, Anna **V-17, MC-16**,  
Lannutti, Lucas **MS-P4**,  
Lasa, Rodrigo **F-P7-STU**,  
Lassalle, Fernando Maku **V-P24-STU**,





Lawniczak, Mara **MS-3**,  
Lázaro-Berenguer, María **B-4-STU**,  
Leandri, Rebecca **DBI-7**,  
Lecocq, Antoine **MC-21**,  
Lee, Chun-Yan **MS-5**,  
Lee, Mi Rong **F-14**,  
Lee, Se Jin **MC-P10-STU**,  
Leobold, Matthieu **10-1, 10-2**,  
Lereclus, Didier **14-2, B-27**,  
Li, Anjing **B-16**,  
Li, Hanchen **B-20**,  
Li, Jialu **B-21**,  
Li, Jiang **V-12, V-6, V-13**,  
Li, Mengyuan **B-P5**,  
Li, Runlin **DBI-P3-STU**,  
Li, Tian **MS-4**,  
Li, Yi-Hsuan **MS-P3, F-10-STU, V-P9-STU**,  
Li, Zhuorui **V-6**,  
Liao, Chongyu **B-16**,  
Libunao, Gardel Xyza **V-22-STU**,  
Liedo, Pablo **F-P7-STU**,  
Liesegang, Heiko **B-20**,  
Lim, Fang-Shiang **V-18-STU, MC-18, DBI-11-STU, DBI-12**,  
Lin, Huixin **14-3**,  
Linde, Andreas **MS-6**,  
Liu, Fangyan **MS-3**,  
Liu, Kaiyu **B-16**,  
Liu, Shu **V-12**,  
Liu, Siyi **B-26-STU**,  
Liu, Zhenxing **B-16**,  
Liu, Zhuangzhuang **B-16**,  
Lloyd, M **DBI-12**,  
Lombard, Theunis **8-4, 17-3**,  
Lorenzi, Ange **V-7**,  
Loureiro, S **DBI-12**,  
Lozada-Chávez, Alejandro Nabor **10-3**,  
Lu, Hsiao-Ling **F-P3**,  
Ludwig, Scott **MC-3**,  
Luo, Tongyu **MS-4**,  
Luong, Lien **9-2**,  
Lupton, Chris **B-8-STU**,  
M. Khamis, Fathiya **16-2**,  
M. Tanga, Chrysantus **16-2**,  
Ma, Tianjiao **B-3**,  
Machado, Ricardo **18-5**,  
MacInnis, Courtney **9-2**,  
Maddau, Lucia **B-P3-STU**,  
Magalhães, Diego **F-13**,  
Maiolino, Paola **DBI-7**,  
Makepeace, Benjamin L. **DBI-14, DBI-13, DBI-4, V-19**,  
Malysh, Yuliya **MS-P1**,  
Maniania, Jean Nguya K. **MC-20**,  
Cokola, Marcellin C. **MC-19**,  
Marche, Maria Giovanna **MC-12**,  
Marsberg, Tamryn **17-3, V-P8**,  
Martin, Gareth **15-1**,  
Masoudi, Abolfazl **18-2**,  
Mastis, Stefanos **MC-P4**,  
Mattia, Annamaria **V-16-STU**,  
Maurizio, Olivieri **MC-11-STU**,  
Mayer, Omri **17-2**,  
McCraken, Morgan **B-13**,  
Mckinnon, Lucas **B-2**,  
Mehrvan, Ali **V-33**,  
Meki, Irene Kasindi **8-3**,  
Mello, Craig **B-10**,  
Melo, Tatiane **MC-2**,  
Melrose, Samuel **DBI-2-STU**,  
Mendes, Frederick **MC-2**,  
Meng, Xianzhi **MS-3**,  
Ment, Dana **12-3**,  
Meyling, Nicolai V. **MC-14, MC-21, 16-4**,  
Mi, Liang **B-29**,  
Michel, Andrew **B-14**,  
