

Académie d'Excellence #2 Systèmes Complexes

COMPLEX DAYS

February 6 and 7, 2025

Sheraton Nice Airport



COMPLEX DAYS PROGRAM

Thursday February 6, 2025 - AM

8:30 - 9:30

Registration and welcome breakfast

9:30 - 9:40

Introduction to the complex Days

9:40 - 10:30

Keynote

Laurent Lefevre – Chercheur INRIA-ENS-LYON : *The environmental and social impact of digital technology: when AI contributes to the runaway...*

10:30 - 10:45

Flash presentations - 3 min

- **Jordy Queiros Campos - InPhyNi**: Fabrication and manipulation of ferrofluid microdroplets using microfluidic facilities and external magnetic fields
- **Mubasharah Omer - INRIA**: Efficient Field Extrapolation in Inverse Magnetization Problems
- **David Tinoco - INRIA**: Nearly optimal pulse control of quantum systems
- **Hiba Laghrissi - IBV**: Comprehensive Identification of Mechanisms Driving mRNA Sorting in Response to Environmental Stress

10:45 - 11:15

Coffee break

11:15 - 11:35

Flash presentations - 3min

- **Jean-Baptiste Coffin - ICN**: Combining AI and mass spectrometry to analyze odorant molecules
- **Hazel Olsen - InPhyNi**: Phase transition between dynamical localization and delocalization in the kicked Lieb-Liniger gas at strong coupling
- **Carelle Keyrouz – InPhyNi**: Fluids of light in disordered environments
- **Apoorav Singh Deo - InPhyNi**: Investigating multiple scattering for anti-bunching effect in 3D atomic cloud
- **Lou Boulant - InPhyNi**: Field-induced macroscopic flow of a dilute self-assembling magnetic colloid under rotating magnetic fields

11:35 - 12:05

Oral presentations – 15 min

- **Mederic Boquien - Lagrange**: Diving into galaxies in the era of the James Webb Space Telescope
- **Ivan Gerasimov - Lagrange**: Baryon life cycle: Insights at high spatial resolution.

COMPLEX DAYS PROGRAM

Thursday February 6, 2025 - PM

12:05 - 13:35

Lunch

13:35 - 14:45

Poster session N°1

14:45 - 15:45

Oral presentations – 15 min

- **Dipankar Roy - LJAD**: Universality in coupled stochastic Burgers systems with degenerate flux Jacobian
- **Kiran Kolluru - InPhyNi**: Regularity, chaos and intermittency in active turbulence
- **Hector Olivero – Univ. Valparaiso/INRIA**: Wright–Fisher kernels: from linear to non-linear dynamics, ergodicity and McKean–Vlasov scaling limits
- **Lucas Zanaglia - InPhyNi**: Spatio-temporal light thermalisation

15:45 - 16:15

Coffee break

16:15 - 17:15

Oral presentations – 15 min

- **Stephen Ramanoel - LAMHESS**: Neural correlates of visuo-cognitive mechanisms at stake during mobility and spatial navigation in young and older adulthood
- **Christian Veziel - GREDEG**: Trade on Hold: Measuring the Impact of Shipping Delays With a Gravity Approach
- **Elliott Hamounou - ICN**: Nature inspired solubilization of Caffeine and other methylxanthines: investigation of mechanism under a new way of solubilization
- **Veronika Khodyrieva - ICN**: Exploring Additive Migration from Polyethylene: Insights into Health and Environmental Impacts

COMPLEX DAYS PROGRAM

Friday February 7, 2025 - AM

8:30 - 9:30

Registration and welcome breakfast

9:30 - 10:30

Oral presentations – 15 min

- **Safaa Al-Ali** - **INRIA**: MC2VAE: Multi-Channel Causal Variational Autoencoder
- **Laetitia Girdali** - **INRIA**: Mathematical Modeling and Optimization for Micro-swimming
- **Alexandre Vigna-Brummer** - **InPhyNi**: Dynamic meniscus in contact with a vertical soap film
- **François-Xavier Gauci** - **InPhyNi**: Biomimetic leaf-on-chip to investigate xylem embolism in plants

10:30 - 10:50

Flash presentations - 3min

- **Jean-Marcel Nazon** - **InPhyNi**: Temporal dynamics in the Bragg reflection of light by cold atoms: flash effect and superradiant decay
- **Mateus Biscassi** - **InPhyNi**: Collective Rabi Oscillations in Saturated Atomic Clouds
- **Benjamin Bobel** - **INRIA**: The Role of the Sequestration Repression Motif in Circadian Oscillations and Synchronization
- **Sebastian Baudelet** - **INRIA**: Mathematical Analysis of an Apical Branching Model in Filamentous Fungi

10:50 - 11:15

Coffee break

11:15 - 11:35

Flash presentations - 3min

- **Lucas David** - **ICN**: Can the colors of flower petals be explained at the molecular level?
- **Pauline Mazel** - **INRIA**: Optimal control for a combination of cancer therapies in a model of cell competition
- **Floriane Pellerin** - **InPhyNi**: Femtosecond laser tuning of oxide nanoparticles in optical fibers
- **Javier Innerarity-Imizcoz** - **INRIA**: Optimal Bacterial Growth under Periodic Environment

11:35 - 12:05

Oral presentations – 15 min

- **Jana Bockova** - **ICN**: Could circularly polarized light in space pre-select the molecular handedness of life on Earth?
- **Jérémie Topin** - **ICN**: How chirality affects the sense of smell?

COMPLEX DAYS PROGRAM

Friday February 7, 2025 - PM

12:05 – 13:35

Lunch

13:35 – 14:45

Poster session N°2

14:45 – 15:00

Presentation of the Cellule Europe Mutualisée

15:00 – 15:45

Oral presentations – 15 min

- **Philipp Harting** - **GREDEG**: Navigating the Knowledge Landscape: AI-Driven Innovation and Market Dynamics in Competitive Industries
- **Patrizia Vignolo** - **InPhyNi**: Symmetry oscillations in strongly interacting one-dimensional mixtures
- **Wassila Khatir** - **INRIA**: Unveiling transcription-translation coupling abnormalities in Fragile X Syndrome: A multi-omics approach using machine learning

15:45 – 16:15

Coffee break

15:45 – 16:15: Private CS session for poster prizes

16:15 – 16:30

Awards ceremony and event closure