CMPD5: The Fifth International Conference on Computational and Mathematical Population Dynamics: Minisymposium Proposal

MiniSymposium Title: ***Recent Advances in Epidemiological Modeling Arising from Human, Animal and Plant Communities***.

Mini-symposium organizers, names, affiliations and e-mails

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Brief synopsis of mini-symposium including justification of how the topic relates to population dynamics:

This minisymposium will present recent advances in understanding how populations of humans, animals and plants are affected and structured by their interactions with microparasitic or macroparasitic pathogens. The scientific communities working on plants, animals and human epidemiology are largely separated, while their computational and mathematical research shares common issues and strategies, such as the emergence of fungal diseases, coinfections of viral pathogens, vector control among others. Mathematically, there are common aspects to the models that are used and the resulting analysis and computation that is involved in understanding the behavior of the population described by the model. Thus, this minisymposium will create a unique opportunity for plant disease epidemiologists to exchange ideas and new research with animal and human disease epidemiologists. Bringing ideas from one community to the other is often a way to get new insight and make science move forward.

Confirmed speakers list with Titles (3 Blocks, 4 Speakers per Block: Total 12 speakers)

1. Block 1: Brady Bowen, Oregon State University, USA, "The effects of Density dependence of vectors on coinfection in a Vectored Plant Disease Model".

2. Block 1: Cherie Briggs, University of California, Santa Barbara, USA, "Models of fungal pathogen dynamics".

3. Block 1: Ludovic Mailleret, INRA Sophia-Antipolis, France, " A demo-genetic model of root-knot nematod dynamics with applications to optimal deployment of plant resistance".

4. Block 1: Vrushali Bokil, Oregon state university, USA, "Optimal Control of a Vectored Plant disease model for a crop with continuous replanting, Roguing and Insecticide Spray".

5. Block 2: Andrei Akhmetzanov, Hokkaido University, Japan, "Lassa fever incidence in humans and rodents: unified modelling framework of two populations".

6. Block 2: Blessing Emerenini, Oregon state university, USA, "Mathematical model and optimal control of the transmission dynamics of Avian Spirochaetosis".

7. Block 2: Youcef Mammeri, Université Picardie, France, "Spatially explicit models of fungal growing plant lesions".

8. Block 2: Carrie Manore, Los Alamos National Laboratory, USA, “Multi-drug resistant pathogens”.

9. Block 3: Ramses Djidjou Demasse, IRD Montpellier, France," Metastability property of a model for the evolution of a fungal pathogen".

10. Block 3: Ricardo Reyes Grimaldo, Oregon State University, USA, "An extended Ross-Macdonald model for Malaria incorporating vector demography".

11. Block 3: Frederic Grognard, Inria Sophia-Antipolis, France, "Taking advantage of pathogen diversity and plant immunity to minimize disease prevalence".

12. Block 3: Karen Garrett, University of Florida, USA, "Epidemic networks in crop seed systems".