Michelsen, Verner **F-1**,  
Migita, Haru **V-P20-STU**,  
Mikaia, Nona V. **N-P1**,  
Milanez Silva, Daniela **F-P8-STU, F-P5**,  
Millán-Leiva, Anabel **B-15**,  
Miller, Dini **MC-P6**,  
Miller, Kaylee **B-9**,  
Minchev, Zhivko **MC-15**,  
Mishra, Ruchir **V-P22**,  
Mitta, Guillaume **DBI-3-STU**,  
Mo, Mei **V-P4**,  
Moar, William **B-9, B-6-STU, B-2, 14-3**,  
Mogouong, Judith **F-5-STU**,  
Moisan, Kay **N-P2**,  
Monje, Almendra J. **N-2**,  
Montoro, Marta **MC-21**,  
Montoya, Pablo **F-P7-STU**,  
Moon, Hyuk Jin **V-P18-STU, V-P23-STU, V-P6-STU, F-P4, MS-P3-STU**,  
Moore, Sean **V-32, V-4-STU, 8-4, 17-3, V-P8**,  
Morais Ribeiro, Bergmann **V-P14**,  
Morinière, Jérôme **MC-P1-STU**,  
Moro, Gabriele **MC-12**,  
Mostafaie, A. **DBI-12**,  
Motta, Lucas Federico **V-P24-STU**,  
Mouton, Clarissa **8-4**,  
Mrak, Polona **F-P1**,  
Mugo-Kamiri, L. **DBI-12**,  
Muhorakeye, Marie Cecile **MC-22**,  
Muleya, Naho **V-32**,  
Mun, Seo Yeong **V-P6-STU, F-P4**,  
Munoz, Delia **V-10**,  
Mushore, Tapiwa **V-4-STU**,  
Muskat, Linda **F-P5**,  
Musset, Karine **10-1**,  
Nagy, Eva **V-P16**,  
Nai, Yu-Shin **V-23-STU, F-P3, V-P15, V-24-STU, F-10-STU, MS-P3, V-P9-STU, MS-5**,  
Nakai, Madoka **V-P20-STU, V-P11-STU**,  
Nalçacıoğlu, Remziye **DBI-5**,  
Namikoye, Everlyne Samita **MC-22**,  
Narciso, Josefina **B-25**,  
Nasreddine, Rayan **MC-6-STU, B-17**,  
Navarro, Patricia D. **N-2**,  
Nekrep, Igor **F-P1**,  
Neves de Oliveira, Maria Cristina **V-P14**,  
Ngona, Yamikani **B-14**,  
Nguyen, Petr **MC-18**,  
Nguyen, Thanh-Thanh **B-10**,  
Ni, Jun **V-P19**,  
Ni, Nian-Tong **F-10-STU**,  
Nielsen, Katja K. **MC-21**,  
Nielsen-Le Roux, Christina **DBI-15**,  
Nishantha, K. M. D. W. Prabath **V-31**,  
Nongamanégré, Kouanda **MC-19**,  
Novillo, Concepción **14-3**,  
Nufer, Marissa I. **B-13**,  
Nugaliyadde, Lionel **V-31**,



Nunes da Silva, Aline **F-13**,  
Oehlmann, Christian **V-P12-STU**,  
Okuyan, Samet **DBI-5**,  
O'Neill, Patrick **B-13**,  
Ongena, Marc **MC-P12**,  
Onodera, Taku **V-P20-STU**,  
Opoku-Debrah, John **17-3**,  
Osterwalder, Olivia **V-17**,  
Ostroff, Gary **B-20**,  
Otta, Subhendu Kumar **DBI-1**,  
Ourry, Morgane **MC-21**,  
Ozsahin, Emine **V-P16**,  
Økstad, Ole Andreas **B-4**,  
Pacheco, Sabino **B-7**,  
Paluch, Maximilian **F-7**,  
