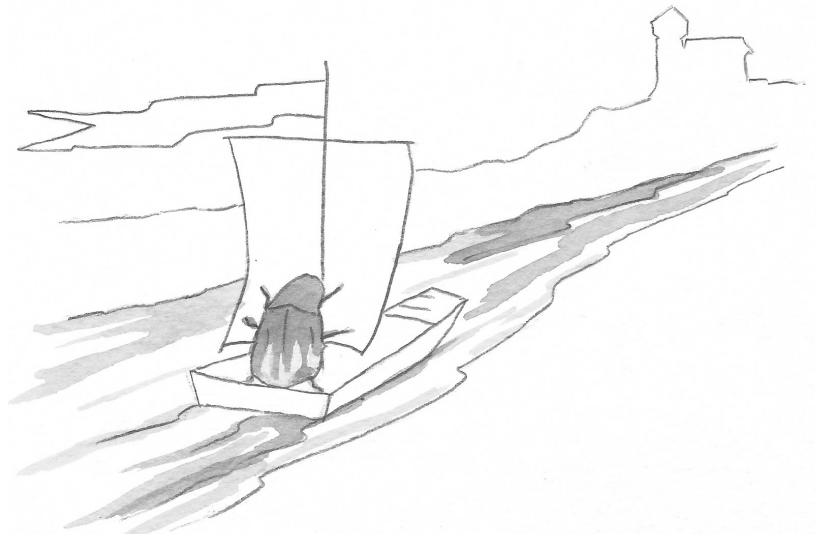


2016 PROGRAM



Important Notes

Attendants shall not take pictures from projections during presentations

The abstract included in this book should not be cited in print without the author's permission

STU indicates STUDENT presentation

000 indicates the number of ORAL presentation

BA – 00 indicates abstract number for POSTER presentation

SUNDAY – 24 July

09:00-17:00 **SIP Council Meeting** *Montlouis*
10:00-17:30 Registration *Hall*

BACTERIA WORKSHOP 14:00-17:00 - *Chinon*

The future of the Bt nomenclature

Niel Crickmore & Colin Berry

18:00-21:30 **Mixer** Welcome in Tours by A.Godbert *Hotel de Ville*

MONDAY – 25 July

07:30-08:30 **Qi Gong** *Foyer*
08:00-17:00 Registration *Hall*

08.30-10:00 - *Descartes*

Opening Ceremony and SIP Founders' Lecture

08:30 **Opening Ceremony** *Descartes*

Welcome Address

Philippe Roingard Vice-President of the University Union
"Léonard De Vinci"

Elisabeth Herniou, Chair, Organising Committee
Peter Krell, President of the SIP

Award Presentations

Monique van Oers, Chair, Awards & Student Committee

Founders' Memorial Lecture

James Becnel, Chair, Founders' Lecture Committee

Honoree: David Ellar

Lecturer: Nell Crickmore

10:00-10:30 **COFFEE BREAK** *Agnès Sorel*

PLENARY SYMPOSIUM 10:30-12:30 - *Descartes*

Insects for Food and Feed

Christina Nielsen Leroux

10:30 **1 Opportunities and Constraints of farming Insects for food and feed: a global review** - Paul Vantomme, UN Food and Agriculture Organization (FAO), Rome, Italy

11:00 **2 Industrialization of Insect Farming: New challenges to prevent pathogenic hazards** - Thomas Lefebvre, YNSECT, Genopole, Evry, France

11:30 **3 Managing insect viruses in insect factories for food and feed: Successful management of an insect virus, *Glossina pallidipes* salivary gland hypertrophy virus, from an insect factory** - Adly Abdalla, Insect Pest Control Laboratory, Joint FAO/IAEA Programme of Nuclear Techniques in Food and Agriculture, IAEA, Vienna, Austria

12:00 **4 Pathogenic aspects in insects produced for feed and food** - Jørgen Eilenberg, Department of Plant and Environmental Sciences, University of Copenhagen, Denmark

12:30-14:00 **BUFFET LUNCH** *Agnès Sorel*

12:30-14:00 JIP Editorial Board Meeting *Montlouis*

JUNIOR RESEARCHER WORKSHOP 12:30-14:00 - *Chinon*

Postdoctoral funding opportunities in the EU & US

Postdoctoral funding opportunities in the EU

Allyre Lohier, DR8, CNRS, Orléans, France

Postdoctoral funding opportunities in the US

Rollie Clem, BIO/IOS, NSF, Arlington, United States

SYMPOSIUM DISEASES OF BENEFICIAL INVERTEBRATES 14:00-16:00 - *Courteline*

Mollusc diseases

Grant Stentiford

14:00 **5 New perspective on the microcell parasites** - Isabelle Arzul, IFREMER, Station de La Tremblade, France

14:30 **6 A new phylogeny and eDNA insight into paramyxiids: an increasingly important but enigmatic clade of protistan parasites of marine invertebrates** - Georgia Ward¹, Martyn Bennett^{2,3}, Kelly Bateman², Grant Stentiford², Rose Kerr², Stephen Feist², Suzanne Williams¹, Cedric Berney¹, David Bass^{1,2}; ¹Natural History Museum, London, United Kingdom;

²CEFAS, Weymouth, United Kingdom; ³School of Biosciences, Univ. of Exeter, United Kingdom

15:00 **7 Viral diseases affecting marine bivalves** - Tristan Renault, IFREMER Nantes, Université de Nantes, France

15:30 **8 Breeding for disease resistance: Development of a *Crassostrea gigas* SNP array** - Tim Bean¹, Alejandro Gutierrez^{2,3}, Richard Paley¹, Chantelle Hooper¹, Matthew Sanders¹, Craig Stenton¹, Karim Gharbi³, Ross Houston^{2,3}, ¹Centre for Environment, Fisheries and Aquaculture Science, Weymouth, United Kingdom; ²The Roslin Institute and R(D)SVS University of Edinburgh, United Kingdom; ³Edinburgh Genomics, University of Edinburgh, United Kingdom

EU COST Action FA1405 SESSION

14:00-16:00 - *Descartes*

Ménage à trois:

Three way interactions between plants, arthropods and microbes that benefit the plants

Richard Meadow & Maria Pozo

14:00 **9 A fungal endophyte helps plants to tolerate root herbivory through changes in gibberellin and jasmonate signalling** - Marco Cosme¹, Jing Lu², Matthias Erb³, Michael Stout⁴, Philipp Franken⁵, Susanne Wurst⁶, ¹Plant-Microbe Interactions, Department of Biology, Utrecht University, Utrecht, Netherlands; ²Institute of Insect Science, Zhejiang University, Hangzhou, China; ³Institute of Plant Sciences, University of Bern, Switzerland; ⁴Department of Entomology, Louisiana State University Agricultural Center, Baton Rouge, United States; ⁵Department of Plant Propagation, Leibniz Institute of Vegetable and Ornamental Crops, Erfurt-Kuehnhausen, Germany; ⁶Functional Biodiversity, Dahlem Center of Plant Sciences, Institute of Biology, Freie Universität Berlin, Germany

14:15 **10 Uncovering the effects of cover crops and soil characteristics on *Metarhizium*-plant-insect interactions in an organic cropping system** - Puneet Randhawa¹, Imtiaz Ahmad², Dawn Luthe², Mary Barbercheck¹, ¹Pennsylvania State University, United States; ²Quaid-i-Azam University, Islamabad, Pakistan

14:30 **11-STU Induced plant defense accomplished by a grass endophyte** - Benjamin Fuchs, Jochen Krauss, Department of Animal Ecology and Tropical Biology, Biocenter, University of Würzburg, Germany

14:45 **12 Systemic grass endophytes and their importance for herbivores in Europe** - Jochen Krauss, Department of Animal Ecology and Tropical Biology, Biocenter, University of Würzburg, Germany

15:00 **13 Plant metabolic responses to endophytic colonization by *Trichoderma* and *Epichloe* and their effect on insects** - Michael Rostas, Daniel Maag, Diwakar Kandula, Mike Cripps, Caroline Mueller, Patrick Silcock, Bio-Protection Research Centre, Lincoln University, New Zealand

15:15 **14 Endophytic entomopathogenic *Metarhizium brunneum* against insect pests: novel integrated fermentation and formulation strategies** - Anant Patel¹, Stefan Vidal², Laurenz Hettlage¹, Desiree Jakobs-Schoenwandt¹, Vivien Krell¹; ¹Bielefeld University of Applied Sciences, Department of Engineering Sciences and Mathematics, Bielefeld, Germany; ²Göttingen Department of Crop Sciences, University of Göttingen, Göttingen, Germany

15:30 **15 Determination of destruxin A in potato plants after foliar spray of *Metarhizium brunneum*** - Alex Rios-Moreno, Inmaculada Garrido-Jurado, Gloria Resquin-Romero, Lourdes Arce, Enrique Quesada Moraga, University of Córdoba, Spain

CONTRIBUTED PAPERS

14:00-16:00 - *Vouvray*

Virus 1

David Theilmann & Kai Yang

14:00 **16-STU Protein tyrosine phosphatase 2 from the baculovirus *SeMNVP* induces apoptosis in insect cells** - Yue Han, Stineke Van Houte, Susan Van Aalst, Monique Van Oers, Vera Ros, Laboratory of Virology, Wageningen University, Netherlands

14:15 **17-STJ Characterization of *AcMNVP* encoded viral ubiquitin and its association with *AC141* for the production of budded virus** - Siddhartha Biswas¹, Leslie Willis², David Theilmann^{1,2}; ¹University of British Columbia, Vancouver, Canada; ²Summerland Research and Development Centre, Summerland, British Columbia, Canada

14:30 **18-STU 3-Dimensional ultrastructural modelling of**

- Autographa californica multicausid nucleopolyhedrovirus infection in insect cells to determine the role of P10 during baculovirus infection** - [Leo Graves](#)¹, [Louise Hughes](#)¹, [Sarah Irons](#)¹, [Linda King](#)¹, [Possee Robert](#)^{1,2}; ¹Oxford Brookes University, Headington Campus, Oxford, United Kingdom; ²Oxford expression technologies, United Kingdom
- 14:45 **19 The Autographa californica multiple nucleopolyhedrovirus ac54 gene is crucial for the localization of the major capsid protein VP39 at the site of nucleocapsid assembly** - [Zhanwen Guan](#), [Ling Zhong](#), [Chunyan Li](#), [Wenbi Wu](#), [Meijin Yuan](#), [Kai Yang](#), State Key Laboratory of Biocontrol, Sun Yat-sen University, Guangzhou, China
- 15:00 **20 Structural and functional analyses of the sulfhydryl oxidase P33 of Autographa californica multiple nucleopolyhedrovirus** - [Kuang Wenhua](#), [Hou Dianhai](#), [Zhang Huanyu](#), [Wang Manli](#), [Zhou Ningyi](#), [Deng Fei](#), [Wang Hualin](#), [Gong Peng](#), [Zhihong Hu](#); State Key laboratory of Virology, Wuhan Institute of Virology, Chinese Academy of Sciences, China
- 15:15 **21 Functional analysis of the conserved cysteines of AcMNPV GP41** - [Li Yimeng](#), [Wang Manli](#), [Shen Shu](#), [Hu Liangbo](#), [Hu Zhihong](#), [Deng Fei](#), [Wang Hualin](#); State Key Laboratory of Virology, Wuhan Institute of Virology, Chinese Academy of Sciences, Wuhan, China
- 15:30 **22 Autographa californica multiple nucleopolyhedrovirus (AcMNPV) PIF protein AC83 is required for nucleocapsid assembly for both ODV and BV as well as recruitment of the PIF complex to the ODV envelopes** - [Muhammad Javed](#)¹, [Leslie Willis](#)², [Stephanie Harris](#)¹, [Martin Erlandson](#)¹, [B. Cam Donly](#)³, [Dwayne Hegedus](#)¹, [Monique Van Oers](#)⁴, [David Theilmann](#)²; ¹Saskatoon Research and Development Centre, Agriculture and Agri-Food Canada, Saskatoon, Canada; ²Summerland Research and Development Centre Agriculture and Agri-Food Canada, Summerland, Canada; ³London Research and Development Centre Agriculture and Agri-Food Canada, London, Canada; ⁴Laboratory of Virology, Wageningen University Wageningen, Netherlands
- 15:45 **23 The host specificities of baculovirus per os infectivity factors** - [Song Jingjiao](#)^{1,2}, [Wang Xi](#)¹, [Huang Huachao](#)¹, [Deng Fei](#)¹, [Wang Hualin](#)¹, [Arif Basil](#)³, [Hu Zhihong](#)¹, [Manli Wang](#)¹; ¹State Key Laboratory of Virology, Wuhan Institute of Virology, Chinese Academy of Sciences, Wuhan, China; ²Experimental medicine center, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; ³Laboratory for Molecular Virology, Great Lakes Forestry Centre, Sault Ste. Marie, Ontario, Canada

CONTRIBUTED PAPERS 14:00-16:00 - *Chinon*

Bacteria 1

Ken Narva & Peter Kupferschmid

- 14:00 **24 Immunomodulatory activity of *Brevibacillus laterosporus* on the house fly** - [Maria Elena Mura](#), [Luca Ruiu](#), Department of Agriculture, University of Sassari – Italy; and Biocepest Srl – Technology Park of Sardinia, Tramariglio, Italy
- 14:15 **25 Immune and detoxification systems of Colorado potato beetle infected with bacteria *Bacillus thuringiensis*** - [Olga Polenogova](#), [Ekaterina Grizanova](#), [Olga Yaroslavtseva](#), [Viktor Khodyrev](#), [Ivan Dubovskiy](#); Institute of Systematics and Ecology of Animals, Siberian Branch of Russian Academy of Science, Russia
- 14:30 **26 -STU Immune priming might have evolved from infection by Gram+ bacterial pathogens in the mealworm beetle, *Tenebrio molitor*** - [Julien Dhinaut](#), [Manon Chogne](#), [Yannick Moret](#); Biogéosciences, Université de Bourgogne, CNRS UMR6282 Dijon, France
- 14:45 **27-STU Identification of synergist interactions between midgut bacteria of *Lymantria dispar* larvae and *Bacillus thuringiensis* HD-1** - [Zane Metla](#)¹, [Monika Maurhofer](#)², [Liga Jankevica](#); ¹Laboratory of Experimental Entomology and Microbiology, Institute of Biology, University of Latvia, Latvia; ²ETH, Zurich, Switzerland
- 15:00 **28-STU Plasmid-borne rap-phr systems control sporulation of *Bacillus thuringiensis* in insect larvae** - [Fernanda Fazon](#)^{1,2}, [Stéphane Perchat](#)¹, [Christophe Buisson](#)¹, [Gislayne Vilas-Boas](#)², [Didier Lereclus](#)¹; ¹INRA Micalis Institute, INRA, AgroParisTech, Université Paris-Saclay, Jouy-en-Josas, France; ²Universidade Estadual de Londrina, Brazil
- 15:15 **29-STU A bioassay method to determine the insecticidal**

activity of *Bacillus thuringiensis* against *Ceratitis capitata* (Diptera: Tephritidae) and *Drosophila suzukii* (Diptera: Drosophilidae) - [Daniel Valtierra](#)^{1,2}, [Isabel Matas](#)¹, [Javier Caballero](#)^{1,2}, [Primitivo Caballero](#)^{1,2}; ¹Instituto de Agrobiotecnología, CSIC-UPNA, Spain; ²Depart. de Producción Agraria, Universidad Pública de Navarra, Pamplona, Spain

- 15:30 **30-STU Susceptibility of *Grapholita molesta* (Busck, 1916) to *Bacillus thuringiensis*, individual toxins and their mixtures** - [Joaquin Gomis-Cebolla](#)¹, [Ana P. S Ricietto](#)^{1,2}, [Gislayne T Vilas-Bôas](#)², [Juan Ferré](#)¹; ¹University of València, ERI of Biotechnology and Biomedicine, Departamento de Genética, Facultad de Ciencias Biológicas, Burjassot, Spain; ²Centro de Ciências Biológicas Universidade Estadual de Londrina, Brazil
- 15:45 **31-STU Interactions between HepG2 and Parasporin-3** - [Wided Souiss](#), [Samuel Colosimo](#), [Tweedie Alistair](#), [Michelle West](#), [Neil Crickmore](#); Department of Biochemistry, School of Life Sciences University of Sussex, Falmer, Brighton, United Kingdom

