

Correlations and Dynamics in Low- Dimensional Quantum Systems

Argentinian-German WE-Heraeus-Seminar

**23 Mar - 29 Mar 2025
at the Gran Hotel Panamericano,
San Carlos de Bariloche, Argentina**

The WE-Heraeus Foundation supports research and education in science, especially in physics.
The Foundation is Germany's most important private institution funding physics.

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Sunday, March 23, 2025

17:00 – 21:00 Registration
20:00 *DINNER / Informal get together*

Monday, March 24, 2025

07:30 – 08:50	<i>BREAKFAST</i>	
08:15 – 08:50	Registration	
08:50 – 09:00	Scientific organizers	Opening and welcome
09:00 – 09:35	Roderich Moessner MPI-PKS Dresden	Lifting topological censorship : where the current flows in a Chern insulator
09:35 – 10:10	Alexander Mirlin KIT Karlsruhe	Measurement-induced phase transitions in fermionic systems
10:10 – 11:20	<i>COFFEE BREAK</i>	
11:20 – 11:55	Flavia Argentina Gomez Albarracín Natl. Univ. of La Plata	Topological phases in magnetic systems : models, simulations and machine learning
11:55 – 12:30	Stefan Jorda WEH Foundation	About the Wilhelm and Else Heraeus Foundation
12:30 – 14:00	LUNCH	
14:00 – 14:35	Alexander Altland Univ. of Cologne	Statistical field theory approach to quantum thermalization
14:35 – 15:00	Horacio Miguel Pastawski Natl. Univ. of Cordoba	The global out-of-time-order correlators as a signature of the ballistic scrambling of local information in a 3D crystal under Double Quantum Hamiltonian.

Program

Monday, March 24, 2025

15:00 – 16:00	Participants with poster	1 min. flash presentations (one slide)
16:00 – 19:30	<i>COFFEE BREAK</i> at 16:00 h Discussions group	
20:00	<i>DINNER</i>	

Program

Tuesday, March 25, 2025

07:30 – 09:00	<i>BREAKFAST</i>	
09:00 – 09:35	Bella Lake Helmholtz Center Berlin	Excitations of quantum spin chain antiferromagnets with Heisenberg-Ising anisotropy
09:35 – 10:10	Luis Manuel Natl. Univ. of Rosario	Fractionalized Excitations in Triangular Lattice Antiferromagnets
10:10 – 11:20	<i>COFFEE BREAK</i>	
11:20 – 11:55	Elena Gati MPI-CPFS Dresden	Elastocaloric effect of strain-tuned frustrated magnets
11:55 – 12:30	Santiago Grigera Natl. Univ. of La Plata	Topological transitions and hidden order in a frustrated magnet
12:30 – 14:00	<i>LUNCH</i>	
14:00 – 17:00	Poster Session <i>COFFEE BREAK</i> at 15:30 h	
17:00 – 17:35	Matthias Scheurer Univ. Stuttgart	Adatom-engineered and fractionalized altermagnetism
17:35 – 18:00	Thomas Schäfer MPI-FKF Stuttgart	Correlations and geometric frustration - a happy marriage?
18:00 – 18:25	Ignacio Hamad Natl. Univ. of Rosario	Singlet polaron theory of low-energy optical excitations in NiPS₃
18:25 – 18:50	Gustavo Pastor Univ. of Kassel	Tracking angular momentum flow during the laser-induced ultrafast demagnetization of ferromagnetic transition metals
20:00	<i>DINNER</i>	

Program

Wednesday, March 26, 2025

07:30 – 09:00	<i>BREAKFAST</i>	
09:00 – 09:35	Roser Valenti Univ. of Frankfurt	Designing flat bands, localized and itinerant states in van der Waals platforms
09:35 – 10:10	Bernd Buechner IFW-Dresden	Topological superconductivity in PtBi_2
10:10 – 11:20	<i>COFFEE BREAK</i>	
11:20 – 11:55	Yanina Fasano Centro Atómico Bariloche	Surface superconductivity in the topological Weyl semimetal t-PtBi_2
11:55 – 12:30	Jorge Facio Centro Atómico Bariloche	Obstructed Peierls instabilities and their relevance for the electronic topology of PtBi_2
12:30 – 14:00	<i>LUNCH</i>	
14:00	Excursion	

Program

Thursday, March 27, 2025

07:30 – 09:00	<i>BREAKFAST</i>	
09:00 – 09:35	Alejandro Lobos Univ. de Cuyo	A Large-N Approach to Magnetic Impurities in Superconductors
09:35 – 10:10	Organizers	Tools to foster German / Argentinian collaborations
10:10 – 11:20	<i>COFFEE BREAK</i>	
11:20 – 11:55	Christoph Strunk Univ. Regensburg	Inductance measurements as a versatile probe of spin-orbit effects in hybrid 2D-superconductors
11:55 – 12:30	Leandro Tosi Centro Atómico Bariloche	Hybrid Quantum Circuits based on two-dimensional Al/InAs heterostructures
12:30 – 14:00	<i>LUNCH</i>	
14:00 – 17:00	Poster session <i>COFFEE BREAK</i> at 15:30 h	
17:00 – 17:35	Frank Pollmann TU Munich	Probing Quantum Phases of Matter on Quantum Processors
17:35 – 18:10	María José Sánchez Centro Atómico Bariloche	Landau Zener Stückelberg Interferometry as a tool to control superconducting qubits
18:10 – 18:35	Alejandro Ferron Univ. Nacional d. Nordeste	Electric quantum control of on-surface spins using Landau-Zener-Stückelberg-Majorana interference
20:00	<i>DINNER</i>	

Program

Friday, March 28, 2025

07:30 – 09:00	<i>BREAKFAST</i>	
09:00 – 09:35	Igor Gornyi KIT-Karlsruhe	Steering and cooling of quantum systems.
09:35 – 10:10	Cecilia Cormick Univ. de la Rep. Uruguay / CONICET	Optomechanics with ions in an optical cavity
10:10 – 11:20	<i>COFFEE BREAK</i>	
11:20 – 11:55	Armando Aligia Centro Atómico Bariloche	Topological charge pumping in the interacting Rice-Mele model, theory and experiment (+ other collaborations)
11:55 – 12:30	Karen Hallberg Centro Atómico Bariloche	Physical properties of confined fermionic chains in a Wannier-Stark potential
12:30 – 14:00	<i>LUNCH</i>	
14:00 – 17:00	Discussion groups <i>COFFEE BREAK</i> at 15:30 h	
17:00 – 17:35	Gonzalo Usaj Centro Atómico Bariloche	The Streda Formula for Floquet Systems: Topological Invariants and Quantized Anomalies from Cesaro Summation
17:35 – 18:10	Felix von Oppen FU-Berlin	Random fields in the Floquet quantum Ising model
18:10 – 18:35	Scientific organizers	Poster prize and closing
20:00	<i>DINNER</i>	

End of seminar

Program

Saturday, March 29, 2025

07:30 – 09:00 *BREAKFAST*

09:00 **Departure**