Pan, Guoqing **MS-3**,  
Papadopoulos, Andronikos **MC-P4**,  
Park, Dong Hwan **B-26-STU**,  
Park, Youngjin **MC-P9**,  
Parrella, Parker **MS-2**,  
Parth, Martin **MC-P2**,  
Patel, Anant **F-P5**,  
Pedrazzini, Chiara **F-4, F-12**,  
Pélaez, Angel E. **B-5**,  
Peng, Donghai **B-21**,  
Peng, Qi **B-31**,  
Peng, Yan **B-16**,  
Perdomo, Hugo **10-3, V-30**,  
Perera, Omaththage P. **B-13, V-31**,  
Pérez-Rial, A. **MC-7-STU**,  
Périquet, Georges **10-1**,  
Pernal, Steve **9-2**,  
Peters, Ralph **10-2**,  
Petersen, Jirka Manuel **11-4, V-2-STU, DBI-12**,  
Petrucci, Giovanni **DBI-10-STU, V-19, V-20**,  
Petrusek, Adam **MS-4-STU**,  
Phoswa, Siyabonga **V-32**,  
Pienaar, R **DBI-12**,  
Pierce, Calvin A. **B-13**,  
Pijlman, Gorben **V-29, V-10, V-P10-STU**,  
Pilarska, Daniela **MS-6**,  
Pinho, Jean **MC-2**,  
Pinos, Daniel **B-15**,  
Pinto, J **DBI-12**,  
Pleau, Michael **B-9**,  
Poquet, Isabelle **DBI-15**,  
Portilla, Maribel **F-P2**,  
Possee, Robert **V-P10-STU**,  
Pouzadoux, Juliette **DBI-3-STU**,  
Power, Karen **DBI-7**,  
Pozo, María José **MC-15**,  
Pozsgai, Gabor **13-3**,  
Praček, Sergej **F-P1**,  
Prakya, Sreerama Kumar **MC-13**,  
Praporotnik, Eva **F-P1**,  
Praveena, P. Ezhil **DBI-1**,  
Praveena, R. **F-16**,  
Price, Paula **B-9**,  
Pu, Jialin **B-21**,  
Pulido, Mónica **F-P7-STU**,  
Půža, Vladimír **18-4**,  
Qian, Cheng **B-P6**,  
Qian, Jin **V-P17**,  
Qin, Jiaxin **B-P6, B-31**,  
Quan, Yudong **B-16**,  
Quaranta, Stefano **10-3**,

Quesada-Moraga, Enrique **F-8, F-15, 13-5, 17-1, MC-8, MC-7-STU**,  
Ragusa, Ernesto **DBI-7**,  
Ramakrishnan, Jayashree **12-3**,  
Ramirez, Jose Luis **F-11**,  
Ramirez, Yareny **MC-P7**,  
Rangel-Núñez, Jonatan C. **V-35, V-P1**,  
Rao, Ishtiaq M. **MC-20**,  
Rasmann, Sergio **12-5**,  
Rau, Michael **B-2**,  
Ravago-Gotanco, Rachel **V-22-STU**,  
Raymond, Ben **DBI-10-STU, V-20**,  
Razinger, Jaka **F-P1**,  
Reddy, Gadi V. P. **B-13, F-P2**,  
Rehner, Stephen A. **F-4, 18-3**,  
Reinecke, Antonia **DBI-P4-STU**,  
Reitmeyer, Christine **DBI-4**,  
Reitsma, Jeff **MC-20**,  
Rejassee, Agnès **DBI-15**,  
Reyes, Mayra **MC-P7**,  
Riebschläger, Sarah **DBI-P3-STU, V-P21-STU**,  
Riegler, Markus **11-2**,  
Roberto, Mannu **MC-11-STU**,  
Rodríguez, Douglas **F-P7-STU**,  