16:00-16:30 COFFEE BREAK

Agnès Sorel

SYMPOSIUM OF THE FUNGI DIVISION 16:30-18:30 - *Descartes*

How Fungi mediate protection against herbivores and plant pathogens

Nicolai Vitt Meyling & Maya Raad

- 16:30 **32 Plant protection potential of entomopathogenic fungi as endophytes: What is the evidence and what is the mechanism?** - [Nicolai Meyling](#)¹, [Aimee Mckinnon](#)², [Maya Raad](#)², [Maria Moran-Diez](#)², [Travis Glare](#)², [Susanna Saari](#)¹; ¹Department of Plant and Environmental Sciences, University of Copenhagen, Denmark; ²Bio-Protection Research Centre, Lincoln University, New Zealand
- 16:45 **33 Microbial-induced resistance against herbivores: mechanisms and ecological consequences** - [Ana Pineda](#); Netherlands Institute of Ecology, NIOO-KNAW, Netherlands
- 17:10 **34 Priming of plant defenses against herbivores by arbuscular mycorrhizal fungi** - [Maria J. Pozo](#)¹, [Javier Rivero](#)¹, [Javier Lidoy](#)¹, [Victor Flors](#)²; ¹Estacion Experimental del Zaidin, CSIC, Granada, Spain; ²Universitat Jaume, Castello de la Plana, Spain
- 17:35 **35 Induced systemic resistance by *Trichoderma* spp** - [Christine Vos](#)^{1,2,3}, [Katrijn Raymaekers](#)^{1,2}, [Yuxia Yang](#)¹, [Kaat De Cremer](#)^{1,2}, [Barbara De Coninck](#)^{1,2}, [Kemal Kazan](#)³, [Bruno Cammue](#)^{1,2}; ¹KU Leuven Centre of Microbial and Plant Genetics, Leuven, Belgium; ²VIB Department of Plant Systems Biology, Ghent, Belgium; ³CSIRO Agriculture, St Lucia, Queensland, Australia
- 18:00 **36 Elucidating the mechanisms of *Beauveria bassiana* induced plant resistance** - [Maya Raad](#), [Travis Glare](#), [Michael Rostás](#); Bio-Protection Research Centre, Lincoln University, Lincoln, New Zealand

CONTRIBUTED PAPERS

16:30-18:30 - *Courteline*

Diseases of Beneficial Invertebrates 1

David Bass

- 16:30 **37-STU Flat oyster follows the apoptosis pathway to defend against the protozoan parasite *Bonamia ostreae*** - [Ophélie Gervais](#)¹, [Chollet Bruno](#)¹, [Tristan Renault](#)², [Isabelle Arzul](#)¹; ¹Laboratoire de Génétique et Pathologie des Mollusques Marins, IFREMER, La Tremblade, France; ²Département Ressources Biologiques et Environnement, IFREMER, Nantes, France
- 16:45 **38 Influence of temperature on the haplosporidian parasite *Bonamia ostreae* exposed to *Crassostrea gigas* and *Ostrea edulis* oyster mucus** - [Sergio Fernandez-Boo](#), [Ophélie Gervais](#), [Bruno Chollet](#), [Isabelle Arzul](#); Laboratoire de Génétique et Pathologie des Mollusques Marins, IFREMER, La Tremblade, France
- 17:00 **39 Monitoring of the autophagy pathway in *C. gigas* during an experimental OsHV-1 infection at cellular molecular and proteomic levels** - [Sandy Picot](#)¹, [Benjamin Morga](#)¹, [Nicole Faury](#)¹, [Isabelle Arzul](#)¹, [Tristan Renault](#)²; ¹Laboratoire de Génétique et Pathologie des Mollusques Marins, IFREMER, La Tremblade, France; ²Département Ressources Biologiques et Environnement, IFREMER, Nantes, France
- 17:15 **40 Genome sequencing of the Ostreid herpesvirus 1 infecting oysters in Tomales Bay, California** - [Colleen Burge](#), [Stanley Langevin](#), [Collin Closek](#), [Natalie Rivlin](#), [Carolyn Friedman](#); Institute of Marine and Environmental Technology, University of Marine Baltimore County, United States

- 17:30 **41 Reducing the impact of pathogens and disease in the Irish Pacific oyster *Crassostrea gigas* by understanding Environment: Host/Pathogen interaction** - Babette Bookelaar, Sharon Lynch, Sarah Culloty; University College Cork, Ireland
- 17:45 **42 Apicomplexans infecting marine molluscs** - Mark Freeman¹, Arni Kristmundsson². ¹Ross University School of Veterinary Medicine, Saint Kitts and Nevis; ²Institute for Experimental Pathology at Keldur, University of Iceland, Iceland
- 18:00 **43 Is an apicomplexan responsible for the collapse in the Iceland scallop stock in Iceland?** - Arni Kristmundsson¹, Asthildur Erlingsdottir¹, Mark Freeman²; ¹Institute for Experimental Pathology at Keldur, University of Iceland, Reykjavik, Iceland; ²Ross University School of Veterinary Medicine, Saint Kitts and Nevis

CONTRIBUTED PAPERS 16:30-18:30 - *Vouvray*

Virus 2

Robert Harrison & Bergmann Ribeiro

- 16:30 **44-STU Genome stability of AgseNPV-B after serial in vitro passage** - Gianpiero Gueli Alletti, Eric Carstens, Johannes Jehle; Julius Kühn-Institut, Federal Research Centre for Cultivated Plants, Institute for Biological Control, Darmstadt, Germany
- 16:45 **45-STU Synthetic baculovirus genomes to extend host range** - Yu Shang¹, Fei Deng¹, Geng Xiao¹, Man Wang¹, Dian Hou¹, Kai Pan¹, Basil Arif², Hua Wang¹, Zhi Hu¹; ¹State Key Laboratory of Virology, Wuhan Institute of Virology, Chinese Academy of Sciences, Wuhan, China; ²Great Lakes Forestry Centre, Sault Ste. Marie, Canada
- 17:00 **46-STU Genotype Detection and Abundance within Baculoviruses using Next Generation Sequencing** - Christopher Nouné, Caroline Hauxwell; Queensland University of Technology, Brisbane, Australia
- 17:15 **47 The complete genome sequence of Plodia interpunctella granulovirus: discovery of an unusual inhibitor of apoptosis (IAP) gene** - Robert L. Harrison¹, Daniel L. Rowley¹, C. Joel Funk²; ¹Invasive Insect Biocontrol and Behavior Laboratory, USDA-ARS Beltsville, Maryland, United States; ²Department of Biology, John Brown University, Siloam Springs, Arkansas, United States
- 17:30 **48-STU Study of the domestication of a viral genome in the parasitoid wasp *Venturia canescens*** - Matthieu Leobold¹, Annie Bézier¹, Anne-Nathalie Volkoff², Jean-Michel Drezen¹; ¹Institut de recherche sur la biologie de l'insecte, CNRS UMR7261, Université François Rabelais, Tours, France; ²Diversité, Génomes Interactions Microorganismes - Insectes, INRA UMR1333, Université Montpellier 2, France
- 17:45 **49-STU Adaptation genomics in the bracovirus of *Cotesia sesamiae*** - Jeremy Gauthier¹, Philippe Gayral¹, Bruno Le Ru², Stéphane Dupas³, Severine Jancek¹, Gabor Gyapay⁴, Laure Kaiser³, Elisabeth Herniou¹; ¹Institut de recherche sur la biologie de l'insecte - CNRS UMR7261, Université François Rabelais, Tours, France; ²International Centre of Insect Physiology and Ecology (ICIPE), Nairobi, Kenya; ³Evolution Génomes Comportement Ecologie CNRS UMR9191 Gif-sur-Yvette, France; ⁴Centre National de Séquençage Institut de génomique Direction des Sciences du vivant CEA, Evry, France
- 18:00 **50 Expansion of the family *Nimaviridae*** - Kelly S. Bateman¹, Ronny Van Aerle¹, Rose Kerr¹, Jamie Bojko¹, K. Fraser Clark^{2,3}, Sarah E. Stewart-Clark³, Philip Byrne⁴, Spencer J. Greenwood², David Bass¹, Grant D. Stentiford¹; ¹European Union Reference Laboratory for Crustacean Diseases, Centre for Environment, Fisheries and Aquaculture Science (Cefas), Weymouth, United Kingdom; ²Dept. of Biomedical Sciences and AVC Lobster Science Centre, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Canada; ³Department of Plant and Animal Sciences, Agricultural Campus, Dalhousie University, Truro, Canada; ⁴Department of Fisheries and Oceans Canada, Charlottetown, Canada
- 18:00 **51 Characterization and complete genome sequence of a new cypovirus isolated from *Thyrinteina arnobi* (Stoll, 1782) (Lepidoptera: Geometridae)** - André Horta¹, Daniel Ardisson-Araújo¹, Fabricio Morgado¹, Leonardo Silva², Fernando Melo², Manoel Victor Lemos³, Zulene Ribeiro³, Arlindo Junior³, Carlos Wilcken, Bergmann Ribeiro²; ¹Universidade Estadual Paulista "Júlio de Mesquita Filho", Faculdade de Ciências Agrônomicas Botucatu, Brazil; ²Universidade de Brasília, Instituto de Biologia, Departamento de Biologia Celular, Brasília, Brazil;

³Universidade Estadual Paulista "Júlio de Mesquita Filho", Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, Brazil

CONTRIBUTED PAPERS

16:30-18:30 - *Chinon*

Microbial Control 1

Travis Glare

- 16:30 **52 Investigations on spore residues of the product XenTari® (*Bacillus thuringiensis subsp. aizawai*) and their persistence on sweet pepper and tomato** - Dietrich Stephan, Alexandra Wagner; Institute for Biological Control, Julius Kühn-Institut (JKI) Darmstadt, Germany
- 16:45 **53 Encapsulation and UV Photoprotection of a Vip3 toxin** - Inigo Ruiz De Escudero^{1,2}, Leopoldo Palma³, Francisco Mañeru¹, Primitivo Caballero¹; ¹Instituto de Agrobiotecnología, CSIC-UPNA, Gobierno de Navarra, Spain; ²Universidad Pública de Navarra. Laboratorio de Entomología Agrícola y Patología de Insectos, Pamplona, Spain; ³Facultad de Ciencias Agrarias, Universidad Nacional del Litoral, Santa Fe, Argentina
- 17:00 **54-STU Genetic and biological characterization of *Bacillus thuringiensis* isolates showing insecticidal activity against *Leptinotarsa decemlineata* (Coleoptera: Chrysomelidae)** - Mikel Dominguez^{1,2}, Jesus Murillo¹, Primitivo Caballero^{1,2}; ¹Departamento de Produccion Agraria, Universidad Publica de Navarra (UPNA) Pamplona, Navarra, Spain; ²Instituto de Agrobiotecnología CSIC-Gobierno de Navarra, Navarra, Spain
- 17:15 **55-STU Analysis of the occurrence of cry, vip3 and chitinases genes in *Bacillus thuringiensis* strains isolated from Algeria** - Zahia Djenane^{1,2,3}, Joaquín Gomis-Cebolla², Fairouz Elaichar¹, Hassiba Khorf Khorf¹, Ahmed Abderrahmani¹, Farida Nateche¹, Juan Ferré²; ¹Laboratory of Cellular and Molecular Biology, team of microbiology, Algiers, Algeria; ²ERI de Biotecnología y Biomedicina, Universitat de València, Burjassot, Spain; ³University of Science and Technology, Algiers, Algeria
- 17:30 **56-STU Increase toxicity from a modified Cry3Aa toxin against *Monochamus alternatus***; Yajie Guo¹, Yafang Wang², Zhuoying Xu², Yueting Xiong², Yani Mou², Qiannan Lin¹, Rong Wang¹, Xia Hu¹, Guanghong Liang¹, Xiong Guan², Songqing Wu^{1,2}, Feiping Zhang¹; ¹Collage of Forestry, Fujian Agriculture and Forestry University, Fuzhou, People's Republic of China; ²Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, Fujian Agriculture and Forestry University, Fuzhou, People's Republic of China
- 17:45 **57-STU Spanish strains of *Bacillus thuringiensis* as biological control agents against *Lobesia botrana* (Lepidoptera: Tortricidae) larvae** - Javier Caballero^{1,2}, Isabel Matas¹, Maite Zarranz¹, Primitivo Caballero^{1,2}; ¹Instituto de Agrobiotecnología CSIC-Gobierno de Navarra (IDAB) Mutilva, Navarra, Spain; ²Departamento de Produccion Agraria, Universidad Publica de Navarra (UPNA) Pamplona, Navarra, Spain
- 18:00 **58 New Insecticidal Proteins from Non-*Bacillus thuringiensis* Microbial Diversity** - Lu Liu¹, Jarred Oral¹, Dan Altier², Jessica O'rear¹, Barbara Rosen¹, James Le¹, Mark McDonald¹, David Cerf¹, Jon Robeson², Lisa Procyk², Adane Kassa², Weiping Xie¹, Genhai Zhu¹, Jennifer Barry², Claudia Pérez-Ortega², Nuria Jiménez-Juárez², Miles Cowart², Jian-Zhou Zhao², Ute Schellenberger¹, Nasser Yalpani², Jun-Zhi Wei¹, Virginia Crane², Gary Sandahl², Mark Nelson², Albert Lu², Gusui Wu²; ¹DuPont Pioneer, Hayward, CA, United States; ²DuPont Pioneer, Johnston, United States
- 18:15 **59 Managing the evolution of resistance to biopesticides with genetically modified insects** - Raymond Ben; University of Exeter, Penryn campus Cornwall, United Kingdom

18:30-19:45

Division Business Meetings and Workshops

Bacteria Division Meeting

Vouvray

Fungi Division Meeting

Chinon

Microsporidia Division Meeting

Charlottetown

'Open discussion on hot topics in microsporidia research'

Y. Sokolova

TUESDAY – 26 July

07:00-08:00 **Qi Gong** Foyer
07:30-12:30 **Registration** Hall

SPECIAL SYMPOSIUM 08:00-10:00 - *Vouvray*

Human impact on pathogens-honeybee interactions

Aurore Dubuffet & Philippe Gayral

- 08:00 **60 EPILOBEE: Results from a pan-European epidemiological study on honeybee colony losses 2012-2014, conducted by the European Union Reference Laboratory** - Marie-Pierre Chauzat, Marion Laurent, Antoine Jacques, Epilobee Consortium, Laura Cauquil, Marie-Pierre Riviere, Mathilde Saussac, Stéphanie Bougeard, Pascal Hendrikx, Magali Chabert, Honey Bee Pathology Unit, European Union Reference Laboratory for Honey Bee Health (Anses) French Agency for Food, Environmental and Occupational Health Safety, Sophia Antipolis, France
- 08:30 **61 Honey bee stressor interactions: never the same, and so much to learn** - Geoffrey Williams; University of Bern and Agroscope, Switzerland
- 62** Cancelled
63 Cancelled
- 09:00 **124-STU In-vitro transmission of the Chronic Bee Paralysis Virus and co-exposition with a neonicotinoid in the honeybee** - Marianne Coulon^{1,2}, Frank Schurr¹, Nicolas Cougoule¹, Anne Dalmon², Cédric Alaux², Yves Le Conte², Richard Thiery¹, Magali Ribiere-Chabert¹, Eric Dubois¹; ¹Laboratoire de Sophia Antipolis, Anses, Sophia-Antipolis, France; ²INRA PACA, Abeilles et environnement, UR406 Avignon, France
- 09:15 **64 Man-made epidemics: Varroa and DWV in honeybees and the risk they pose to wild pollinators** - Lena Wilfert¹, Robyn Manley¹, Mike Boots²; ¹Centre for Ecology and Conservation, University of Exeter, Penryn Campus, United Kingdom; ²Integrative Biology, UC Berkeley, United States

CROSS DIVISION SYMPOSIUM 08:00-10:00 - *Chinon*

Recruitment of beneficial microbes and nematodes

Ivan Hiltbold, Mike Brownbridge & David Shapiro

- 08:00 **65 Entomopathogenic fungi: Friend or enemy of the plant?** - Rob Van Tol¹, Gerrie Wiegers¹, Marilena Palmisano², Jurg Grunder²; ¹Wageningen University and Research Centre, Wageningen, Netherlands; ²Zurich University of Applied Sciences Waedenswil, Switzerland
- 08:30 **66 Potential of root-associated pseudomonads with insecticidal activity for biological control of soil-dwelling insect pests of crops** - Christoph Keel¹, Nicola Imperiali¹, Geoffrey Jaffuel², Pascale Flury³, Monika Maurhofer³, Ted Turlings²; ¹University of Lausanne, Department of Fundamental Microbiology, Lausanne, Switzerland; ²University of Neuchâtel, Fundamental and Applied Research in Chemical Ecology, Neuchâtel, Switzerland; ³Swiss Federal Institute of Technology Zürich, Switzerland
- 09:00 **67 Threesome in the rhizosphere: bacteria, entomopathogenic nematode, and plant interactions** - Ivan Hiltbold¹, Michael Brownbridge²; ¹Western Sydney University, Australia; ²Vineland Research and Innovation Centre, Canada
- 09:30 **68 Entomopathogenic Nematodes Boost Plant Immunity** - Parwinder Grewal; University of Texas Rio Grande Valley, Edinburg, United States

