

Schedule

Conference on Emergent Phenomena in Quantum Systems and Beyond (QS2025)

March 31st- April 4th, 2025

Monday

9:45 - 10:30 Registration

10:30 - 11:00 Opening

11:00 - 12:00 | Morning Session 1 (Chair: Luis Foà Torres)

- 11:00 - 11:30: Liliana Arrachea (Centro Atómico Bariloche, Argentina) - *Topological properties of a two-dimensional superconductor heterostructure*
- 11:30 - 12:00: Andrey Bagrov (Radboud University, Nijmegen) - *Superconductivity of fractal structures*

12:00 - 13:45 | Lunch Break

13:45 - 15:05 | Afternoon Session 1 (Chair: Liliana Arrachea)

- 13:45 - 14:15: Roderich Moessner (MPI-PKS Dresden) - *Fractionalisation and fractals in spin ice*
- 14:15 - 14:45: Gerardo Ortiz (Indiana University, Bloomington) - *In Search of an Organizing Principle for Quantum Hall Systems*
- 14:45 - 15:05: Ihor Poboiko (KIT) - *Measurement-induced Transitions in Fermionic Systems*

15:05 - 15:45 | Coffee Break (40 min)

15:45 - 16:45 | Afternoon Session 2 (Chair: Hernán Calvo)

- 15:45 - 16:15: Vladimir Juričić (USM, Chile) - *Non-Hermitian Dirac Materials*
- 16:15 - 16:45: Vassos Achilleos (LAUM - UMR, CNRS) - *Title tba*

Tuesday

10:10 - 12:00 | Morning Session (Chair: Horacio Pastawski)

- 10:10 - 10:40: Felix von Oppen (FU Berlin) - *Theory of the quantum twisting microscope*
- 10:40 - 11:10: Eric Suárez Morell (USM, Chile) - *Electronic localization in rotated graphene layers*
- 11:10 - 11:30: Andrei Pavlov (KIT) - *Dynamic thermalization on noisy quantum hardware*
- 11:30 - 11:50: Matías Araya Satriani (Universidad de Chile) - *Daemonic quantum battery charged by thermalization*

12:00 - 13:45 | Lunch Break

13:45 - 15:15 | Afternoon Session 1 (Chair: Gerardo Ortiz)

- 13:45 - 14:15: Felipe Barra (UCHile) - *Thermalization via collisions*
- 14:15 - 14:45: Mikhail Kiselev (ICTP) - *Nanomechanics of Sliding Luttinger Liquids*
- 14:45 - 15:15: Rodrigo Soto Garrido (PUC, Chile) - *Axionic quantum criticality of generalized Weyl semimetals*

15:15 - 15:55 | Coffee Break (40 min)

15:55 - 16:55 | Afternoon Session 2 (Chair: Rodrigo Soto Garrido)

- 15:55 - 16:25: Felipe Herrera (USACH) - *Atomistic Decoherence of Molecular Spin Qubits*
- 16:25 - 16:55: Hernán Calvo (UNC, Argentina) - *Engineering Floquet interface states and scalable photocurrents*

Wednesday

10:10 - 12:00 | Morning Session (Chair: Igor Gornyi)

- 10:10 - 10:40: Alexander Mirlin (KIT) - *Scaling of many-body localization transitions: Fock-space and real-space quantum dynamics and spectral observables*
- 10:40 - 11:10: Horacio Pastawski (UNC, Argentina) - *The Role of Many-Body Induced Decoherence in the Emergence of Dynamical Quantum Phase Transitions*
- 11:10 - 11:30: Thibault Scoquart (IQMT - KIT) - *Noise tailoring and error mitigation for digital quantum simulations on NISQ devices*
- 11:30 - 11:50: Cristóbal Lledó (Institut Quantique, Université de Sherbrooke - Canada & FCFM, University of Chile) - *Ionization in circuit QED during measurement and gates*

12:00 - 13:45 | Lunch Break

13:45 - 17:00 | Afternoon Session and Poster Session (Chair: Felix von Oppen)

- 13:45 - 14:15: Diana Dulic (UCHile) - *Air-stable, aluminum oxide encapsulated graphene phototransistors*
- 14:15 - 14:45: Herre van der Zant (Kavli Institute of Nanoscience, The Netherlands) - *Quantum thermoelectric effects in single-molecule junctions*
- 14:45 - 17:00: Poster Session with Coffee/Tea (15:45 - 16:15)

19:30 - Social activity / dinner - to be confirmed

Thursday

10:10 - 12:00 | Morning Session (Chair: Alexander Mirlin)

- 10:10 - 10:40: Jörg Schmalian (KIT) - *Unconventional superconductivity from electronic dipole fluctuations*
- 10:40 - 11:10: Paula Mellado (UAI, Chile) - *Quantum fluctuations in the van der Waals material NiPS₃*
- 11:10 - 11:30: Piotr Surówka (Institute of Theoretical Physics, Wrocław, Poland) - *Non-equilibrium charge-vortex duality at finite temperature*
- 11:30 - 11:50: Davide Valentini (KIT) - *Interplay between quantum criticality, superconductivity, and magnetic fields in exactly solvable models for strange metals*

12:00 - 13:45 | Lunch Break

13:45 - 15:05 | Afternoon Session 1 (Chair: Mikhail Kiselev)

- 13:45 - 14:15: Thomas Schaefer (MPI-FKF, Stuttgart) - *Rise and Fall of the Pseudogap in the Emery model: Insights for Cuprates*
- 14:15 - 14:35: Athul Sivan Sambasivan Rema (Universidad de Santiago de Chile) - *Manipulating the light-matter coupling of a plasmonic nanosphere and a dipole emitter with laser fields*
- 14:35 - 15:05: Mikhail Titov (Radboud University, Nijmegen) - *Projected Kubo Formula and the Anomalous Hall Effect*

15:05 - 15:45 | Coffee Break (40 min)

15:45 - 16:45 | Afternoon Session 2 (Chair: Mikhail Titov)

- 15:45 - 16:15: Rodrigo Vicencio (UCHile) - *Inter-orbital photonic lattices*
- 16:15 - 16:45: Matías Berdakin (UNC, Argentina) - *Laser-induced spin field effect in topological insulators*

Friday

Note: Early finish today

10:10 - 12:30 | Final Session (Chair: Jörg Schmalian)

- 10:10 - 10:40: Giorgio Torrieri (UNICAMP, Brazil) - *Gibbsian hydrodynamics, the poor people's quantum gravity*
- 10:40 - 11:10: Dmitri Gutman (Bar-Ilan University, Israel) - *Stokes flow in the electronic fluid with odd viscosity*
- 11:10 - 11:25: *Final remarks*
- 11:25 - 12:25 Farewell Reception

Sponsoring Projects and Institutions



Hydrotronics EU-Project



DFI



Faculty of Physical and
Mathematical Sciences