Rodríguez Guerrero, Jhonattan **F-13**,  
Rodríguez-Maldonado, Lucía **B-28**,  
Rodríguez-Obediente, Kewin **V-P5**,  
Roman, A **DBI-12**,  
Romero-Conde, Antonia **F-8**,  
Ros, Vera I.D. **V-18-STU, V-16-STU, MC-4-STU, V-9, V-5**,  
Rossi, Marika **F-P9, MC-P11**,  
Rowley, Daniel **V-P3**,  
Rueda-Maillo, Fátima **F-15, MC-8**,  
Rui, Luca **B-P3-STU, B-P4-STU, B-30, MC-11-STU**,  
Rumiantseva, Arina **MS-P1**,  
Ruoff, Birgit **MC-17, V-P12-STU**,  
Rus, Florentina **B-20**,  
Rutová, Tereza **MS-4-STU**,  
Ruttink, Tom **B-14**,  
Rydel, Timothy **B-2**,  
Sabotič, Jerica **F-P1**,  
Salame, Liora **12-3**,  
Sánchez, Daniel **F-P7-STU**,  
Sanchez, Daniela **MC-P7**,  
Sánchez, Jorge **B-7**,  
Sanchis, Vincent **DBI-15**,  
Sandoval-Lozano, Andres **F-8**,  
Sant Anna Iwanicki, Natasha **F-P8-STU, F-P5**,  
Santos, Eduarda **DBI-2-STU**,  
Saraswathi, R. **DBI-1**,  
Satta, Giuseppe **B-P4-STU**,  
Savio, C. **DBI-12**,  
Schlappi, Klaus **F-3-STU**,  
Schnittger, Leonhard **MS-P4**,  
Schreiber, Julianne **DBI-P4-STU**,  
Schreurs, Mitchel **V-16-STU**,  
Schuenzel, Erin **8-2**,  
Sefc, Kristina **MS-4-STU**,  
Seib, Tanja **F-7**,  
Sekgele, Windy **V-P8**,  
Senthil Kumar, C.M. **F-16**,  
Šentjurc, Tjaša **F-P1**,  
Serrano, Amaya **V-10**,  
Shan, Yinxue **B-16**,  
Shapiro-Ilan, David **12-4, 12-1**,  
Sheela, Nanjundaiah **MC-13**,  
Sheen, Campbell R. **B-25**,



Shekhar, M.S. **DBI-1**,  
Shen, Shu **V-P17, V-P19**,  
Shu, Changlong **B-3, B-29**,  
Sibum, Niklas **DBI-P5-STU**,  
Sidira, Iliana **MC-P4**,  
Silva, Juan **MC-P4**,  
Simonin, Jorge Alejandro **V-P24-STU**,  
Sini, Valentina **B-P4-STU**,  
Skaric, Davor **V-20**,  
Slamti, Leyla **B-31, 14-2, B-27**,  
Slowik, A.R. **DBI-12**,  
Smith, Jocelyn **B-14**,  
Snow, Jonathan **MS-2**,  
Soberón, Mario **B-5, B-7**,  
Sogliani, Davide **10-3, V-14, V-30**,  
Sokolova, Yuliya **MS-P1**,  
Soler, Roxina **N-P2**,  
Solmaz, Serhat **DBI-5**,  
Song, Fuping **B-31**,  
Song, Gahyeon **F-14, F-9-STU**,  
Sosa-Gómez, Daniel Ricardo **V-P14**,  
Soto, Ernesto **B-20**,  
Söylemezoğlu, Gökhan **V-33**,  
Spicer, Bradley **B-8-STU**,  
Spruijt, Ruben **V-29**,  
Srinivasan, V. **F-16**,  
Steeghs, Juul **V-P10-STU**,  
Stenekamp, Daleen **8-4**,  
Stentiford, Grant D. **DBI-1**,  
Stephan, Dietrich **F-7, B-24, MC-P1-STU, B-17, MC-6-STU**,  