CONTRIBUTED PAPERS 08:00-10:00 - *Courteline*

Bacteria 2

Marianne Carey & Shuyuan Guo

- 08:00 **69 Cry1Ac toxin mode of action in heliothines** - Heba Abdelgaffar¹, Cris Oppert², Jessica Monserrate², Juan Luis Jurat-Fuentes¹; ¹Dept of Entomology and Plant Pathology, University of Tennessee, Knoxville, United States; ²Bayer CropScience, Morrisville NC, United States
- 08:15 **70 In-plant protection from the insect pest *Helicoverpa armigera* by trans-kingdom RNAi** - Julia Bally¹, Glen McIntyre², Rachel Doran¹, Ignacio Larrinua³, Kenneth Narva³, Peter Waterhouse^{1,2}; ¹Centre for Tropical Crops and Biocommodities, Brisbane, Australia; ²University of Sydney, Australia; ³Dow AgroSciences, United States
- 08:30 **71 *Lysinibacillus sphaericus* Binary toxin structure revealed in**

situ by *de novo* phasing with an X-ray free-electron laser: Insights into the larvicidal biology of BinA and BinB - Jacques-Philippe Colletier¹, Michael Sawaya², Jose Rodriguez², Duilio Cascio², Dennis Bideshi³, Robert Hice³, Brian Federici⁴, David Eisenberg²; ¹Institut de Biologie Structurale, Université Joseph Fourier, Grenoble I, CNRS UMR5075, CEA, France; ²UCLA-DOE Institute of Genomics and Proteomics, University of California, Los Angeles, United States; ³Department of Entomology, University of California, Riverside, United States; ⁴Department of Entomology, Institute of Integrative Genome Biology, University of California, Riverside, United States

- 08:45 **72 A binB knockout in *Lysinibacillus sphaericus* demonstrates BinA can form a crystal without BinB in *Bacillus thuringiensis*** - Hyun-Woo Park¹, Dennis Bideshi¹, Brian Federici²; ¹Department of Entomology, University of California, Riverside, and Department of Biological Sciences, California Baptist University, Riverside, California, United States; ²Interdepartmental Graduate Programs in Microbiology and Cell, Molecular, and Developmental Biology, University of California, Riverside, United States
- 09:00 **73 Structure and activity of the Cry6Aa pesticidal toxin** - Colin Berry, Alexey Dementiev, Jason Board, Anand Sitaram, Timothy Hey, Matthew Kelker, Xiaoping Xu, Yan Hu, Cristian Vidal-Quist, Vimbai Chikwana, Samantha Griffin, David McCaskill, Nick Wang, Shao-Ching Hung, Michael Chan, Marianne Lee, Jessica Hughes, Alice Wegener, Raffi Aroian, Kenneth Narva; School of Biosciences, Cardiff, United Kingdom
- 09:15 **74 The *Bacillus thuringiensis* toxin Cry6Aa1 forms ionic channels in giant liposomes** - Vincent Vachon¹, Maxime Schmidt¹, Timothy Hey², Xiaoping Xu², Samantha Griffin², Vimbai Chikwana², David McCaskill², Ken Narva², Jean-Louis Schwartz^{1,3}; ¹Groupe d'étude des protéines membranaires, Département de physiologie moléculaire et intégrative, Université de Montréal, Canada; ²Dow Agrosciences LLC, Indianapolis, United States; ³Centre SEVE de recherche en sciences du végétal, Université de Sherbrooke, Canada
- 09:30 **75-STU Two polysaccharides are involved in the formation of specific biofilm structures in *B. thuringiensis*** - Racha Majed^{1,2}, Mireille Kallassy², Michel Gohar¹; ¹MICrobiologie de l'Alimentation au Service de la Santé humaine, AgroParisTech, INRA UMR1319, Jouy-en-Josas, France; ²Laboratoire de Biotechnologie, Université Saint-Joseph, Beyrouth, Lebanon
- 09:45 **76 Enzymatic activity of *Bacillus thuringiensis* toxins** - David Pauron, Marcel Amichot, Marie-Paule Esposito, Armel Gallet; Institut Sophia Agrobiotech, Equipe Bioinsecticides, Environnement et Santé, CNRS UMR7254, Université de Nice Sophia-Antipolis, INRA UMR1355, Sophia Antipolis, France

CONTRIBUTED PAPERS

08:00-10:00 - *Bourqueil*

Fungi 1

Ann Hajek & Helen Hesketh

- 08:00 **77 *Entomophaga maimaiga* in *Lymantria dispar* in Eastern Europe** - Ann Hajek¹, Daniela Pilarska^{2,3}, Milan Zubrik⁴; ¹Department of Entomology, Cornell University, Ithaca, New York, United States; ²New Bulgarian University, Department of Natural Sciences Sofia, Bulgaria; ³Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences Sofia, Bulgaria; ⁴National Forest Centre, Forest Research Institute, Forest Protection and Game Management, Banska Stiavnica, Slovakia
- 08:15 **78 Termite choice of direction to pathogen odor related with nestmate olfactory signals** - Aya Yanagawa¹, Tomoya Imai¹, Toshiharu Akino², Toshimitsu Hata¹, Tsuyoshi Yoshimura¹, Fumio Yokohari³, Yoshihiro Toh⁴; ¹Kyoto University Japan; ²Kyoto Institute of Technology, Japan; ³Fukuoka University, Japan; ⁴Kyushu University, Japan
- 08:15 **79-STU Natural occurrence of *Beauveria bassiana* in soil, as infections in stink bugs and as endophytes in bean plants, from organic and conventional fields in Cuba** - Yordanys Ramos¹, Orelvis Portal², Erik Lysøe³, Annarella Chea¹, Luis Rojas⁴, Nicolai Meyling⁵, Ingeborg Klingen³; ¹Department of Agronomy, Universidad Central "Marta Abreu" de Las Villas (UCLV), Santa Clara, Cuba; ²Department of Biology, UCLV, Santa Clara, Cuba; ³Norwegian Institute of Bioeconomy, Biotechnology and Plant Health Division, As, Norway; ⁴Instituto de Biotecnología de las Plantas, UCLV, Santa Clara, Cuba; ⁵Department of Plant and Environmental Sciences, University of Copenhagen, Frederiksberg, Denmark

- 08:45 **80-STU** Biotic and abiotic factors influencing the virulence of *Entomophthoromycota* on aphids in cereals - Stéphanie Saussure¹, Cecile Sletteng², Nina Trandum^{1,2}, Karin Westrum¹, Ingeborg Klingen¹; ¹Norwegian Inst. of Bioeconomy Research, Biotechnology and Plant Health Division, Ås, Norway; ²Norwegian Univ. of Life Sciences, Ås, Norway
- 09:00 **81** Entomophthoromycota pathogens of insects from Argentina: an updated review - Claudia Lopez Lastra, Romina Manfrino, Alejandra Gutierrez; Centro de estudios parasitologicos y de vectores, Argentina
- 09:15 **82-STU** Incidence of fungal infections on Neotropical ants: environment or the host, which has more influence? - José Pablo Barrantes¹, Maria José Monge-Salazar¹, Milagro Granados-Montero², Priscila Chaverri^{1,3}; ¹Escuela de Biología, Universidad de Costa Rica, San José, Costa Rica; ²Centro de Investigaciones en Protección de Cultivos, Escuela de Agronomía, Universidad de Costa Rica, San José, Costa Rica; ³Department of Plant Science and Landscape Architecture, University of Maryland, Maryland, United States
- 09:30 **83-STU** Impacts of conventional and organic agriculture on soil-borne entomopathogenic fungi - Eric Clifton¹, Stefan Jaronski², Erin Hodgson¹, Aaron Gassmann¹; ¹Iowa State University, United States; ²United States Department of Agriculture, Agricultural Research Service, United States
- 09:45 **84** Effect of a predatory mite on transmission of the fungus *Neozygites floridana* in *Tetranychus urticae* populations - Nina Trandum¹, Ronny Berdinesen¹, Judith Pel², Ingeborg Klingen³; ¹Norwegian University of Life Sciences, Norway; ²J.K. Pell Consulting, United Kingdom; ³Norwegian Institute of Bioeconomy Research, Norway

10:00-10:30 COFFEE BREAK

Agnès Sorel

MICROBIAL CONTROL DIVISION SYMPOSIUM

10:30-12:30 - Chinon

Next Generation Biopesticides

Carrie Hauxwell

- 10:35 **85** Using bumblebees for targeted application of biopesticides - Sarah Van Beneden, Soraya Franca Marlies Vleugels, Felix Wäcker; Biobest Ilse Velden Westerlo, Belgium
- 11:00 **86** Working with insect pathogen ecology for better biocontrol delivery - Michael Brownbridge¹, Travis Glare²; ¹Vineland Research and Innovation Centre, Vineland Station, Canada; ²Bio-Protection Research Centre, Lincoln University, Lincoln, New Zealand
- 11:25 **87** Characteristics of novel bacterial insecticides/miticides/nematicides from *Chromobacterium subsugae* and *Burkholderia rinojensis* - Timothy Johnson, Pamela Marrone; Marrone Bio Innovations, United States
- 11:50 **88** Regulatory implications of new technologies - Roma Gwynn; Rationale, United Kingdom

CONTRIBUTED PAPERS

10:30-12:30 - Vouvray

Virus 3

Robert Possee & Jenny Cory

- 10:30 **89-STU** RACK1, a ribosomal protein involved in signaling, stress response and viral translation - Evelynne Einhorn, Franck Martin, Carine Meignin, Jean-Luc Imler; Institut de biologie moléculaire et cellulaire, CNRS UPR9022, Strasbourg, France
- 10:45 **90-STU** Resistance to baculoviruses in the midgut of *Adoxophyes honmai* - Kento Iwata, Yasuhisa Kunimi, Maki N. Inoue, Madoka Nakai; Tokyo University of Agriculture and Technology, Japan
- 11:00 **91-STU** Insect immune system to determine baculoviruses host specificity - Yu-Wei Chen, Yueh-Lung Wu; Department of Entomology, National Taiwan University, Taiwan
- 11:15 **92-STU** The role of pathogen diversity on the evolution of resistance in an insect - Leon Yu Zheng Li, Jenny Cory; Simon Fraser University (SFU) – Department of Biological Sciences, Burnaby, British Columbia, Canada
- 11:30 **93** Pathogen competition in the cabbage looper, *Trichoplusia ni*: are multiple pathogens more effective than one? - Jennifer Scholefield, Jenny Cory; Simon Fraser University (SFU) – Department of Biological Sciences, Burnaby, British Columbia, Canada
- 11:45 **94** Successive passages of mixed genotype virus populations: influence of the insect host colony - Benoit Graillot¹, Christine

Blachere-Lopez^{1,3}, Samantha Besse², Myriam Siegwart⁴, Miguel Lopez-Ferber¹; ¹Laboratoire de Génie de l'Environnement Industriel, Ecole Nationale Supérieure des Mines d'Alès, France; ²Natural Plant Protection, Arysta LifeSciences, Pau, France; ³INRA, Alès, France; ⁴Plant Pathology Unit UR 407 INRA Montfavet, France

- 12:00 **95** Observations on a persistent baculovirus infection of *Trichoplusia ni* cells in culture - Robert Possee, Sarah Irons, Linda King; Oxford Brookes University, Headington Campus, Oxford, United Kingdom
- 12:15 **96** Molecular response of *Manduca sexta* immune tissues to parasitization by the bracovirus associated wasp *Cotesia congregata* - Germain Chevignon¹, Sébastien Cambier², Corinne Da Silva³, Julie Poulain³, Sébastien Moreau¹, Jean-Michel Drezen¹, Elisabeth Huguet¹; ¹Institut de recherche sur la biologie de l'insecte, CNRS UMR7261, Université François Rabelais, Tours, France; ²Luxembourg Institute of Science and Technology, Belvaux, Luxembourg; ³Genoscope-Centre national de séquençage, CEA Evry, France

CONTRIBUTED PAPERS

10:30-12:30 - Bourgueil

Microsporidia

Susan Bjornson

- 10:30 **97** Microsporidia – Emergent Pathogens in the Global Food Chain - Grant Stentiford; Centre for Environment, Fisheries and Aquaculture Science, Weymouth, Dorset, United Kingdom
- 10:45 **98-STU** Genome evolution and pre-mRNA splicing in microsporidia and early-diverging fungi - Thomas A. Whelan¹, Nicole T. Lee¹, C. Alisha Quandt², Timothy Y. James², Naomi M. Fast¹; ¹Biodiversity Research Centre and Department of Botany, University of British Columbia, Canada; ²Department of Ecology and Evolutionary Biology, University of Michigan, United States
- 11:00 **99** Molecular phylogenetics as a reason for redefinition of two classical genera of Microsporidia: *Nosema* and *Vairimorpha* - Yuri Tokarev¹, Charles Vossbrinck²; ¹All-Russian Institute of Plant Protection, Russia; ²The Connecticut Agricultural Experiment Station, United States
- 11:15 **100** Transcriptome and Prokaryotic Expression Analysis of HMG1 of *Nosema bombycis* - Jiping Liu^{1,2}; ¹College of Animal Science South China Agricultural University, Wushan, Guangzhou, China; ²Regional Sericulture Training centre for Asia and Pacific, South China Agriculture University, Wushan, Guangzhou, China
- 11:30 **101** Specific nested-PCR and LAMP methods to detect the spore wall protein gene of *Enterocytozoon hepatopenaei* that causes slow growth in penaid shrimp - Pattana Jaroenlak^{1,2}, Piyachat Sanguanrut^{2,3}, Paul Salachan², Bryony Williams⁴, Grant Stentiford⁵, Timothy Flegel⁶, Kallaya Sritunyalucksana^{3,6}, Ornthuma Itsathitphaisarn^{1,2}; ¹Department of Biochemistry, Faculty of Science, Mahidol University, Bangkok, Thailand; ²Center of Excellence for Shrimp Molecular biology and Biotechnology, Faculty of Science, Mahidol University, Bangkok, Thailand; ³Shrimp-Virus Interaction Laboratory, National Center for Genetic Engineering and Biotechnology, Bangkok, Thailand; ⁴Biosciences, College of Life and Environmental Sciences, University of Exeter, Devon, United Kingdom; ⁵CEFAS, Weymouth, Dorset, United Kingdom; ⁶National Center for Genetic Engineering and Biotechnology, National Science and Technology Development Agency, Thailand Science Park, Pathumthani, Thailand
- 11:45 **102** A pesticide and an intracellular microsporidial parasite target *Drosophila* lipid stores in an unusual "competition" between a natural pathogen and an environmental poison - Adrien Franchet¹, Sebastian Niehus¹, Dominique Ferrandon^{1,2}; ¹University of Strasbourg Institute for Advanced Study (USIAS), CNRS UPR9022, France; ²Institut de Biologie Moléculaire et Cellulaire (IBMC) – CNRS - Strasbourg, France
- 12:00 **103** *Hyperspora aquatica* n.gen., n.sp., a hyperparasitic microsporidian infecting paramyxid protists is closely related to crustacean-infecting taxa - Grant Stentiford; CEFAS, Weymouth, Dorset, United Kingdom

CONTRIBUTED PAPERS

10:30-12:30 - Courteline

Bacteria 3

Baltasar Escriche & Ming Sun

- 10:30 **104** Resistance to Bt maize by western corn rootworm: inheritance, fitness costs and cross-resistance - Aaron

- Gassmann; Iowa State University, United States
- 10:45 **105 Insect resistance to *Bacillus thuringiensis* Cry3Aa toxin is associated with a novel ABC protein** - Yannick Pauchet¹, Anne Bretschneider², Sylvie Augustin², David Pauron³, David Heckel¹; ¹Max Planck Institute for Chemical Ecology, Jena, Germany; ²INRA Orléans UR0633, France; ³Institut Sophia Agrobiotech, INRA PACA, Sophia Antipolis, France
- 11:00 **106-STU The limited role of *Bombyx mori* ABCC3 as a Cry toxin receptor in comparison to ABCC2** - Haruka Endo^{1,2}, Fumika Ichino¹, Satomi Adegawa¹, Hiroko Tabunoki¹, Ryoichi Sato¹; ¹Tokyo University of Agriculture and Technology, Japan; ²Research Fellow of Japan Society for the Promotion of Science, Japan
- 11:15 **107-STU Multi-binding ability to functional receptors and BmABCC2 dependent cytotoxicity-relevant property of the domain II loop region of Cry1Aa** - Satomi Adegawa, Shingo Kikuta, Ryoichi Sato; Graduate School of Bio-Applications and Systems Engineering, Tokyo University of Agriculture and Technology, Japan
- 11:30 **108 Comparative Analysis of Gene Expression Profiles in Cry1Ac Resistant and Susceptible Strains of *Heliothis virescens*** Omaththage Perera[†], Cris Oppert, Jerreme Jackson, Anaïs Castagnola, Juan Luis Jurat-Fuentes; United States Department of Agriculture, Agricultural Research Service, Southern Insect Management Research Unit Stoneville, MS, United States
- 12:00 **109 Differential induction of immune system related genes in *Spodoptera exigua* after Vip3Ca challenge** - Patricia Hernandez-Martinez, Baltasar Escriche; Departamento de Genética, and Estructura de Recerca Interdisciplinar en Biotecnologia i Biomedicina, Universitat de València, Spain
- 12:00 **110 Microevolutionary mechanisms of wax moth *Galleria mellonella* resistance to *Bacillus thuringiensis*** - Ekaterina Grizanova¹, Tariq Butt², Andreas Vilcinskas³, Ivan Dubovskiy¹; ¹Institute of Systematic and Ecology of Animals, Siberian Branch of Russian Academy of Sciences, Novosibirsk, Russia; ²Dept of Biosciences, College of Science, Swansea University, United Kingdom; ³Institute for Insect Biotechnology, Justus-Liebig University, Giessen, Germany
- 12:15 **111 Fitness costs associated with multi-toxin resistance in the cabbage looper (*Trichoplusia ni*)** - Guillaume Tetreau^{1,2}, Ran Wang^{1,3,4}, Ping Wang¹; ¹Department of Entomology, Cornell University, New York State Agricultural Experiment Station, NY, United States; ²CNRS-IFREMER: UMR5244, Université de Perpignan Université de Montpellier, OMS/WHO, Perpignan, France; ³Department of Entomology, Nanjing Agricultural University, Nanjing, China; ⁴Institute of Plant and Environment Protection, Beijing Academy of Agriculture and Forestry Sciences, Beijing, China

