MATHEMATICAL MODELS IN BIOLOGY AND RELATED APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS

CIMPA School

June 9 - 20, 2025

University of Havana, Cuba

Monday, June 9th

08:30–08:45 ***Registration***
08:45–09:00 ***Opening***
09:00–10:30 ***Emeric Bouin:*** *Transport phenomena in Mathematical Biology I*
10:30–11:00 ***Coffee Break***
11:00–12:30 ***Maria-José Cáceres:*** *Mathematical models in Neurobiology I*
12:30–14:00 ***Lunch break***
14:00–15:30 ***Frank Alvarez and Jorge Estrada:*** *Mathematical models in population dynamics: applications in agroecology I*
15:30–16:00 ***Coffee Break***
16:00–17:30 ***Open discussion / working groups***
17:30–17:45 ***CIMPA Photo in front of the Math Faculty***
18:00–19:30 ***Welcome Cocktail (Casa de la FEU, Esquina 27 y K)***

Tuesday, June 10th

09:00–10:30 ***Emeric Bouin:*** *Transport phenomena in Mathematical Biology II*
10:30–10:50 ***Coffee Break***
10:50–12:20 ***Maria-José Cáceres:*** *Mathematical models in Neurobiology II*
12:20–13:30 ***Lunch break***
13:30–14:15 ***Karina Garcia-Martinez:*** *How tumors dynamically evolve during interaction with T cells?: Implications for immunotherapies efficacy*
14:15–15:00 ***Florence Hubert:*** *Growth Fragmentations Models*
15:00–15:30 ***Coffee Break***
15:30–17:00 ***Students Presentations***

Wednesday, June 11th

09:00–10:30 ***Emeric Bouin:*** *Transport phenomena in Mathematical Biology III*

10:30–11:00 ***Coffee Break***

11:00–12:30 ***Frank Alvarez and Jorge Estrada:*** *Mathematical models in population dynamics: applications in agroecology II*

12:30–14:00 ***Lunch break***

14:00–15:30 ***Claudia Fonte:*** *(TD) Transport phenomena in Mathematical Biology*

15:30–16:00 ***Coffee Break***

16:00–17:30 ***Open discussion / working groups***

Thursday, June 12th

09:00–10:30 ***Maria-José Cáceres:*** *Mathematical models in Neurobiology III*

10:30–11:00 ***Coffee Break***

11:0–12:30 ***Frank Alvarez and Jorge Estrada:*** *Mathematical models in population dynamics: applications in agroecology III*

12:30–14:00 ***Lunch break***

14:00–14:45 ***Alejandro Lage Castellanos:*** *Inference of hidden processes in first waves of COVID in Cuba*

14:45–15:30 ***Ivan Moyano:*** *TBA*

15:30–16:00 ***Coffee Break***

16:00–17:30 ***Frank Alvarez and Jorge Estrada:*** *(TD) Mathematical models in population dynamics: applications in agroecology*

Friday, June 13th

09:00–10:30 ***Emeric Bouin:*** *Transport phenomena in Mathematical Biology IV*

10:30–11:00 ***Coffee Break***

11:00–12:30 ***Maria-José Cáceres:*** *Mathematical models in Neurobiology IV*

12:30–14:00 ***Lunch break***

14:00–15:30 ***Frank Alvarez and Jorge Estrada:*** *Mathematical models in population dynamics: applications in agroecology IV*

15:30–16:00 ***Coffee Break***

16:00–17:35 ***Claudia Fonte:*** *(TD) Mathematical models in Neurobiology*

Saturday, June 14th

06:00–18:00 ***Excursion***

Monday, June 16th

09:00–10:30 ***Diane Peurichard:*** *Simulation and numerical treatment of PDEs in Biology I*

10:30–11:00 ***Coffee Break***

11:00–12:30 ***Adrian Lam:*** *Reaction-diffusion equations in Mathematical Ecology I*

12:30–14:00 ***Lunch break***

14:00–14:45 ***Victoria Hernández Mederos:*** *Isogeometric approach to the study of focused ultrasound induced heating in biological tissues*

14:45–15:30 ***Stéphane Mischler:*** *Semigroup techniques and applications to evolution PDE*

15:30–16:00 ***Coffee Break***

16:00–17:30 ***Students Presentations:***

Loidel Barrera Rodríguez: *Solving Helmholtz equation for ultrasound propagation with Isogeometric analysis.*

Sofía Albizu-Campos Rodríguez: *An isogeometric approach to the solution of the one-dimensional Westervelt equation.*

Camilo Ernesto Medina González: *Heated Pathways: Examining the influence of temperature rise on leaf vein patterns.*

Tuesday, June 17th

09:00–10:30 ***Sophie Hecht:*** *Singular limits arising in mechanical models of tissue growth I*

10:30–11:00 ***Coffee Break***

11:00–12:30 ***Adrian Lam:*** *Reaction-diffusion equations in Mathematical Ecology II*

12:30–14:00 ***Lunch break***

14:00–14:45 ***Jérôme Coville:*** *A measure-valued stochastic model for vector-borne viruses*

14:45–15:10 ***Suzanne Touzeau:*** *Controlling burrowing nematodes in banana roots*

15:10–15:30 ***Damian Valdés:*** *Ciencias Matemáticas Journal: an opportunity to publish on Mathematics, Computer Science, Data Science and its Teaching*

15:30–16:00 ***Coffee Break***

16:00–17:30 ***Jorge Estrada:*** *(TD) Reaction-diffusion equations in Mathematical Ecology*

Wednesday, June 18th

09:00–10:30 ***Sophie Hecht:*** *Singular limits arising in mechanical models of tissue growth II*

10:30–11:00 ***Coffee Break***

11:00–12:30 ***Diane Peurichard:*** *Simulation and numerical treatment of PDEs in Biology II*

12:30–14:00 ***Lunch break***

14:00–14:45 ***Ariane Trescases:*** *A viscous multi-tissue model for vertebrate embryo growth*

14:45–15:30 ***Laura Kanzler:*** *Modelling the evolution of the size-distribution in aquatic ecosystems*

15:30–15:45 ***Coffee Break***

15:45–17:00 ***Students Presentations***

Thursday, June 19th

09:00–10:30 ***Sophie Hecht:*** *Singular limits arising in mechanical models of tissue growth III*

10:30–11:00 ***Coffee Break***

11:00–12:30 ***Diane Peurichard:*** *Simulation and numerical treatment of PDEs in Biology III*

12:30–14:00 ***Lunch break***

14:00–15:30 ***Adrian Lam:*** *Reaction-diffusion equations in Mathematical Ecology III*

15:30–16:00 ***Coffee Break***

16:00–17:30 ***Frank Alvarez:*** *(TD) Singular limits arising in mechanical models of tissue growth .*

Friday, June 20th

09:00–10:30 ***Sophie Hecht:*** *Singular limits arising in mechanical models of tissue growth IV*

10:30–11:00 ***Coffee Break***

11:00–12:30 ***Diane Peurichard:*** *Simulation and numerical treatment of PDEs in Biology IV*

12:30–14:00 ***Lunch break***

14:00–15:30 ***Adrian Lam:*** *Reaction-diffusion equations in Mathematical Ecology IV*

15:30–16:00 ***Coffee Break***

16:00–17:30 ***Frank Alvarez:*** *(TD) Simulation and numerical treatment of PDEs in Biology*