Stewart, Nicole **MC-20**,  
Stewart-Smith, Fiona **F-4**,  
Stock, S. Patricia **12-2**,  
Stouthamer, Corinne M. **V-7**,  
Strasser, Hermann **MC-10**,  
Sun, Ming **B-21**,  
Sun, Quan **MS-3**,  
Sun, Xiaoxiao **B-29**,  
Sun, Zhongqin **B-31**,  
Svendsen, Claus **15-1, DBI-12**,  
Tabashnik, Bruce **B-16**,  
Takacs, J. **DBI-12**,  
Takebe, So **B-P1**,  
Tamara, Narimanishvili V. **N-P1**,  
Tan, Shin Yee **MC-P1-STU**,  
Tandy, Peter **B-14**,  
Tang, Shuang **V-P17**,  
Tang, Zishen **MS-4**,  
Taylor, David **8-4**,  
Teng, Tingkai **V-P7**,  
Tereshchenko, Daria **B-18**,  
Tims, Kelly **V-26-STU**,  
Tkhebuchava, Zaira R. **N-P1**,  
Toepfer, Stefan **N-1**,  
Tokarev, Yuri **MS-P1**,  
Tole, Siviwe **8-4**,  
Toledo, Dafne **B-1-STU**,  
Toledo, Jorge **F-P7-STU**,  
Toledo Hernández, Ricardo Alberto **F-P7-STU**,  
Toprak, Umut **V-33**,  
Toukabri, Hasna **14-2**,  
Tourani, Amir **11-2**,  
Towles, Tyler **B-13**,  
Turk, Dušan **F-P1**,  
Turlings, Ted C.J. **N-1**,  
Undorf-Spahn, Karin **MC-17**,

Upfold, J.K. **DBI-12**,  
Usta, Mehtap **DBI-5**,  
Vacek, Don **8-2**,  
Valdiviezo-Orellana, Sandy **B-11-STU**,  
Valicente, Fernando **MC-2**,  
Vallino, Marta **F-P9, MC-P11**,  
van Aerle, Ronny **DBI-2-STU, DBI-1**,  
van der Merwe, Marcel **17-3**,  
van Gestel, C.A.M. **DBI-12**,  
van Oers, Monique M. **DBI-10-STU, V-20, 11-4, V-2-STU, V-29**,  
van Schaijk, Renée A.H. **MC-4-STU**,  
Varaldi, Julien **10-2**,  
Venugopal, Hari **B-8-STU**,  
Verduzco-Rosas, Luis A. **B-5**,  
Verplaetse, Emilie **B-27**,  
Vignal, Emmanuel **DBI-3-STU**,  
Vilchez, Susana **B-22**,  
Villamizar, Laura **F-P6**,  
Vinci, Alessia **B-P4-STU**,  
Vitek, Christopher **MC-P7**,  
Vlak, Just M. **V-1, V-10, V-15**,  
Vogel, Jonathan **10-2**,  
Vontas, John **MC-P4**,  
Vu, Emily **V-3-STU**,  
Walaa, Morda **MC-11-STU**,  
Wandeler, Heiri **V-17, MC-16**,  
Wang, Chengshu **13-4**,  
Wang, Chunxia **MS-4**,  
Wang, Hanxiao **B-21**,  
Wang, Haoran **V-8, V-34**,  
Wang, Jinwen **V-P7**,  
Wang, Manli **V-6, V-12, V-13, V-1**,  
Wang, Meiling **B-3**,  
Wang, Minghui **B-26-STU**,  
Wang, Na **B-16**,  
Wang, Peng **B-16**,  
Wang, Rong **MS-3**,  
Wang, Wenhui **B-16**,  
Wang, Xi **V-6, V-13, V-1**,  
Wang, Ying **MS-3**,  
Wang, Zeyu **B-5, B-3, B-12-STU**,  