OPTIONAL EXCURSION TO AMBOISE

12:30-13:00	Distribution Lunch bag	Hall
13:00-17:30	Excursion to Amboise Castle and le Clos Lucé	

GARDEN PARTY AT THE DOMAINE DE CANDÉ

16:30	Bus departure	Outside Vinci
17:30 & 18:30	Optional castle visit	
18:00	5K Race	
19:00	Barbecue	

WEDNESDAY – 27 July

07:30-08:30	Qi Gong	Foyer
08:00-17:00	Registration	Hall

CROSS DIVISION SYMPOSIUM 08:30-10:30 - Chinon

Next Generation Sequencing

David Bass & Helen Hesketh

- 08:30 **112 High-Throughput Sequencing and Bioinformatic Tools for Invertebrate Pathology - an Overview** - Ronny Van Aerle; European Union Reference Laboratory for Crustacean Diseases, Centre for Environment, Fisheries and Aquaculture Science, Weymouth, United Kingdom
- 09:00 **113 Next generation sequencing - a powerful approach to**

assess potential effects of BCAs on microbial communities in soil - Juerg Enkerli¹, Johanna Mayerhofer¹, Franco Widmer¹, Martin Hartmann²; ¹Institute for Sustainability Sciences Agroscope, Zürich, Switzerland; ²Forest Soils and Biogeochemistry, Swiss Federal Research Institute WSL, Birmensdorf, Switzerland

- 09:30 **114 Using dual-RNAseq to study host-pathogen interactions: data generation and analysis** - Henrik Hjarvard De Fine Licht; Section for Organismal Biology, Department of Plant and Environmental Sciences, University of Copenhagen (PLEN), Frederiksberg, Denmark

- 10:00 **115 Big data and little *Metarhizium*: evolution and interactions of an endophytic insect pathogenic fungus** - Brian Lovett, Raymond St. Leger; Department of Entomology, University of Maryland (UMD), College Park, MD, United States

CONTRIBUTED PAPERS

08:45-10:30 - Bourqueil

Nematodes

David Shapiro-Ilan

- 09:00 **116 Dissecting the immune defence against the entomopathogenic nematodes: fluctuation of Cecropin and haemocytetes during infection of *Spodoptera exigua*** - Reyhaneh Darsoei, Javad Karimi; Ferdowsi University of Mashhad (FUM), Biocontrol and Insect Pathology Lab, Dept of Plant Protection, School of Agriculture, Mashhad, Iran
- 09:15 **117 Who one associates with matters: Role of *Xenorhabdus bovienii* (Enterobacteriaceae) symbionts on the fitness of its *Steinernema* nematode hosts** - S.Patricia Stock, John McMullen; Department of Entomology, University of Arizona Tucson, AZ, United States
- 09:30 **118 Curative Control of the Peachtree Borer Using Entomopathogenic Nematodes** - David Shapiro-Ilan¹, Ted Cottrell¹, Russ Mizell III², Dan Horton³; ¹USDA-ARS, United States; ²University of Florida, United States; ³University of Georgia, United States
- 09:45 **119-STU Attraction of entomopathogenic nematode isolates to insect feeding is driven by their previous association with wild or domesticated highbush blueberry (*Vaccinium corymbosum*) plants** - Monique Rivera, Albrecht Koppenhofer; Rutgers University, United States
- 120-STU** Cancelled
- 121-STU** moved to Fungi 2
- 10:00 **122 Potential of entomopathogenic fungi and nematodes against *Parahyppota caestrum* in laboratory assays** - Monica Oreste¹, Eustachio Tarasco¹, Luca Ruii²; ¹Department of Soil, Plant and Food Science, University of Bari Aldo Moro (DISSPA) – Italy; ²Department of Agriculture, University of Sassari – Italy
- 10:15 **123 Microbial control of *Cossus cossus* with entomopathogenic nematodes and fungi in laboratory and field assays** - Rocco Addante¹, Monica Oreste¹, Angela D'Accolti¹, Luca Ruii², Eustachio Tarasco³; ¹Department of Soil, Plant and Food Sciences, University of Bari Aldo Moro, Italy; ²Department of Agriculture, University of Sassari, Italy

CONTRIBUTED PAPERS

08:45-10:30 - Courteline

Virus 4

Bryony Bonning & Anne Dalmon

- 124-STU** moved to Special Symposium
- 08:45 **125-STU Diversity and evolution of Sinaivirus and related viruses in honeybees and wild hymenoptera** - Diane Bigot¹, Elisabeth Herniou¹, Anne Dalmon², Nicolas Galtier³, Philippe Gayral¹; ¹Institut de recherche sur la biologie de l'insecte, CNRS UMR7261, Université François Rabelais, Tours, France; ²INRA PACA, Abeilles et environnement, UR406 Avignon, France; ³ISEM, Université Montpellier II, CNRS UMR5554, Montpellier, France
- 09:00 **126-STU An opposite effect of *Dicistroviridae* on the RNA interference defense mechanism of their host, *Bombus terrestris*** - Kaat Cappelle¹, Guy Smaghe¹, Maarten Dhaenens², Ivan Meeus¹; ¹Department of Crop Protection, Faculty of Bioscience Engineering, Universiteit Gent, Belgium; ²Department of Pharmaceutics, Faculty of Pharmaceutical Sciences, Universiteit Gent, Belgium
- 09:15 **127 Honeybee (*Apis mellifera*) viruses or bee (Apiformes) viruses?** - Anne Dalmon, Virginie Diévert, Maxime Thomasson, Bernard Vaissière, Yves Le Conte, Laurent Guilbaud, Mickaël Henry; INRA PACA, Abeilles et environnement, UR406 Avignon, France

- 09:30 **128** Infection dynamics of honeybee viruses in AmE-711 cells - Jimena Carrillo-Tripp¹, Michael Goblirsch², Adam Dolezal¹, W. Miller¹, Amy Toth¹, Bryony Bonning¹; ¹Iowa State University, United States; ²University of Minnesota, United States
- 09:45 **129** Occurrence, Pathology, and Ultrastructure of an Iridovirus and Cytoplasmic Polyhedrosis Virus Occurring in Daphnids in the Czech Republic - Jiri Vavra¹, Bily Tomas¹, Jana Nebesrova¹, Brian Federici²; ¹Faculty of Science, Charles University, Praha, Czech Republic; ²University of California, Riverside, United States
- 10:00 **130** In vitro transcriptomic analyses of the Aphid's secondary symbiont, *Hamiltonella defensa* - Germain Chevignon, Kerry Oliver, Michael Strand; Department of Entomology, University of Georgia (UGA), Athens, United States
- 10:15 **131** A diverse array of new viral sequences identified in worldwide populations of the Asian citrus psyllid (*Diaphorina citri*) using viral metagenomics - Shahideh Nouri¹, Nida Salem², Jared Nigg¹, Bryce Falk¹; ¹University of California (UC Davis), United States; ²The University of Jordan, Amman, Jordan

CONTRIBUTED PAPERS 08:30-10:30 - Vouvray

Microbial control 2

Nina Jenkins

- 08:30 **132** The chemical inactivation of *H. armigera* nucleopolyhedrovirus (HearNPV) on chickpea (*Cicer arietinum*) and other legume crops with studies of its phytochemical mechanism on chickpea - Aliyu Aminu, Phillip Stevenson, David Grzywacz; Natural Resources Institute, University of Greenwich, Chatham, Kent, United Kingdom
- 08:45 **133** Temperature effects on time-to-death, in vivo production and insecticidal activity of *Agrotis ipsilon* baculovirus - Robert Behle; United States Department of Agriculture, Agricultural Research Service (USDA-ARS), Illinois, United States
- 09:00 **134** Controlling false codling moth in citrus with a novel Alphabaculovirus, *Cryptophlebia peltastica* NPV, and a dual isolate *Betabaculovirus* preparation, *Cryptophlebia leucotreta* GV - Sean Moore; Citrus Research International (CRI), Humewood, South Africa
- 09:15 **135** Characterization of *Helicoverpa armigera* nucleopolyhedrovirus in Brazil - Fernando Valicente, Victor Costa, Marcus Soares, Francisco Dimate, Fabrício Morgado, Bergmann Ribeiro; Embrapa Maize and Sorghum, Sete Lagoas, MG, Brazil
- 09:30 **136-STU** Effect of the *Chrysodeixis chalcites* single nucleopolyhedrovirus (ChchSNPV) chitinase upon the insecticidal activity of several other alphabaculoviruses - Eduardo Aguirre^{1,2}, Oihane Simón², Trevor Williams³, Primitivo Caballero^{1,2}; ¹Departamento de Producción Agraria, Universidad Pública de Navarra (UPNA), Pamplona, Spain; ²Instituto de Agrobiotecnología – CSIC-UPNA, Mutilva, Spain; ³Instituto de Ecología AC, Xalapa, Veracruz, Mexico
- 09:45 **137-STU** Alphabaculovirus of *Mamestra brassicae* (Lepidoptera: Noctuidae): Insecticidal activity against several lepidopteran pests - Isabel M. Belda^{1,2}, Maite Arrizubieta¹, Ines Beperet¹, Trevor Williams³, Primitivo Caballero^{1,2}; ¹Departamento de Producción Agraria, Universidad Pública de Navarra (UPNA), Pamplona, Spain; ²Instituto de Agrobiotecnología – CSIC-UPNA, Mutilva, Spain; ³Instituto de Ecología AC, Xalapa, Veracruz, Mexico
- 10:00 **138** Baculovirus synergism: investigating mixed alphabaculovirus and betabaculovirus infections in the false codling moth, *Thaumatotibia leucotreta*, for improved pest control - Michael Jukes¹, Caroline Knox¹, Martin Hill¹, Sean Moore², Lukasz Rabalski³, Boguslaw Szewczyk³; ¹Rhodes University (RU), Grahamstown, South Africa; ²Citrus Research International (CRI) Humewood, Port Elizabeth, South Africa; ³Department of Recombinant Vaccines, Intercollegiate Faculty of Biotechnology, University of Gdansk and Medical University of Gdansk, Poland
- 10:15 **VI-14-STU** Genetic and biological characterisation of a novel alphabaculovirus for the microbial control of *Cryptophlebia peltastica* - Tamryn Marsberg¹, Martin Hill¹, Caroline Knox², Sean Moore³, B Szewczyk⁴, Lukasz Rabalski⁴. ¹ Department of Zoology and Entomology, Grahamstown, South Africa; ² Department of Microbiology and Biotechnology, Grahamstown, South Africa; ³ Citrus Research International, Humewood, Port Elizabeth, South Africa; ⁴ Department of Molecular Virology, Intercollegiate Faculty of Biotechnology

and Medical University of Gdansk, Poland

10:30-11:00 COFFEE BREAK

Agnès Sorel

10:30-13:00 - Agnès Sorel

POSTER SESSION

Posters should be displayed

from Monday morning until 2pm Thursday

12:00-13:30 COCKTAIL LUNCH

Agnès Sorel

12:00-13:30 ICTV meeting

Bourgueil

Baculovirus and Nudivirus Study Group

BACTERIA DIVISION SYMPOSIUM

13:30-15:30 - Chinon

Unity and diversity of Entomopathogenic bacteria

Sophie Gaudriault & David Clarke

- 13:30 **140** Insect Pathogenicity Determinants of Plant-Associated Pseudomonads - Christoph Keel¹, Peter Kupferschmied¹, Maria Péchy-Tarr¹, Céline Terrettaz², Pascale Flury², María Pilar Vesga Aguado², Monika Maurhofer²; ¹University of Lausanne (UNIL) – Department of Fundamental Microbiology, Lausanne, Switzerland; ²Swiss Federal Institute of Technology Zurich Plant Pathology Group, Institute for Integrative Biology, Zurich, Switzerland
- 13:55 **141** *Photorhabdus* toxins affecting the cytoskeleton - Klaus Aktories; Institute of Experimental and Clinical Pharmacology and Toxicology, University of Freiburg, Germany
- 14:20 **142** *Photorhabdus* Virulence Cassettes: A nano-syringe based toxin secretion and delivery system - Joseph Healey¹, Guowei Yang², Isabella Vlisidou³, Alexia Hapeshi¹, Nick Waterfield¹; ¹Division of Biomedical Sciences, Microbiology and Infection unit, Warwick University Medical School, Coventry, United Kingdom; ²Beijing Pathogen Institute (BPI), China; ³Bristol University, Life Sciences department., Bristol, United Kingdom
- 14:45 **143** Comparative genomics in the entomopathogenic genus *Xenorhabdus*: insight into the XaxAB binary cytolysin-encoding locus - Gaëlle Bisch, Jean-Claude Ogier, Sylvie Pages, Anne Lanois, Alain Givaudan, Sophie Gaudriault; Diversité, Génomes Interactions Microorganismes – Insectes, INRA, UMR1333, Université de Montpellier, France
- 15:05 **144** Virulence determinants of the beepathogenic species *Paenibacillus larvae* - Elke Genersch; Institute for Bee Research (LIB), Hohen Neuendorf, Germany

CONTRIBUTED PAPERS

13:30-15:30 - Bourgueil

Fungi 2

Stefan Jaronski & Jørgen Eilenberg

- 13:30 **145** Crude extracts secreted by entomopathogenic mitosporic ascomycetes show potential for *Ceratitis capitata* (Wiedemann) (Diptera; Tephritidae) and *Drosophila sukuzii* (Matsumura) (Diptera; Drosophilidae) control - Maria Fernandez-Bravo, Inmaculada Garrido-Jurado, Meryeme El-Betar, Elodie Romero, Meelad Yousef, Enrique Quesada-Moraga; University of Córdoba, Córdoba, Spain
- 13:45 **146-STU** *Agrobacterium tumefaciens*-mediated transgenic *Beauveria bassiana* JEF-007 with reduced virulence against bean bug - Sihyeon Kim, Se Jin Lee, Yi-Ting Yang, Jae Su Kim; Chonbuk National University, South Korea
- 14:00 **147** Virulence of commercial strains of *Beauveria bassiana* and *Metarhizium brunneum* against walnut twig beetle adults and impact on brood production - Louela Castrillo¹, John Vandenberg², Michael Griggs², Robert Camp³, Bryan Mudder⁴, Adam Taylor³, Albert Mayfield⁴; ¹Department of Entomology, Cornell University, Ithaca, United States; ²USDA ARS, Robert W. Holley Center for Agriculture and Health, Ithaca, United States; ³Department of Forestry, Wildlife and Fisheries, University of Tennessee, Knoxville, United States; ⁴USDA Forest Service – Southern Research Station, Asheville, United States
- 14:15 **148** Strategic approach in application of fungal biopesticides: Ecological Biocontrol - Jae Su Kim, Se Jin Lee¹, Sihyeon Kim¹, Mi Rong Lee¹, Jong Cheol Kim¹, Taek Su Shin², Tae Hoon Kim²; ¹Department of Agricultural Biology, College of Agricultural & Life Sciences, Chonbuk National University, Jeonju, Korea;

²Crop Protection R&D Center, Farm Hannong (LG Affiliated Co.), Nonsan, Korea

- 14:30 **149-STU** Natural occurrence of entomopathogenic fungi in apple orchards in Germany related to cropping system and region and evaluation of their efficacy for biocontrol of *Cydia pomonella* - Carina Ehrich¹, Jessica Reuscher², Dietrich Stephan¹; ¹Julius Kühn-Institut, Institute for Biological Control, Darmstadt, Germany; ²Frankfurt University of Applied Sciences, Germany
- 14:45 **150** Characterization and virulence of *Beauveria bassiana* associated with auger beetle (*Sinoxylon anale*) infesting *Pimenta dioica* - Senthil Kumar C M, Jacob T K, Devasahayam S, Sharon D'Silva, Nandeesh P G; ICAR-Indian Institute of Spices Research, Kozhikode, Kerala, India
- 15:00 **151-STU** Involvement of Tenecin3 in the infection process of *Tenebrio molitor* by *Beauveria bassiana* - Sevasti Maistrov, Nicolai Meyling, Annette Jensen, Caroline Zanchi; Department of Plant and Environmental Sciences, University of Copenhagen, Frederiksberg, Denmark
- 15:15 **121-STU** The influence of orchard age on entomopathogenic fungi and nematode population dynamics - Sonnica Albertyn¹, Martin Hill¹, Moore Sean; ¹Rhodes University, Department of Zoology and Entomology, Grahamstown, South Africa; ²Citrus Research International, Port Elizabeth, South Africa

