

Program CompSysBio2025 – 05-10/10/2025 – Aussois

Sunday October 5

16h-19h Arrival of the attendees

19h Diner

20h10 Welcoming – Daniel Jost (ENS de Lyon, FR) – Tribute to Daniel Kahn

20h15-21h35 Keynote conference by Paola Picotti (ETH Zurich) - *Decoding the protein dance*

Monday October 6

Chairman: Magali Richard

8h30-9h50: Lucia Marucci (Univ Bristol) - *Programming cells using feedback control and whole-cell modelling*

9h50-10h20 Coffee break

10h20-11h40: Laura Cantini (Institut Pasteur, Paris) - *Multi-modal learning for single-cell multi-omics integration*

11h40-12h00: Short Talk 1 – Wassila Khatir (INRIA, Univ Côte d’Azur) - *MCVAE-based multi-omic anomaly detection in Fragile X Syndrome*

12h15 Lunch

13h-16h00 Free afternoon

16h-16h30 Coffee & Goûter

16h30-18h30: Hands-on and blackboard session 1 (4 in parallel) : Hidde de Jong (INRIA Grenoble), François Nédelec (Cambridge Univ), Hugo Dourado (Univ Dusseldorf)/Diana Szeliova (Univ Vienna), Elias Ventre (INRIA Côte d’Azur)/Ulysse Erbach (INRIA Nancy)

19h Diner

Chairman: Fabien Dureau

20h30 Short Talk 2 - Nicolas Dray (CNRS, Pasteur Institute, Paris) - *From stem cell interactions to tissue homeostasis: a multiscale modelling approach*

20h50 Short Talk 3 – Vincent Demont (Univ Toulouse) - *Connecting identity and form during organ formation*

21h15-22h30 Session Poster 1

Tuesday October 7

Chairman: Antoine Frenoy

8h30-9h50: Kirsty Wan (Univ Exeter) - *Decoding microscale navigation through integrative biophysical modelling*

9h50-10h20 Coffee break

10h20-10h40: Short talk 4 – Tommaso Redaelli (ETH Zurich) - *From Pairwise to Community-Level Interactions: Insights from Engineered Bacterial Strains*

10h40-12h00: Elodie Laine (Sorbone Univ, Paris) - *From sparse static protein snapshots to continuous motions*

12h15 Lunch

13h-16h00 Free afternoon

16h-16h30 Coffee & Goûter

16h30-18h30: Hands-on and blackboard session 2 (4 in parallel): Hidde de Jong (INRIA Grenoble), François Nédelec (Cambridge Univ), Hugo Dourado (Univ Dusseldorf)/Diana Szeliova (Univ Vienna), Elias Ventre (INRIA Côte d'Azur)/Ulysse Erbach (INRIA Nancy)

19h Diner

Chairman: Fabien Duveau

20h30 Short Talk 5 – Merosh Ahmed (Université Libre de Bruxelles) - *Modelling KCa-dependent Ca^{2+} oscillations in glioma cells*

20h50 Short Talk 6 – Krishnadev Narayanankutty (University of the Basque Country, Bilbao) - *Metabolic coordination and phase transitions in spatially distributed multi-cellular systems*

21h15-22h30 Session Poster 2

Wednesday October 8

Chairman: Nelle Varoquaux

8h30-9h50: Steffen Klamt (Max Planck Institute, Magdeburg) - *Using mathematical modeling to understand and rationally engineer the microbial metabolism*

9h50-10h20 Coffee break

10h20-10h40: Short talk 7 – Chloé Weckel (INRIA, PSL Univ, Paris) - *Spatiotemporal modeling of signaling pathways: impact of endosomal compartmentalization and application to gonadotropin receptors*

10h40-12h00: Helen Alexander (Univ Edinburgh) - *Quantifying stochastic events in evolution*

12h15 Lunch

13h-16h00 Free afternoon

16h-16h30 Coffee & Goûter

16h30-18h30: Hands-on and blackboard session 3 (4 in parallel): Daniel Jost/Cédric Vaillant (ENS de Lyon), Magali Richard (Univ Grenoble-Alpes)/Franck Picard (ENS de Lyon), Didier Gonze (Univ Libre Bruxelles), Andrea Weisse (Univ Edinburgh)

19h Diner

Chairman: Daniel Jost

20h15 -21h35: Keynote conference by Mustafa Khammash - *Programming biology: from control theory to living therapeutics*

21h35 -22h30 Session Poster 3

Thursday October 9

Chairman: Delphine Ropers

8h30-9h50: Barbara Bravi (Imperial College, London) - *Machine learning models for immune protein interactions*

9h50-10h20 Coffee break

10h20-10h40: Short talk 8 – John Thampi (CNRS, ENS de Lyon) - *Quantitative analysis and modelling of temporal integration of auxin signalling in the Arabidopsis Shoot Apical Meristem*

10h40-12h00: Christoph Zechner (SISSA, Trieste) - *Exploiting molecular fluctuations to understand chromatin dynamics and transcription in single cells*

12h15 Lunch + 13h-16h00 Free afternoon or 12h15-16h00 Picnic + Hiking

16h-16h30 Coffee & Goûter

16h30-18h30: Hands-on and blackboard session 4 (4 in parallel): Daniel Jost/Cédric Vaillant (ENS de Lyon), Magali Richard (Univ Grenoble-Alpes)/Franck Picard (ENS de Lyon), Didier Gonze (Univ Libre Bruxelles), Andrea Weisse (Univ Edinburgh)

18h45: Aperitive

19h30: Gala diner

20h30: Party

Friday October 10

Chairman: Hidde de Jong

8h45-10h05: Jana Wolf (Max Delbruck Center, Berlin) - *Modeling signal transduction and gene expression in cancer: from information processing to patient specific models*

10h05-10h20 Coffee break

10h20-11h40: Olivier Hamant (ENS de Lyon) - *How to build a plant? Fluctuations!*

12h00 Lunch/Picnic

12h30: Departure of the first shuttle bus to Modane & Lyon St Ex