Wang, Zhiying **V-6**,  
Wanjohi, Waceke **MC-22**,  
Ward, Grace **DBI-14**,  
Wendel, Justin **MC-P7**,  
Wennmann, Jörg T. **MC-17, V-18-STU, MC-5, MC-P1-STU, V-9, V-P13, DBI-11-STU, V-P12-STU, MC-18, V-P2**,  
Werner, Brent **B-9**,  
Whelan, Rhian **MC-P3**,  
White, Tommi **B-6-STU, B-2**,  
Widmer, Franco **F-4, F-12, F-3-STU**,  
Willemssen, Wessel **V-29**,  
Williams, Bryony **MS-1-STU, 16-4**,  
Williamson, Lainey **B-8-STU**,  
Wilson, Morgan **MC-P6**,  
Winterwerber, Lara Alicia **MS-P2**,  
Wirawan, Raymond **B-8-STU**,  
Wolf, Manfred **MC-P2**,  
Woo, Ra Mi **F-P4, MS-P3-STU**,  
Woo, Soo Dong **V-P18-STU, V-P23-STU, F-P4, V-P6-STU, MS-P3-STU**,  
Wood, Martyn **MC-P4**,  
Woodsford, Sarah **DBI-2-STU**,  
Wu, Ke **V-3-STU**,  
Wu, Kongming **B-16**,  
Wu, Ming-Cheng **V-24-STU, MS-P3**,



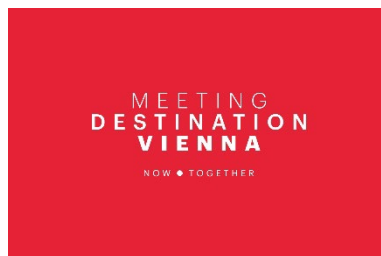
Wu, Songqing **MC-P8**,  
 Wu, Tzong-Yuan **V-P9-STU**,  
 Wu, Wenbi **V-P4**,  
 Wu, Xiaoli **V-P17**,  
 Wu, Yihong **V-34**,  
 Wu, Zhicong **MC-21**,  
 Wyckhuys, Kris A.G. **13-3**,  
 Xiao, Han **V-13**,  
 Xiao, Yutao **B-16**,  
 Xu, Hong **B-31**,  
 Xu, Wenyue **B-29**,  
 Xue, Bai **B-3**,  
 Yager, Claire **F-5-STU**,  
 Yamauchi, Mayuho **V-P11-STU**,  
 Yan, Bing **B-P6**,  
 Yan, Qing **V-8**,  
 Yang, Fan **B-31**,  
 Yang, Jing **V-34**,  
 Yang, Junxiong **V-11**,  
 Yang, Kai **V-11, V-P4**,  
 Yang, Shili **MC-5**,  
 Yang, Yanchao **B-12-STU**,  
 Yang, Yushan **V-P4**,  
 Yao, Hui **B-16**,  
 Yen, Ming-Ren **F-10-STU**,  
 Yin, Yong **B-9, 14-3**,  
 Yousef-Yousef, Meelad **F-8**,  
 Yu, Bin **MS-4**,  
 Yu, Xinghua **V-P7**,  
 Yu, Yinyin **V-P4**,  
 Yuan, Meijin **V-11, V-P4**,  
 Yurtkuran-Çeterez, Zeynep **B-24, MC-6-STU**,  
 Zara, Severino **B-P3-STU**,  
 Zengin, Kübra **DBI-5**,  
 Zhang, Aijing **B-P5**,  
 Zhang, Huanyu **V-12**,  
 Zhang, Huihui **B-16**,  
 Zhang, Jie **B-5, B-29, B-3, B-12-STU**,  
 Zhang, Lei **B-16**,  
 Zhang, Nan **V-6**,  
 Zhang, Shu **V-8**,  
 Zhang, Tao **V-6**,  
 Zhang, Xinxin **V-34**,  
 Zhang, Xinyu **V-12**,  
 Zhang, Yizhuo **B-P6**,  
 Zhang, Yongjing **B-P5**,  
 Zhao, Pengfei **13-4**,  
 Zheng, Jinshui **B-21**,  
 Zheng, Meiyang **B-2**,  
 Zhou, Zeyang **MS-3**,  
 Žnidaršič, Nada **F-P1**,  
 Zotte, Maria **MC-10**,  
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