CONTRIBUTED PAPERS 13:30-15:30 - Vouvray

Virus 5

Ikbal Agah Ince & Sassan Asgari

- 13:30 **152-STU** Interactions between the salivary gland hypertrophy virus and its host immune system - Irene Meki^{1,2}, Ikbal Ince³, Henry Kariithi⁴, Drion Boucias⁵, Just Vlak¹, Monique Van Oers¹, Adly Abd-Alla²; ¹Laboratory of Virology, Wageningen University, Netherlands; ²Insect Pest Control Laboratories, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, Vienna, Austria – Austria; ³Department of Medical Microbiology, Acibadem University, Istanbul, Turkey; ⁴Biotechnology Research Institute, Kenya Agricultural Livestock Research Organization, Nairobi, Kenya; ⁵Department of Entomology and Nematology, University of Florida, Gainesville, Florida, United States
- 13:45 **153-STU** Host range of *Glossina pallidipes* salivary gland hypertrophy virus (GpSGHV) - Guler Demirbas Uzel^{1,2}, Andrew Parker¹, Robert Mach², Adly Abd-Alla¹; ¹International Atomic Energy Agency - Insect Pest Control Laboratory (IAEA IPCL), Austria; ²Vienna University of Technology, Vienna, Austria
- 14:00 **154** Highjack of intracellular signalling pathways and robust immune responses explain the hytrosavirus-induced differential pathologies in two *Glossina* model species - Ikbal Agah Ince¹, Henry Kariithi², Sjeff Boeren³, Irene Meki^{4,5}, Edwin Murungi⁶, Everlyne Otieno⁶, Steven Ger Nyanjom⁶, Monique Van Oers⁴, Just M. Vlak⁴, Adly Abd-Alla²; ¹Acibadem University, Department of Medical Microbiology, School of Medicine, Atasehir, Turkey; ²Biotechnology Research Institute, Kenya Agricultural and Livestock Research Organization, Nairobi, Kenya; ³Laboratory of Biochemistry, Wageningen University, Netherlands; ⁴Laboratory of Virology, Wageningen University, Netherlands; ⁵Insect Pest Control Laboratories, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, Vienna, Austria; ⁶Department of Biochemistry, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya
- 14:15 **155** The salivary gland proteome of *Glossina m. morsitans*, parasitized with *Trypanosoma b. brucei* - Henry Kariithi¹, Sjeff Boeren², Just M. Vlak³, Adly Abd-Alla⁴; ¹Biotechnology Research Institute, Kenya Agricultural and Livestock Research Organization, Nairobi, Kenya; ²Laboratory of Biochemistry, Wageningen University, Netherlands; ³Laboratory of Virology, Wageningen University, Netherlands; ⁴Insect Pest Control Laboratories, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, Vienna, Austria
- 14:30 **156** Characterization of *Bustus virus*, a new member of the *Negevirus* group isolated from a *Mansonia* mosquito in the Philippines - Ryosuke Fujita^{1,2}, Ryusei Kuwata³, Daisuke Kobayashi¹, Arlene Bertuso⁴, Haruhiko Isawa¹, Kyoko Sawabe¹; ¹National Institute of Infectious Diseases, Japan; ²Japan Agency for Medical Research and Development, Japan; ³Yamaguchi University, Japan; ⁴University of the Philippines Manila, Philippines
- 14:45 **157** RNA activation in mosquito cells and its suppression by

the dengue virus NS5 protein - Sultan Asad, Mazhar Hussain, Sassan Asgari; The University of Queensland, School of Biological Sciences, Brisbane, Australia

- 15:00 **158** Zika virus epidemic in Americas - Julien Thézé, Nuno Rodrigues Faria, Oliver Pybus; Department of Zoology, University of Oxford, United Kingdom
- 15:15 **159-STU** New RNA virus producing covert infections in field and laboratory insects of *Ceratitis capitata* (Wiedemann) - Angel Llopis-Giménez^{1,2}, Rosa Ma González-Martínez^{1,2}, Anabel Millán-Leiva³, Elena Llácer⁴, Marta Catalá⁴, Alberto Urbaneja⁴, Salvador Herrero^{1,2}; ¹Departamento de Genética, Universitat de Valencia, Spain; ²Estructura de Recerca Interdisciplinària en Biotecnologia i Biomedicina, Universitat de Valencia, Spain; ³Instituto de Hortofruticultura Subtropical y Mediterránea "La Mayora", CSIC, Malaga, Spain; ⁴Instituto Valenciano de Investigaciones Agrarias, Centro de Protección Vegetal y Biotecnología, Unidad Asociada de Entomología, Moncada, Spain

CONTRIBUTED PAPERS

13:30-15:30 - Courteline

Microbial control 3

Sean Moore

- 13:30 **160-STU** Whole Genome Sequencing of PhopGV Isolates for Control of *Tuta absoluta* in Tomato and *Phthorimaea operculella* and *Tecia solanivora* in Potato - Andreas Larem, Eva Fritsch, Karin Undorf-Spahn, Jörg Wennmann, Johannes Jehle; Federal Research Centre for Cultivated Plants, Institute for Biological Control, Darmstadt, Germany
- 13:45 **161-STU** Identification of a novel mode of resistance against *Cydia pomonella* granulovirus in codling moth indicates a highly dynamic adaptation in the host population - Annette Sauer¹, Petr Nguyen², Eva Fritsch¹, Karin Undorf-Spahn¹, Kento Iwata³, Madoka Nakai³, David Heckel⁴, Frantisek Marec², Johannes Jehle¹; ¹Julius Kühn Institut, Germany; ²Biology Centre, Czech Republic; ³Tokyo University of Agriculture and Technology, Japan; ⁴Max Planck Institute for Chemical Ecology, Germany
- 14:00 **162** Entomopathogenic fungi as control agents of *Thaumotibia leucotreta* in citrus orchards: efficacy and persistence - Candice Coombes¹, Martin Hill¹, Sean Moore², Joanna Dames³; ¹Department of Zoology and Entomology, Rhodes University, Grahamstown, South Africa; ²Citrus Research International, Port Elizabeth, South Africa; ³Department of Biochemistry and Microbiology, Rhodes University, Grahamstown, South Africa
- 14:15 **163** Control of wireworms in organic potato farming is feasible with an attract-and-kill strategy: technical aspects - Anant Patel, Stefan Vidal, Mario Schumann, Wilhelm Beitz-Heineke, Marina Vemmer; Bielefeld University of Applied Sciences, Department of Engineering Sciences and Mathematics, Bielefeld, Germany
- 14:30 **164** Control of wireworms in organic potato farming is feasible with an attract-and-kill strategy: field trials and mantraps on the way to registration - Stefan Vidal, Anant Patel, Marina Vemmer, Wilhelm Beitz-Heineke, Mario Schumann; Department of Crop Sciences, University of Göttingen, Germany
- 14:45 **165-STU** Screen bag formulations (SBF) of entomopathogenic *Beauveria* and *Metarhizium* conidia from granular substrates to control *Riptortus pedestris* - Se Jin Lee, Sihyeon Kim, Mi Rong Lee, Jae Su Kim; Chonbuk National University, South Korea
- 15:00 **166-STU** Entomopathogenic fungal library to control *Locusta migratoria* in Korea - Mi Rong Lee, Se Jin Lee, Sihyeon Kim, Jong Cheol Kim, Jae Su Kim; Chonbuk National University, South Korea
- 15:15 **167-STU** Ambrosia beetle mortality and reduced brood production following exposure to microbial control fungi - Louela Castrillo¹, Michael Griggs², John Vandenberg²; ¹Dept of Entomology, Cornell University, Ithaca, United States; ²USDA ARS, Robert W. Holley Center for Agriculture and Health, Ithaca, United States

15:30-16:00 COFFEE BREAK

Agnès Sorel

NEMATODE DIVISION SYMPOSIUM

16:00-18:00 - Chinon

Harnessing Metabolites from Entomopathogenic Nematode Symbiotic Bacteria for Broad Use

David Shapiro-Ilan & Selcuk Hazir

- 16:00 **168** The regulation of secondary metabolism and natural

- product production in *Photobhabdus* - David Clarke; University College Cork, Ireland
- 16:30 **169** Identification and application of eicosanoid biosynthesis inhibitors synthesized by *Xenorhabdus* and *Photobhabdus* - Yonggyun Kim; Andong National University, South Korea
- 17:00 **170** Using *Photobhabdus* and *Xenorhabdus* metabolites for control of pecan and peach diseases - Selcuk Hazir¹, Clive Bock², David Shapiro-Ilan²; ¹Adnan Menderes University Faculty of Arts and Sciences Department of Biology, Turkey; ²USDA-ARS, Southeastern Fruit and Tree Nut Research Laboratory Byron, United States
- 17:30 **171** Natural products from entomopathogenic bacteria - from bugs to the clinic? Helge Bode; Goethe-University Frankfurt am Main, Merck endowed Chair for Molecular Biotechnology, Dept of Biosciences, Frankfurt am Main, Germany

CONTRIBUTED PAPERS 16:00-18:00 - Courteline

Microbial control 4
Dietrich Stephan

- 16:00 **172** Synergistic combinations of an emulsifiable formulation of *Beauveria bassiana* and a pyrethroid insecticide against insecticide-resistant annual bluegrass weevil, *Listronotus maculicollis*, adults - Shaohui Wu, Albrecht Koppenhofer, Olga Kostromytska; Department of Entomology, Rutgers University, New Brunswick, United States
- 16:15 **173** Residual efficacy of *Beauveria bassiana* (Balsamo) Vuillemin, diatomaceous earth, Imidacloprid against three Coleopteran and one psocid species of stored grains - Waqas Wakil¹, Thomas Schmitt²; ¹Department of Entomology, University of Agriculture, Faisalabad, Pakistan; ²Senckenberg German Entomological Institute, Müncheberg, Germany; Institute of Zoology, Faculty of Natural Sciences I, Martin-Luther-University Halle-Wittenberg, Germany; Dept of Biogeography, Faculty of Regional and Environmental Sciences, Trier University, Germany
- 16:30 **174-STU** Biological Efficacy of the Entomopathogenic Fungi *Isaria fumosorosea* as a Biocontrol Agent Against Pest Insects Katharina Saar¹, Jasmin Philippi², Edgar Schliephake², Nicolas Maguire³, Johannes Jehle¹, Dietrich Stephan¹; ¹Julius Kühn-Institute, Darmstadt, Germany; ²Julius Kühn Institut, Quedlinburg, Germany; ³University of Applied Science, Department of Life Science Engineering, Gießen, Germany
- 16:45 **175** Fungal entomopathogens as endophytes for plant protection: Can they promote plant growth as well? - Lara R. Jaber¹, Juerg Enkerli²; ¹Department of Plant Protection, Faculty of Agriculture, University of Jordan, Amman, Jordan; ²Agroscope, Zurich, Switzerland
- 17:00 **176** Mortality, fecundity and behavior of *Aphis gossypii* Glover feeding on melon leaves endophytically colonized by entomopathogenic fungi - Natalia Gonzalez Mas, Enrique Quesada Moraga; Agricultural and Forestry Sciences, ETSIAM, University of Córdoba. Campus de Rabanales, Córdoba, Spain
- 17:15 **236-STU** Non-target effects of *Metarhizium brunneum* on microbial communities assessed in pot and field trials to control *Agriotes* spp - Johanna Mayerhofer¹, Sonja Eckard¹, Martin Hartmann², Giselher Grabenweger¹, Adrian Leuchtman³, Franco Widmer¹, Jürg Enkerli¹; ¹Institute for Sustainability Sciences Agroscope, Zurich, Switzerland; ²Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Birmensdorf, Switzerland; ³Plant Ecological Genetics, ETH Zurich, Switzerland

CONTRIBUTED PAPERS 16:00-18:00 - Bourguel

Disease of Beneficial Invertebrates 2
Helen Hesketh

- 16:00 **177** Entomopathogens and contaminant microbes of insects for food and feed value chain in Africa - Subramanian Sevgan, Fiaboe Komi, Ekesi Sunday; International Centre of Insect Physiology and Ecology (icipe), Nairobi, Kenya
- 16:15 **178** Implications of the honeybee microbial community in the response to major parasites and pathogens - Maria Giovanna Marche¹, Ignazio Floris¹, Alberto Satta¹, Luca Ruii^{1,2}; ¹Department of Agriculture, University of Sassari, Italy; ²Bioceopest Srl, Technology Park of Sardinia, Tramariglio, Italy
- 16:30 **179** First detection of the *Apis mellifera* filamentous virus (AmFV) in honey bees (*Apis mellifera*) in China - Chunsheng Hou, Beibei Li, Shuai Deng, Yuexiong Luo, Qingyun Diao; Institute of Apicultural Research, Chinese Academy of

Agricultural Sciences, China

- 16:45 **180** Trans-generational immune priming in *Tenebrio molitor*: towards the identification of the molecular mechanisms - Guillaume Tetreau¹, Julien Dhinaut², Philippe Bulet³, Yannick Moret², Benjamin Gourbal¹; ¹CNRS-IFREMER : UMR5244, Université de Perpignan, Université de Montpellier, Organisation mondiale de la santé (OMS/WHO), Perpignan, France, ²Laboratoire Biogéosciences, CNRS UMR6282, Université de Bourgogne, Dijon, France; ³Laboratoire Andrologie Gérontechnologie Inflammation Modélisation, CNRSFRE3405, Université Joseph Fourier, Grenoble I, France; Platform Biopark Archamps, France,
- 17:00 **181** Molecular cloning and prokaryotic expression of RdRp gene of IAPV - Shuai Deng, Qingyun Diao, Beibei Li, Chunsheng Hou; Institute of Apicultural Research, Chinese Academy of Agricultural Sciences, China

CONTRIBUTED PAPERS 16:00-18:00 - Vouvray

Virus 6
Trevor Williams & Martin Erlandson

- 16:00 **182** Genotype co-occlusion as a novel paradigm for the development of virus-based insecticides: is the evidence sufficiently convincing yet? - Primitivo Caballero^{1,2}, Ines Bepere¹, Oihane Simon¹, Maite Arrizubieta¹, Miguel Lopez-Ferber³, Trevor Williams⁴; ¹Instituto de Agrobiotecnología, CSIC-UPNA, Mutilva, Spain; ²Departamento de Producción Agraria, Universidad Pública de Navarra, Pamplona, Spain; ³Ecole des Mines d'Alès, France; ⁴Instituto de Ecología AC, Xalapa, Mexico
- 16:15 **183** Improving infectivity of baculovirus by high-efficiently embedding the enhancing factors into occlusion bodies - Shili Yang, Ruipeng Ma, Lijuan Zhao, Jia Hu, Chengfeng Lei, Xiulian Sun; Wuhan Institute of Virology, Chinese Academy of Sciences, China
- 16:30 **184** Baculovirus efficacy against the fall armyworm varies with intraspecific genetic variation in soybean defence traits - Ikkei Shikano¹, Ketiia Shumaker², Michelle Peiffer¹, Gary Felton¹, Kelli Hoover¹; ¹Department of Entomology and Center for Chemical Ecology, Pennsylvania State University, United States; ²Department of Biological and Environmental Sciences, University of West Alabama, United States
- 16:45 **185** Genetic and biological characterisation of anovel South African *Cydia pomonella* granulovirus (CpGV-SA) with potential for use in resistance management strategies - Caroline Knox¹, Boitumelo Motsoeneng¹, Martin Hill¹, Sean Moore²; ¹Rhodes University, South Africa; ²Citrus Research International (CRI), South Africa
- 17:00 **186** Baculovirus isolated from *Lymantria dispar* larvae as an example of possible virus adaptation to a new host - Lukasz Rabalski¹, Martyna Krejmer-Rabalska¹, Iwona Skrzecz², Boguslaw Szewczyk¹; ¹Laboratory of Recombinant Vaccines, Intercollegiate Faculty of Biotechnology, University and Medical University, Gdansk, Poland; ²Forest Research Institute, Sekocin Stary, Poland
- 17:15 **187** Genomics of alphabaculovirus isolates infecting *Mamestra* species from North America and Eurasia - Martin Erlandson¹, Doug Baldwin¹, Just Vlak², David Theilmann³; ¹Saskatoon Research and Development Centre, AAFC, Canada; ²Laboratory of Virology, Wageningen University, Netherlands; ³Summerland Research and Development Centre, AAFC, Canada
- 17:30 **188** Improved insecticidal activity of Chilo iridescent virus expressing an insect specific neurotoxin - Remziye Nalcacioglu¹, Hacer Muratoglu¹, Aydin Yesilyurt¹, Arzu Ozgen¹, Zihni Demirbag¹, Van Oers Monique², Vlak Just²; ¹Karadeniz Technical University, Faculty of Science, Department of Biology, Turkey; ²Wageningen University, Netherlands
- 17:45 **189** Characterization of the Baculovirus-Densovirus interaction when co-infecting the same host - Laila Gasmi¹, Mylène Ogliastrò², Salvador Herrero¹; ¹Laboratory of Biotechnological Pest Control, Department of Genetics, and Estructura de Recerca Interdisciplinària en Biotecnologia i Biomedicina, Universitat de València, Spain; ²Laboratory DGMI, UMR 1333, Université Montpellier II, France

18:00-19:45

Division Business Meetings and Workshops

Microbial Control Division Meeting	<i>Courteline</i>
Nematode Division Meeting	<i>Chinon</i>
<i>'Shooting a worm: insights on nematode photography'</i>	
J. Eisenback	
DBI Division Meeting	<i>Bourgueil</i>
<i>'Coral Diseases' - M. Sweet</i>	
Virus Division Meeting	<i>Vouvray</i>
<i>'Taxonomy of Polydnaviruses' - M. Strand</i>	

THURSDAY – 28 July

07:00-08:00	Qi Gong	<i>Foyer</i>
08:00-12:00	Registration	<i>Hall</i>

VIRUS DIVISION SYMPOSIUM 08:00-10:00 - *Descartes*

Viruses and horizontal gene transfers

Elisabeth Herniou & Jean-Michel Drezen

- 08:00 **190** **Mechanisms of horizontal genes transfer in Metazoans** - Chiara Boschetti, Isobel Eyres, Alastair Crisp, Elton Gargioni Grisoste Barbosa, Timothy Barraclough, Gos Micklem, Alan Tunnacliffe, Department of Chemical Engineering and Biotechnology, University of Cambridge, United Kingdom
- 08:20 **191** **Evidence of recent interspecies horizontal genes transfer regarding nucleopolyhedrovirus infection of *Spodoptera frugiperda*** - Mariano Belaich¹, Gloria Barrera², Manuel Patarroyo³, Laura Villamizar², Pablo Ghiringhelli¹, ¹Universidad Nacional de Quilmes, Laboratorio de Ingeniería Genética y Biología Celular y Molecular, Bernal, Argentina; ²Corporación Colombiana de Investigación Agropecuaria, Cundinamarca, Colombia; ³Fundación Instituto de Inmunología de Colombia, Bogotá, Colombia
- 08:40 **192** **Continuous influx of genetic material from host to virus populations** - Gilbert Clément¹, Jean Peccoud¹, Aurélien Chateigner², Bouziane Moumen¹, Richard Cordaux¹, Elisabeth Herniou²; ¹UMR CNRS 7267 Ecologie et Biologie des Interactions, Equipe Ecologie Evolution Symbiose, Université de Poitiers, Poitiers, France; ²Institut de recherche sur la Biologie de l'Insecte, CNRS UMR 7261, Université François-Rabelais, Tours, France
- 09:00 **193** **Microplitis demolitor bracovirus DNAs integrate into the genome of host cells** - Michael Strand, Department of Entomology, University of Georgia, Athens, United States
- 09:20 **194** **Acquisition and Domestication of bracoviral genes in *Spodoptera* spp contributes to their defense against pathogens** - Laila Gasmi¹, Jean-Michel Drezen², Salvador Herrero¹; ¹Laboratory of Biotechnological Pest Control, Department of Genetics, and Estructura de Recerca Interdisciplinar en Biotecnologia i Biomedicina; ²Institut de recherche sur la Biologie de l'Insecte, CNRS UMR 7261, Université François-Rabelais, Tours, France

CONTRIBUTED PAPERS 08:00-10:00 - *Courteline*

Fungi 3

Nicolai Vitt Meyling & Annette Bruun Jensen

- 08:00 **195** **Molecular characterization of icipe EPF isolates: opportunities and challenges** - Fathiya Khamis, Nguya Maniania, Komivi Akutse, Levi Ombura, Subramanian Sevgan, Sunday Ekesi; International Center of Insect Physiology and Ecology (ICIPE) – Kenya
- 08:15 **196** **The comparative analysis of defense reactions and midgut microbiota of *Galleria mellonella* under development of mycoses caused by *Metarhizium robertsii* and *Ordyceps militaris*** - Olga Yaroslavtseva¹, Oksana Tomilova¹, Alex Pervushin², Natalia Kryukova¹, Ecatherine Chertkova¹, Olga Polenogova¹, Maxim Tyurin¹, Ivan Dubovskiy¹, Viktor Glupov¹, Vadim Kryukov; ¹Institute of Systematics and Ecology of Animals, Siberian Branch of Russian Academy of Sciences, Russia; ²All-Russian Research Institute of Plant Protection, Russia
- 08:30 **197-STU** **The histone deacetylase HosA regulates cell cycle, conidiation, virulence and stress tolerance in *Beauveria bassiana*** - Qing Cai, Sheng-Hua Ying, Ming-Guang Feng; Zhejiang University, Hangzhou, Zhejiang Province, China
- 08:45 **198-STU** **A novel vacuolar protein is required for the *in vitro***

asexual cycle and full virulence of *Beauveria bassiana*; Zhenjian Chu, Sheng-Hua Ying, Ming-Guang Feng; Zhejiang University, Hangzhou, Zhejiang Province, China

- 09:00 **199-STU** **Characterization of high osmolarity glycerol pathway essential for environmental adaptation in *Beauveria bassiana***; Jing Liu, Sheng-Hua Ying, Ming-Guang Feng Zhejiang University, Hangzhou, Zhejiang Province, China

CONTRIBUTED PAPERS 08:15-10:00 - *Bourgueil*

Diseases of Beneficial Invertebrate 3

Grant Stentiford

- 08:15 **200** **Applications of environmental DNA (eDNA) methods in parasitology** - David Bass^{1,2}, Georgia Ward³, Rose Kerr¹, Catherine Troman², Corey Holt¹, Kelly Bateman¹, Beth Okamura², Grant Stentiford¹; ¹European Union Reference Laboratory for Crustacean Diseases and/or Centre for Environment, Fisheries and Aquaculture Science (Cefas), Weymouth, United Kingdom; ²The Natural History Museum – United Kingdom
- 08:30 **201** **Exploring into an emerging star in the circum-Antarctic keystone predator, the sea star *Odontaster validus*** - Laura Núnñez Pons^{1,2,3}, Thierry Work⁴, Robert Rameyer⁴, Juan Moles⁴, Carlos Angulo-Preckler³, Conxita Avila¹; ¹Smithsonian Tropical Research Institute (STRI), Panama; ²Hawai Institute of Marine Biology (HIMB), University of Hawaii at Manoa, Hawaii, United States; ³Universitat de Barcelona Barcelona, Spain; ⁴US Geological Survey, National Wildlife Health Center, Honolulu, United States
- 202-STU** Cancelled
- 08:45 **203-STU** **Impact of water temperature on immune-related gene expression in American lobster experimentally infected with White Spot Syndrome Virus** - Louise-Marie Roux^{1,2}, Philip Byrne², Fraser Clark¹, Spencer Greenwood¹; ¹Dept of Biomedical Sciences and Lobster Science Centre, Atlantic Veterinary College, University of Prince Edward Island, Canada; ²Gulf Biocontainment Unit-Aquatic Animal Health Laboratory, Fisheries and Oceans Canada, Canada; ³Dept of Pathology and Microbiology, Atlantic Veterinary College, University of Prince Edward Island, Canada
- 09:00 **204-STU** **Development of a duplex PCR as screening tool for the detection of Crangon crangon bacilliform virus in the European brown shrimp *Crangon crangon*** - Benigna Van Eynde^{1,2}, Olivier Christiaens¹, Daan Delbare², Kelly Bateman³, Grant Stentiford³, Annette Dullemans⁴, Monique Van Oers⁵, Guy Smagghe¹; ¹Ghent University, Ghent, Belgium; ²Institute of Agricultural and Fisheries Research, Ostend, Belgium; ³European Union Reference Laboratory for Crustacean Diseases, CEFAS, Weymouth, United Kingdom; ⁴Wageningen University and Research Center Wageningen, Netherlands
- 09:15 **205** **Microbial patters allied to coral disease and bleaching, insights from Kane'Ohe Bay – Oahu (Hawaii)** - Laura Núnñez Pons^{1,2,3}, Raphael Ritson-Williams², Emilia Sogin², Ross Cunning², Anthony Amend²; ¹Smithsonian Tropical Research Institute, Panama; ²Hawai Institute of Marine Biology, University of Hawaii at Manoa, Hawaii, United States; ³Universitat de Barcelona, Barcelona, Spain

CONTRIBUTED PAPERS 08:15-10:00 - *Vouvray*

Microbial Control 5

Ben Raymond

- 08:15 **206-STU** **Controlling Invasive Crustacea** - Jamie Bojko¹, Alison Dunn², Paul Stebbing¹, Grant Stentiford¹; ¹CEFAS, Weymouth, Dorset, United Kingdom; ²University of Leeds, United Kingdom
- 08:30 **207** **Molecular characterization of the plasmid-encoded Pir-like binary toxins isolated from shrimp suffering acute hepatopancreatic necrosis disease or early mortality syndrome (EMS/AHPND)** - Kallaya Sritunyalucksana, Jiraporn Srisala, Suparat Taengchaiyaphum, Anuphap Prachumwat, **Ornchuma Itsathitphaisarn**, Timothy Flegel; Shrimp-Virus Interaction Laboratory, National Center for Genetic Engineering and Biotechnology, Bangkok, Thailand
- 208** Cancelled
- 08:45 **209** **DEBtox modelling of pathogen-mortality data over time; a novel toxicokinetic-toxicodynamic approach to derive dose**

- effects - Helen Hesketh, Jan Baas; Centre for Ecology Hydrology, Wallingford, United Kingdom
- 09:00 **210** A putative esterase is involved in toxicity of the mexican strain *Serratia entomophila* Mor4.1 towards larvae of *Phyllophaga* Spp (Coleoptera) - [María Nunẽz-Valdez](#), Manuel Martínez-Tapia, Jianwu Chen, Sarjeet Gill; Centro de Investigación en Dinámica Celular, Instituto de Investigación en Ciencias Básicas y Aplicadas, Universidad Autónoma del Estado de Morelos, Cuernavaca Morelos, Mexico
- 09:15 **211-STU** Monitoring and expression analysis of *Pseudomonas protegens* CHA0 during colonization of Lepidoptera - [María Del Pilar Vesga Aguado](#)¹, Pascale Flury¹, Monika Maurhofer¹, Christoph Keel²; ¹Swiss Federal Institute of Technology, Zurich, Switzerland; ²Université de Lausanne, Lausanne, Switzerland
- 10:00-10:30 **COFFEE BREAK** *Agnès Sorel*

10:30 - 12:30 - *Descartes*
SIP Business Meeting

- 12:30-14:00 **BUFFET LUNCH** *Agnès Sorel*
- 12:30-14:00 **Student Competition Jury** *Bourguell*

MICROSPORIDIA DIVISION SYMPOSIUM 14:00-16:00 - *Bourguell*
Host Pathogen interactions
Susan Bjornson

- 14:00 **212** Inhibition of apoptosis is a universal mechanism for intracellular survival of microsporidia? - [Yuliya Sokolova](#)^{1,2}, Xavier Alvarez³, Lisa Bowers³, Elizabeth Didier³; ¹Institute of Cytology, Russian Academy of Sciences, St Petersburg, Russia; ²Louisiana State University School of Veterinary Medicine, Baton Rouge LA, United States; ³Tulane National Primate Research Center, Covington LA, United States
- 14:30 **213** Mosquito-Microsporidia Model Systems for Understanding Morphological and Phylogenetic Relationships [James Becnel](#); U.S. Department of Agriculture Agricultural Research Service, Gainesville, Florida, United States
- 15:00 **214** Pathogenicity, prevalence and intensity of a microsporidian infection by *Nosema fumiferanae* postvittana subsp. n. in the light brown apple moth, *Epiphyas postvittana*, in California - [Julie Hopper](#)^{1,2}, Wei-Fone Huang^{3,4}, Leellen Solter³, Nicholas Mills¹; ¹University of California, Berkeley, United States; ²University of California, Davis, United States; ³University of Illinois, Urbana-Champaign, United States; ⁴College of Bee Science, Fujian Agriculture and Forestry University, China
- 15:30 **215** Comparative genomics of microsporidia that infect marine organisms - [Bryony Williams](#); Biosciences, College of Life and Environmental Sciences, University of Exeter, Devon, United Kingdom

CONTRIBUTED PAPERS 14:00-16:00 - *Courteline*
Bacteria 4
Marianne Carey & Shuyuan Guo

- 14:00 **216** How to eat a Crystal protein: Crystal protein Cry5B as a novel and powerful anti-infective for humans - Yan Hu, David Koch, Zeynep Mirza, Thanh-Thanh Nguyen, Gary Ostroff, [Raffi Aroian](#); Program in Molecular Medicine, UMASS Medical School, United States
- 14:15 **217** A biochemical comparison of VIP3Ab1 and VIP3B insecticidal proteins - [Marc Zack](#), Megan Sopko, Ted Letherer, Sek Yee Tan, Kenneth Narva; Dow AgroSciences, Indianapolis, United States
- 14:30 **218** Bio-polymer microencapsulations of *Bacillus thuringiensis* crystal preparations for improved longterm larvicidal activity - He Xiaolin¹, He Kanglai², [Guo Shuyuan](#)¹; ¹School of Life Science, Beijing Institute of Technology, Beijing, China; ²State Key Laboratory for Biology of Plant Diseases and Insect Pests, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, China
- 219** Cancelled
- 14:45 **220** Enterocyte purge and rapid recovery as a novel reaction of the gut epithelium to toxin or xenobiotics exposure -

- Kwang-Zin Lee¹, Matthieu Lestrade¹, Catherine Socha¹, Stefanie Schirmeier¹, Antonin Schmitz², Caroline Spenle³, Olivier Lefebvre³, Céline Keime⁴, Samuel Liegeois¹, Miriam Yamba¹, Richard Bou Aoun¹, Yannick Schwab⁴, Frédéric Dalle², Patricia Simon-Assmann⁵, [Dominique Ferrandon](#)^{1,5}; ¹Equipe Fondation Recherche Medicale, CNRS – Strasbourg, France; ²UMR 1342 University of Burgundy, Dijon, France; ³MN3T, FMTS, LABEX Medalis University of Strasbourg U1109 INSERM, France; ⁴CNRS INSERM Univ. of Strasbourg, IGBMC, France; ⁵Institut de Biologie Moleculaire et Cellulaire, CNRS, Strasbourg, France
- 15:00 **221** Biomphalysin, a novel family of snail immune effectors with common features with bacterial pore-forming toxins - Silvain Pinaud, Guillaume Tetreau, Anaïs Portet, Richard Galinier, Cristian Chaparro, Benjamin Gourbal, [David Duval](#); Host-Pathogen-Environment Interactions Laboratory, CNRS UMR5244, Université de Perpignan Via Domitia, Université de Montpellier, Institut Français de Recherche pour l'Exploitation de la Mer, OMS/WHO, Perpignan, France
- 15:15 **222** Toxicological and protein characterization of *Bacillus sphaericus* C3-41 strain from Karnataka, India - [Basavaraj Kalmath](#)¹, Gajanan Katkar², Aralimarad Prabhuraj¹, Patil Basavaraj¹; ¹College of Agriculture, University of Agricultural Science, Raichur, Karnataka, India; ²Department of Biochemistry, Mysore University, Karnataka, India

CONTRIBUTED PAPERS 14:00-16:00 - *Descartes*

Virus 7

Madoka Nakai & Gary Blissard

- 14:00 **223** Comparative genomics of parasitoid wasps and what it tells on the evolution of symbiotic viruses - [Jérémy Gauthier](#)¹, Annie Bézier¹, Jean-Marc Aury², Valérie Barbe², Anthony Bretaudeau³, Fabrice Legeai³, Karine Musset¹, Diane Bigot¹, Thibaut Josse¹, Sébastien Moreau¹, Philippe Gayral¹, Elisabeth Huguet¹, Elisabeth Herniou¹, [Jean-Michel Drezen](#)¹; ¹Institut de recherche sur la Biologie de l'Insecte, CNRS UMR 7261, Université François-Rabelais, Tours, France; ²Centre national de séquençage CEA, Genoscope, Evry, France; ³Institut de Génétique, Environnement et Protection des Plantes, INRA UMR1349, Rennes, France
- 14:15 **224** Permissiveness of lepidopteran hosts is linked to differential expression of bracovirus genes - [Kavita Bitra](#), Gaelen Burke, Michael Strand; ¹University of Georgia, Athens, United States
- 14:30 **225** Latency-deficient recombinant and mutant *Helicoverpa zea* nudiviruses that cause enhanced pathology and sterility to their insect hosts - [Bruce Webb](#), Kendra Steele, Angelika Fath-Goodin, Alonna Wright, Brooke Nemeç; University of Kentucky Lexington, United States
- 14:45 **226** The postfusion 3D-structure of the Spodoptera exigua multiple nucleopolyhedrovirus envelope fusion protein F - [Qiushi Wang](#)¹, Ieva Vasiliauskaite³, Berend Jan Bosch², Thomas Krey³, Peter Rottier², [Just M. Vlask](#)¹, Felix Rey³; ¹Laboratory of Virology, Wageningen University, Wageningen, Netherlands; ²Virology Division, Department of Infectious Disease and Immunology, Faculty of Veterinary Medicine, Utrecht University, Utrecht, Netherlands; ³Structural Virology Unit, Department of Virology, Institut Pasteur, Paris, France
- 15:00 **227** A new system for studies of viral envelope protein trafficking in insect cells - [Jeffrey Hodgson](#)¹, Nicolas Buchon², [Gary Blissard](#)¹; ¹Boyce Thompson Institute at Cornell University, Ithaca, NY, United States; ²Department of Entomology Cornell University, Ithaca, NY, United States
- 15:15 **228** Rescue of the entry of AcMNPV fusion-defective mutants by low-pH triggering: higher fusion activity is required for GP64-mediated entry into mammalian cells compared to insect cells? - Hu Liangbo, Li Yiming, Ning Yunjia, Deng Fei, Hu Zhihong, Wang Manli, [Wang Hualin](#); State Key Laboratory of Virology, Wuhan Institute of Virology, Chinese Academy of Sciences, Wuhan, China
- 15:30 **229** Extra genomic DNA elements found in an entomopoxvirus - Shusuke Koike¹, Jun Takatsuka², Julien Thézé³, Elisabeth Herniou⁴, [Madoka Nakai](#)¹; ¹Tokyo University

of Agriculture and Technology, Fuchu-shi, Tokyo, Japan; ²Forestry and Forest Products Research Institute, Tsukuba, Japan; ³University of Oxford, Department of Zoology, Oxford, United Kingdom; ⁴Institut de recherche sur la biologie de l'insecte, CNRS UMR7261, Université François Rabelais, Tours, France

CONTRIBUTED PAPERS 14:00-16:00 - *Vouvray*
Microbial Control 6
Mike Brownbridge

- 14:00 **230** Entomopathogenic fungi for managing exotic and endemic pests in vegetable crops in California - Surendra Dara; University of California Cooperative Extension, United States
- 14:15 **231** Experimental devices treated with *Metarhizium brunneum* and its extract for spotted-wing drosophila *Drosophila suzukii* Matsumura (Diptera: Drosophilidae) control - Meelad Yousef, Enrique Aranda-Valera, Inmaculada Garrido-Jurado, Enrique Quesada-Moraga; University of Córdoba, Córdoba, Spain
- 14:30 **232** Optimization of a coating process for the development of *Metarhizium*-formulations for control of soil dwelling pests - Dietrich Stephan¹, Nicolas Maguire²; ¹Institute for Biological Control, Julius Kühn-Institut, Darmstadt, Germany; ²Technische Hochschule Mittelhessen, Gießen, Germany
- 14:45 **233** Physiological mechanisms of synergy between pyrethroid insecticide and entomopathogenic fungus *Metarhizium robertsii* on nontarget aquatic model species *Daphnia magna* - Yury Noskov¹, Olga Yaroslavtseva², Ecatherine Chertkova², Vadim Kryukov², Ivan Dubovskiy²; ¹National Research Tomsk State University, Tomsk, Russia; ²Institute of Systematics and Ecology of Animals, Siberian Branch of Russian Academie of

Sciences, Novosibirsk, Russia

- 15:00 **234** Virulence of wild and transformed strains of *Metarhizium anisopliae* ICIPE30 against *Rhipicephalus appendiculatus* and *Amblyomma variegatum* ticks - Nana Paulin^{1,2}, Khamis Fathiya¹, Ekesi Sunday¹, Subramanian Sevgan¹, Ombura Levi¹, Maniania Nguya¹; ¹International Centre of Insect Physiology and Ecology, Nairobi, Kenya; ²Universite de Dschang, Dschang, Cameroon
- 15:15 **235** Field evaluation of the entomopathogenic fungus *Metarhizium anisopliae* for the control of cotton aphid *Aphis gossypii* on okra crop - Wakuma Bayissa¹, Ekesi Sunday², Samira Mohamed², Nguya Maniania²; ¹Jimma University College of Agriculture and Veterinary Medicine, Jimma, Ethiopia; ²ICIPE, Nairobi, Kenya
- 15:30 **237** Aprehend™ for bed bug control – the biological advantage - Nina Jenkins, Giovanni Bellicanta, Alexis Barbarin, Matthew Thomas; Penn State Department of Entomology, United States

16:00 - 16:30 - *Bourgueil*
Student Business Meeting

18:00 - 01:00
BANQUET
Grange de Meslay

18:00 Bus departure *Outside Vinci*
 until 1am Entertainment by *Lebel Orchestre*

POSTERS

Poster Session – Wednesday 10:30-13:00

10:30-13:00

Agnès Sorel

Bacteria Division

BA-1 A novel protein active from a *Pseudomonas* strain with unique mode of action against western corn rootworm, *Diabrotica virgifera virgifera* (LeConte) - Nuria Jiménez-Juárez, DuPont Pioneer, USA

BA-2 Alkaline phosphatases are involved in the response of mosquito larvae to intoxication with Bti Cry toxins - Guillaume TETREAU, CNRS-IFREMER: UMR5244, Université de Perpignan Université de Montpellier, OMS/WHO, Perpignan, France

BA-3-STU Aquaporins contribute to water influx into Sf9 cells intoxicated by *Bacillus thuringiensis* Cry toxin - Haruka Endo, Tokyo University of Agriculture and Technology, Research Fellow of Japan Society for the Promotion of Science, Japan

BA-4 Association of cry genes from *Bacillus thuringiensis* with mortality in *Spodoptera frugiperda* - Newton Carneiro, Embrapa Maize and Sorghum

BA-5-STU Biological Control of *Hypsipyla Grandella* Zeller (Lepidoptera: Pyralidae) With The Systemic Use Of *Bacillus Thuringiensis* Berliner On Mahogany Seedlings (*Swietenia macrophylla* King) - Marcelo Castro, Universidade de Brasília, Brazil

BA-6 Biomphalysin, a bacterial β -PFT family in the schistosomiasis vector snail, *Biomphalaria glabrata* - Silvain PINAUD, CNRS-IFREMER: UMR5244, Université de Perpignan Université de Montpellier, OMS/WHO, Perpignan, France

BA-7 Cadherins are Cry5B Toxin Receptor in *Caenorhabditis elegans* and Play a Sequential Role with the Glycolipid Receptor - Ming Sun, Huazhong Agricultural University, China

BA-8 Characteristics of an entomopathogenic bacterium, *Xenorhabdus hominickii* ANU1 and its pathogenicity against two lepidopteran pests - Youngjin Park, Department of Bioresource Sciences, Andong National University, South Korea

BA-9 Characterization of a *Wolbachia* strain native from Argentina for potential application as mosquito control agent - Corina Berón, Instituto de Investigaciones en Biodiversidad y Biotecnología, Fundación para Investigaciones Biológicas Aplicadas, Argentina

BA-10-STU Cancelled

BA-11-STU Dam overexpression impacts motility and virulence of the entomopathogenic bacteria, *Photorhabdus luminescens* TT01 - Amaury Payelleville, DGIMI, Montpellier, France

BA-12-STU Detection and characterization of Parasporin proteins in *Bacillus thuringiensis* - Elias, Ferreira Sabia Jr, Embrapa, Brasil

BA-13-STU Dual action of *Bacillus thuringiensis* in the vegetative development of cotton (*Gossypium hirsutum* L.) and the control of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) - Flávia Costa, Universidade de Brasília, Brazil

BA-14 Evidences for cross-order activity of binary Vip proteins - Baltasar Escriche, Estructura de Recerca Interdisciplinar en Biotecnologia i Biomedicina, Departamento de Genética, Universitat de València, Spain

BA-15-STU Evolution of *Photorhabdus* Virulence Cassettes - Joseph Healey, Warwick University Medical School, UK

BA-16 Genomic and phenotypic analysis of *Bacillus thuringiensis* cry- exposed for in vivo experimental evolution in *Galleria mellonella* - Christina Nielsen-Leroux, Micalis, France

BA-17-STU Mechanisms involved in the acquisition of host iron ferritin by the opportunistic insect pathogen *Bacillus cereus* - Laurent Consentino, MICALIS équipe Génétique Microbienne et Environnement, France

BA-18 Mosquitocidal activity of non-3-domain Cry type 33-kDa protein from *Bacillus thuringiensis* isolated in Japan - So Takebe, Faculty of Biology-Oriented Science and Technology, Kindai University, Japan

BA-19 Multifaceted aspects of insect pathogenic and commensal bacteria in insect based food and feed – Christina Nielsen Leroux, INRA Micalis France

BA-20 Cancelled

BA-21 New entomopathogenic bacterial strains from *Galleria mellonella* larvae infected with EPNs - Luca Ruiu, Biocepest Srl, Department of Agriculture, University of Sassari, Italy

BA-22 Preparation and formulation optimization of a mosquitocidal sustained-release *Bacillus thuringiensis* with high UV-resistance - Lingling Zhang, Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, Fujian Agriculture and Forestry University, China

BA-23-STU Resistance of different *Spodoptera frugiperda* populations to Bt-maiz from the Bahia and Góias states correlates with low alkaline phosphatase expression - Cristina Macedo, Universidade de Brasília, Brazil

BA-24 Spent Juncao substrate can be converted into fermentable sugar with one-step method - Yueting Xiong, Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, Fujian Agriculture and Forestry University, China

BA-25 Structural analysis of mosquitocidal toxin sequences from a *Bacillus thuringiensis* native strain - Corina Berón, Instituto de Investigaciones en Biodiversidad y Biotecnología, Fundación para Investigaciones Biológicas Aplicadas, Argentina

BA-26-STU Study of *Bacillus thuringiensis* Cry toxin binding sites in the two important soya pests *Anticarsia gemmatalis* and *Chrysodeixis includens* - Yolanda Bel, Departamento de Genética, Universitat de València, ERI de Biotecnología y Biomedicina, Universitat de València, Spain

BA-27 Synergism of Cry1Ac and Cry1Ie toxins and its potential for resistance management - Kanglai He, IPPCAAS, China

BA-28 Temperature restriction in *Photorhabdus luminescens* - Alexia Hapeshi, Warwick University Medical School, UK

BA-29-STU Use of *Caenorhabditis elegans* as model for selection of *Bacillus spp.* toxic strains to *Meloidogyne incognita* race 3 - Sandro Montalvão, Universidade de Brasília, Brazil

BA-30 Vip3Aa laboratory selection and characterization of resistance in *Heliothis virescens* (Lepidoptera: Noctuidae) - Juan Ferré, ERI de Biotecnología y Biomedicina, Universitat de València, Spain

10:30-13:00

Agnès Sorel

Diseases of Beneficial Invertebrates Division

DBI-1-STU A New Phylogeny and eDNA Insight into Paramyxids: an Increasingly Important but Enigmatic Clade of Protistan Parasites of Marine Invertebrates - Georgia Ward, Natural History Museum, Centre for Environment, Fisheries and Aquaculture Science, University of Exeter, UK

DBI-2 A new simple and universal method for interactomic Studies - Guillaume TETREAU, CNRS-IFREMER: UMR5244, Université de Perpignan Université de Montpellier, OMS/WHO, Perpignan, France

DBI-3 Cancelled

DBI-4 Honey bee immunity: Its modulation by dietary supplements and probiotics - Pavel Dobs, Masaryk University, Czech Republic

DBI-5-STU Identification of *Serratia marcescens* infection in industrial rearing of *Tenebrio molitor* - Zoé Tourrain, INRA- Micalis, France

DBI-6-STU Identification of the honeybee parasitic mite *Varroa destructor* resistance using discrimination concentrations of acaricides in vitro - Doslak Ivo, Department of Microbiology, Nutrition and Dietetics, Czech University of Life Sciences, Czech Republic

DBI-7-STU Occurrence of Gammaproteobacteria in honey bee gut infected by *Paenibacillus* larvae - Zuzana Hroncova, Czech University of Life Sciences Prague, Czech Republic

DBI-8 Ontogeny of the immune system in harlequin ladybird, *Harmonia axyridis* - Pavel Dobs, Masaryk University, Brno, Czech Republic

DBI-9-STU Pathogens of *Carcinus maenas* in their invasive range - Jamie Bojko, Cefas, UK

DBI-10-STU Ultrastructural analysis of antennal gland in American lobster experimentally infected with White Spot Syndrome Virus - Louise-Marie Roux, Atlantic Veterinary College, University of Prince Edward Island, Canada

10:30-13:00

Agnès Sorel

Fungi Division

FU-1 A new species of *Moelleriella* (Clavicipitaceae, Ascomycota) based on morphological and molecular data from China - Xiuyan Wei, Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, College of Life Sciences, Fujian Agriculture and Forestry University, China

FU-2 A new xanthone derivative from a new isolate of the entomopathogenic fungus *Moelleriella* sp. - Xiangyun Zang, Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, College of Life Sciences, Fujian Agriculture and Forestry University, China

FU-3-STU Cancelled

FU-4 Characterization of an α -amylase from the honey bee chalk brood pathogen *Ascosphaera apis* - Lindan Yao, Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, College of Life Sciences, Fujian Agriculture and Forestry University, China

FU-5 Characterization of the pathogenicity of commercial or precommercial *Beauveria* sp. strains against the melon fly *Bactrocera cucurbitae* - Laurent Costet, CIRAD, Réunion, France

FU-6 Does *Agriotes obscurus* avoid the fungal entomopathogen, *Metarhizium brunneum*? - Alida Janmaat, University of the Fraser Valley, Canada

FU-7 Effect of temperature on germination, radial growth and spore production of different isolates of *Beauveria bassiana* - Medea Burjanadze, Agricultural University of Georgia, Georgia

FU-8-STU Effects of *Metarhizium anisopliae* (Hypocreales: Clavicipitaceae) on the food consumption and mortality of Mexican fruit fly, *Anastrepha ludens* (Diptera: Tephritidae) - Ricardo Toledo Hernández, El Colegio de la Frontera Sur

FU-9 Efficient production of *Aschersonia placenta* protoplasts for transformation using optimization algorithms - Zijian Gu, Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, College of Life Sciences, Fujian Agriculture and Forestry, China

FU-10-STU Entomopathogenic fungi to control simultaneously both *Myzus persicae* (Green peach aphid) and plant diseases - In Hui Kim, Department of Agricultural Biology, College of Agriculture, Life & Environment Science, Chungbuk National University, South Korea

FU-11-STU Evaluation of entomopathogenic fungi as the dual control agents against both *Tetranychus urticae* (Two-spotted spider mite) and plant pathogens - Dong Jun Kim, Department of Agricultural Biology, College of Agriculture, Life & Environment Science, Chungbuk National University, South Korea

FU-12 Genetic diversity of *Metarhizium* spp. in grass, wheat, and forest habitats - Juerg Enkerli, Institute for Sustainability Sciences Agroscope, Switzerland

FU-13 Genetic structure of *Beauveria bassiana* in different habitats of a holm oak tree - Maria Fernandez-Bravo, University of Córdoba, Spain

FU-14 Cancelled

FU-15 Laboratory And Field Bioassays With *Beauveria Bassiana* And *Metarhizium Anisopliae* Against Bark Beetles - Daniela Pilarska, New Bulgarian University, Bulgarian Academy of Sciences, Bulgaria

FU-16-STU Mealworm beetle - *Tenebrio Molitor* L as one of the best insect for isolation entomopathogenic fungi from soil - Ketevan Koridze, Agricultural University of Georgia, Georgia

FU-17 *Moelleriella fujianensis* sp. nov. (Clavicipitaceae, Ascomycota) from southeast China - Lili Dong, Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, College of Life Sciences, Fujian Agriculture and Forestry University, China

FU-18 Molecular characterization of indigenous *Beauveria bassiana* associated with coffee berry borers in Hawaii and assessments of their epizootic potential - Louela Castrillo, Cornell University, USA

FU-19 Natural occurrence of wireworms (Coleoptera: Elateridae) and entomopathogenic fungi in sunflower fields of Spain, and evaluation of their pathogenicity toward wireworms – Enrique Quesada Moraga, University of Cordoba, Spain

FU-20 Production of blastospores by Brazilian strains of four entomopathogenic fungi using submerged liquid culture fermentation - Vanessa Duarte, University of São Paulo, Brazil

FU-21 Secreted lipase as a molecular marker for *Beauveria bassiana* - Georgy Lednev, All-Russian Institute of Plant Protection, Russia

FU-21 Self-Defense: Insect pupal cells with antibiotic properties - David Shapiro-Ilan, USDA-ARS, USA

FU-23 The complete genome of *Metarhizium rileyi*, a key fungal pathogen of Lepidoptera - Daniel Sosa-Gomez, Brazilian Agricultural Research Corporation, Brazilian Agriculture Research Corporation

FU-24 Tradeoffs of immune system function with longevity as mediated by diet - Parvin Shahrestani, California State University, Fullerton

FU-25-STU Update of knowledge about *Leptolegnia chapmanii* as an agent of biological control of mosquito *Aedes aegypti* - Claudia Lopez Lastra, Centro de estudios parasitológicos y de vectores, Argentina

FU-26 Virulence of selected entomopathogenic fungi against the olive fruit fly and their potential for biocontrol - Melanie Tannieres, European Biological Control Laboratory, France

10:30-13:00

Agnès Sorel

Microbial Control Division

MC-1-STU Cancelled

MC-2 Aphicidal potential and virulence of *Lecanicillium* fungi from Argentina - Romina Manfrino, Centro de Estudios Parasitológicos y de Vectores, Argentina

MC-3 Biofilm fermentation for the production of insect pathogenic fungi - Thomas Bawin, Functional and Evolutionary Entomology, Gembloux Agro-Bio Tech, University of Liege, Belgium

MC-4 Biological control of *Tuta absoluta* (Meyrick) (Lep: Gelechiidae) by the use of entomopathogenic fungi - Fatma Acheuk, Université de Boumerdes, Algeria

MC-5 BioZec - Development of a biological tick control agent based on an innovative attract-and-kill strategy - Anant Patel, Bielefeld University of Applied Sciences, Germany

MC-6-STU Detection of natural antagonists in *Drosophila suzukii* – a chance for biological control of the invasive insect pest? - Sarah Biganski, Julius Kühn-Institut, Institute for Biological Control, Germany

MC-7 Can Endophytic *Beauveria* or *Metarhizium* Control the Wheat Stem Sawfly? - Stefan Jaronski, USDA-ARS, USA

MC-8-STU Development of nanoencapsulated, particle-based bait prepared with bioactive and biocompatible entomopathogenic agents for the control of leaf-cutting ants (*Atta* and *Acromyrmex* sp.) and its cultivated fungi (*Leucoagaricus gongylophorus*) as an eco-friendly alternative for sustainable agriculture. - Esteve A. Mesén-Porras, Centro de Investigación en Biología Celular y Molecular, Costa Rica

MC-9 Identification of new *Bacillus thuringiensis* (Berliner) isolates as biological control agents against *Ostrinia nubilalis* (Hübner) larvae - Isabel Matas Casado, Instituto de Agrobiotecnología CSIC-UPNA, Spain

MC-10 Impacts of entomopathogenic fungi on biology and behaviour of the invasive Brown Marmorated Stink Bug (Hemiptera, Pentatomidae) - Thomas Bawin, Functional and Evolutionary Entomology, Gembloux Agro-Bio Tech, University of Liege, Belgium

MC-11 Interaction of commercial products based on *Bacillus thuringiensis* and *Cotesia flavipes* (Hymenoptera: Braconidae) to the control of *Diatraea saccharalis* (Lepidoptera: Crambidae) - Caroline De Bortoli, Sao Paulo State University, Brazil

MC-12 Isolation and characterization of *Bacillus thuringiensis* strain from *Podisus nigrispinus* (Hemiptera: Pentatomidae) - Caroline De Bortoli, Sao Paulo State University, Brazil

MC-13 Isolation and identification of a *Serratia marcescens* protease with toxic activity against larvae of *Phyllophaga blanchardi* (Coleoptera: Scarabaeidae) - María Eugenia Nuñez-Valdez, Instituto de Investigación en Ciencias Básicas y Aplicadas, Universidad Autónoma del Estado de Morelos, Mexico

MC-14-STU Molecular identification and biological activity of African isolates of PhopGV on *Tuta absoluta* larvae - Saoussen Ben Tiba, Regional Center for Agriculture, Chott Meriem, Tunisia

MC-15 The use of auto-contamination-dissemination strategy for emerald ash borer (*Agilus planipennis*) population management and development of a molecular tool for tracking the released native *Beauveria bassiana* (Bb) isolate - George Kyei-Poku, Great Lakes Forestry Centre, Sault Ste Marie, Canada

MC-16 Using an Antarctic fungus as a wintertime biopesticide - Steven Edgington, CABI, UK

MC-17-STU Virulence of vegetative insecticidal proteins Vip3Aa60 and Vip3Ad5 of *Bacillus thuringiensis* against *Spodoptera exigua* (Lepidoptera). - Zhizhen Pan, Key Laboratory of Biopesticide and Chemical Biology, Fujian Agriculture and Forestry University, Ministry of Education, Fuzhou, China

MC-139 Characterization of a Colombian entomopathogenic virus isolated from the sugarcane borer *Diatraea* spp. (Crambidae) - Gloria Barrera¹, Carolina Ruiz¹, Juliana Gómez¹, Paula Esquinas², Laura Villamizar²; ¹Corporación Colombiana de Investigación Agropecuaria (Corpoica), Cundinamarca, Colombia; ²Universidad Nacional de Colombia, Colombia

10:30-13:00

Agnès Sorel

Microsporidia Division

MI-1 Experimental infection of *Loxostege sticticalis* (Lepidoptera: Pyraloidea) with microsporidia - Julia Malys, All-Russian Institute of Plant Protection, Russia

MI-2 Horizontal transmission of the microsporidium *Nosema adaliae*, from the two-spotted lady beetle, *Adalia bipunctata*, to the green lacewing, *Chrysoperla carnea* - Susan Bjornson, Department of Biology, Saint Mary's University, Canada

MI-3-STU The anti-*Nosema* active substances from entomopathogenic fungal cultures - See Nae Lee, Department of Agricultural Biology, College of Agriculture, Life & Environment Science, Chungbuk National University, South Korea

MI-4-STU The effects of RNAi to microsporidian parasites *Nosema ceranae* in the honeybee - Won Seok Gwak, Department of Agricultural Biology, College of Agriculture, Life & Environment Science, Chungbuk National University, South Korea

MI-5 The Proboscis Extension Response as a behavioral tool for assessing the vectorial competence along the life cycle of *R. prolixus* (Hemiptera: Reduviidae) - Nadine FRESQUET, Institut de Recherche sur la Biologie de l'Insecte, UMR CNRS 7261, France

10:30-13:00

Agnès Sorel

Nematode Division

NE-1-STU An entomopathogenic nematode extends its niche by associating with different symbionts - Mohamed Asayiah, Maynooth University, Ireland

NE-2 Biological control of large pine weevil with entomopathogenic nematodes: on the way to large scale application - Julien Chuche, Maynooth University, Ireland

NE-3 Concurrent Transcriptional Profiling Of *Dirofilaria immitis* And Its *Wolbachia* Endosymbiont Throughout The Nematode Life Cycle Reveals Coordinated Gene Expression - Barton Slatko, New England Biolabs, USA

NE-4 Cancelled

NE-5 FIM Track: a novel method for tracking of *Drosophila* larval behavior in response to entomopathogenic nematodes - Martin Kunc, Institute of Experimental Biology, Faculty of Science, Masaryk University, Czech Republic

NE-6 Heme Acquisition in the Human Parasitic Filarial Nematode, *Brugia malayi* - Barton Slatko, New England Biolabs, USA

NE-7 Historical review of entomopathogenic nematode research in Korea - Dong Woon Lee, Kyungpook National University

NE-8 *In vivo* efficacy of *Heterorhabditis bacteriophora* on *Cephalcia tannourinensis*, pest of the Cedar natural forests of Lebanon - Martine Rehayem, Université de Montpellier, France

NE-9 Molecular Diagnostics of Human Nematode and Protozoan Gastrointestinal Parasites in Rural Argentina, with Impact on Intestinal Microbiota - Barton Slatko, New England Biolabs, USA

NE-10 Optimizing the efficacy of entomopathogenic nematodes for the control of annual bluegrass weevil, *Listronotus maculicollis*, larvae - Albrecht Koppenhöfer, Department of Entomology, Rutgers University, USA

NE-11-STU Pheromone mediated attraction and maturation in *Steinernema* adults - Cathryn Hartley, Maynooth University, Ireland

NE-12 RNAi-mediated gene silencing of candidate drug targets in the filarial nematode *Brugia malayi* - Silvia Libro, New England Biolabs, USA

NE-13 Selective DNA Enrichment, High Quality Library Construction and Quantitation For Robust NextGeneration Sequencing - Barton Slatko, New England Biolabs, USA

NE-14-STU Soil as a Habitation of Biological Control Agents for Pest Management - Mariam Chubinishvili, Agricultural University of Georgia, Georgia

NE-15 Cancelled

NE-16 Survival time and infectivity of entomopathogenic nematodes with or without pre-conditioning formulated in alginate beads - Jaime Ruiz-Vega, Instituto Politecnico Nacional, CIIDIR-Oaxaca, Mexico

NE-17 Susceptibility of Mealy Plum Aphid, *Hyalopterus Pruni* (Homoptera:Aphididae), to entomopathogenic nematodes *Steinernema carpocapsae* and *Steinernema feltiae* (Rhabditida; Steinernematidae) under laboratory conditions - Nona Mikaia, Sokumi State University, Georgia

NE-18 Temperature effects on Korean isolated entomopathogenic nematode, *Steinernema kraussei* - Dong Woon Lee, Kyungpook National University, South Korea

10:30-13:00

Agnès Sorel

Virus Division

VI-1 A new virus from *Cotesia* parasitoid wasps fills a gap in the arthropod large dsDNA virus phylogeny - Annie Bézier, Institut de Recherche sur la Biologie de l'Insecte, UMR CNRS 7261, France

VI-2 A Shannon entropy-based method to predict the localization of transmembrane proteins (BV or ODV envelopes) in the *Baculoviridae* family - Mariano Belaich, Universidad Nacional de Quilmes, Argentina

VI-3 Adaptation of a Colombian *Spodoptera frugiperda* nucleopolyhedrovirus isolate to alternative host *Heliothis virescens* - Gloria Barrera, Corporación Colombiana de Investigación Agropecuaria, Columbia

VI-4 Analysis of protein expression from the baculovirus AcMNPV in the cell line BTI-TN-5B1-4 at different post-infection times - Cristina Del Rincón-Castro, University of Guanajuato, Mexico

VI-5 Baculovirus infection induces disassembly of nuclear lamina - Meijin Yuan, State Key Laboratory of Biocontrol, Sun Yat-sen University, China

VI-6-STU Baculovirus ODV occluded by polyhedra in different insect cell lines - Riyadh Abdulsahib Alakeely, Oxford Brookes University, UK

VI-7-STU Biochemical characterisation of the baculovirus per os infectivity complex - Bob Boogaard, Laboratory of Virology, Wageningen University, Netherlands

VI-8 Characterization of VP91 of *Helicoverpa armigera* nucleopolyhedrovirus - Fengqiao Zhou, State Key Laboratory of Virology and Joint Laboratory of Invertebrate Virology, Wuhan Institute of Virology, Chinese Academy of Sciences, China

VI-9 Co-infection by SeIV iflavivirus and *Spodoptera exigua* multiple nucleopolyhedrovirus (SeMNPV): effects on occlusion body structure and conformation - Rosa Murillo, Instituto de Agrobiotecnología CSIC-Gobierno de Navarra, Departamento de Produccion Agraria, Universidad Publica de Navarra, Spain

- VI-10-STU** Comparison of genome replication rates of fast-killing versus slow-killing SfAV isolates - Hiroki Ishii, Tokyo University of Agriculture and Technology, Japan
- VI-11** Development of a highly efficient recombinant system for *Anticarsia gemmatalis* multiple nucleopolyhedrovirus (AgMNPV) and findings about baculoviral replication in absence of the essential gene *orf1629* - M. Leticia Ferrelli, Instituto de Biotecnología y Biología Molecular, Argentina
- VI-12** Does AcMNPV loose its generalist potential when adapting to a specific host? - Yannis Moreau, Institut de Recherche sur la Biologie de l'Insecte, UMR CNRS 7261, France
- VI-13** Earthworm mediated dispersal of baculovirus occlusion bodies in soil - Trevor Williams, Instituto de Ecología AC, Mexico
- VI-14-STU** Genetic and biological characterisation of a novel alphabaculovirus for the microbial control of *Cryptophlebia peltastica* - Tamryn Marsberg, Department of Zoology and Entomology, South Africa
- VI-15** Genomic Analysis of Four *Plutella xylostella* Granulovirus Isolates - Robert Spence, Queensland University of Technology, Australia
- VI-16** Impact of single and multiple morphotypes on genome-wide selection in baculovirus - Fernando Melo, Universidade de Brasília, Brazil
- VI-17-STU** Improving Baculovirus Surface Display System - Mine Aksular, Oxford Brookes University, Oxford Expression Technologies, Pirbright Institute, UK
- VI-18** Insect immune system to determine baculoviruses host specificity - Yu Wei Chen, National Taiwan University, Taiwan
- VI-19-STU** Insecticidal activity of *Phthorimaea operculella* granulovirus isolates from Southern Europe on *Tuta absoluta* - Eduardo Aguirre, Departamento de Producción Agraria, Universidad Pública de Navarra, Instituto de Agrobiotecnología, Spain
- VI-20-STU** Insecticidal evaluation of a recombinant *Trichoplusia ni* granulovirus (TnGV) generated by biolistics - Juventino López-Tlacomulco, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Mexico
- VI-21-STU** Is ORF1629 essential or not for the replication of baculovirus? - See Nae Lee, Department of Agricultural Biology, College of Agriculture, Life & Environment Science, Chungbuk National University, South Korea
- VI-22-STU** Light at a fixed time period after infection is needed for *Spodoptera exigua* MNPV-induced tree-top disease - Yue Han, Wageningen University, Netherlands
- VI-23-STU** Morphological properties of the occlusion body of *Adoxophyes orana* granulovirus - Keiko Tsuruta, Tokyo University of Agriculture and Technology, Tokyo, Japan
- VI-24** New Polydnavirus genomes of *Microgaster* wasps - Philippe Gayral, Institut de Recherche sur la Biologie de l'Insecte, UMR CNRS 7261, France
- VI-25-ST** Novel *Cydia pomonella* granulovirus isolates break virus resistance in codling moth - Jiangbin Fan, Institute for Biological Control, Julius Kühn Institute, Darmstadt, Germany, Key Laboratory of Plant Protection Resources and Pest Management of Ministry of Education, Northwest A&F University, China
- VI-26** Nuclear translocation signal of AcMNPV ME53 influences overall virus production while the Zn finger is important for virus production early in infection - Peter Krell, University of Guelph, Canada
- VI-27-STU** Overview of bee viruses in wild hymenoptera - Diane Bigot, Institut de Recherche sur la Biologie de l'Insecte, UMR CNRS 7261, France
- VI-28** Polydnavirus-Encoded MicroRNA exerts different effects on the immune responses in *Spodoptera litura* (Fabricius) and *Snellenius manilae* (Ashmead) - Yueh-Lung Wu, Department of Entomology, National Taiwan University, Taiwan
- VI-29** Role of *lef-5* from SeMNPV in the stability of baculovirus in cell culture - Salvador Herrero, Estructura de Recerca Interdisciplinària en Biotecnologia i Biomedicina, Universitat de València, Spain
- VI-30-STU** *Spodoptera exigua* iflavivirus co-inoculation alters the insecticidal properties of *Spodoptera exigua* multiple nucleopolyhedrovirus (SeMNPV) occlusion bodies - Arkaitz Carballo, Departamento de Producción Agraria, Universidad Pública de Navarra, Instituto de Agrobiotecnología CSIC-Gobierno de Navarra, Spain
- VI-31** *Spodoptera frugiperda* granulovirus: genomic organization of an Argentinean isolate - María Leticia Ferrelli, Instituto de Biotecnología y Biología Molecular, Universidad Nacional de La Plata-CONICET, Argentina
- VI-32** ssRNA viruses discovery in the fresh water snail *Biomphalaria* sp, the intermediate host of intestinal Schistosomiasis - Richard Galinier, CNRS-IFREMER: UMR5244, Université de Perpignan Université de Montpellier, OMS/WHO, Perpignan, France
- VI-33-STU** Studies on the role of putative replication origins from the nucleopolyhedrovirus of *Anticarsia gemmatalis* using an in vitro coinfection method - Mariano Belaich, Universidad Nacional de Quilmes, Argentina
- VI-34** Survey for *Oryctes rhinoceros nudivirus* (OrNV) in a Hawaiian coconut rhinoceros beetle (*Oryctes rhinoceros*) population and genetic diversity of Pacific isolates of OrNV - Shizu Watanabe, University of Hawaii, USA
- VI-35** The *Autographa californica* multiple nucleopolyhedrovirus ac110 Gene Encodes a New Per Os Infectivity Factor - Wenbi Wu, Sun Yat-sen University, China
- VI-36** Cancelled
- VI-37** Cancelled
- VI-38** The profiling of six miRNAs encoded by AcMNPV - Jinwen Wang, Sun Yat-Sen University, China
- VI-39** Virome composition of *Apis mellifera* colonies infested with *Varroa destructor* - Nor Chejanovsky, Entomology Department, Inst Plant Protection, Agricultural Research Organization, Israel
- VI-40** Virus discovery and applications for the management of snail-vectored human disease - Bryony Bonning, Iowa State University, USA