

Chirality and Quantum Spin - a Critical Assessment

822. WE-Heraeus-Seminar

02 – 05 December 2024

at the Physikzentrum Bad Honnef, Germany

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Sunday, 01 December 2024

17:00 – 21:00 Registration

18:00 *BUFFET SUPPER and informal get together*

Monday, 02 December 2024

07:30 *BREAKFAST*

08:15 – 08:30 Scientific Organizers **Welcome**

08:30 – 09:15 David Waldeck **Experimental Investigations of Spin and Charge Transport in Chiral Materials**

09:15 – 10:00 Magalí Lingenfelder **How to Use Chiral or Magnetic Fields to Boost Clean Energy Processes**

10:00 – 10:45 Alexander Kuhn **Fine-Tuning ORR Activity at Chiral Imprinted Mesoporous Metal Surfaces**

10:45 – 11:30 *COFFEE BREAK*

11:30 – 12:15 Mathieu Gonidec **Functional Coordination Compounds and the CISS Effect**

12:15 – 13:00 Nicola Spaldin **Have We Learned Anything from Studying Chiral Phonons that Might Be Relevant for CISS?**

13:00 – 13:15 **Conference Photo (in front of the lecture hall)**

13:15 *LUNCH*

Program

Monday, 02 December 2024

14:30 – 15:15	Angela Wittmann	Chiral-induced Unidirectional Spin-to-charge Conversion
15:15 – 16:00	Michael Thoss	Influence of Electronic-vibrational Coupling on Spin-selectivity in Chiral Molecular Junctions
16:00 – 16:45	Bart van Wees	Mechanism for Electrostatically Generated Magnetoresistance in Chiral Systems without Spin-Dependent Transport
16:45 – 17:30	<i>COFFEE BREAK</i>	
17:30 – 18:15	Jacopo Simoni	Ab Initio Spin Dynamics and Decoherence in Solids
18:15 – 19:00	Shinji Miwa	Microscopic Origin of Magnetoresistance in Chiral Molecule/Ferromagnet Junctions
19:00	<i>DINNER</i>	
20:30	Poster Flash Presentations	

Program

Tuesday, 03 December 2024

07:30	<i>BREAKFAST</i>	
08:30 – 09:15	Daniel Bürgler	Enantioselective Adsorption and Spin-selective Electron Transport of Discrete Helicenes on Cobalt
09:15 – 10:00	Katharina Franke	Wave-function Engineering on Superconducting Substrates: Chiral Yu-Shiba-Rusinov Molecules
10:00 – 10:45	Christoph Tegenkamp	The Mechanism of the Molecular CISS Effect in Chiral Nanojunctions
10:45 – 11:30	<i>COFFEE BREAK</i>	
11:30 – 12:15	Latha Venkataraman	Electronic Transport Across Chiral Molecules
12:15 – 13:00	Thomas Fay	A Molecular Perspective on the CISS Effect
13:00	<i>LUNCH</i>	
14:30 – 15:15	John Abendroth	Magnetic Field Effects and Spin-Correlated Radical Pairs in Chiral Donor-Bridge-Acceptor Molecules
15:15 – 15:35	Tatsuhiko Ohto	First-principles Study on the Electron-vibration and Spin-phonon Couplings of Chiral Molecules
15:35 – 15:55	Jakob Staab	Ab Initio Modelling of Chirality Induced Spin Selectivity
15:55 – 16:05	Video WE Heraeus Foundation	
16:05 – 16:30	<i>COFFEE BREAK</i>	
16:30 – 19:00	Poster Session	
19:00	<i>DINNER</i>	

Program

Wednesday, 04 December 2024

07:30	<i>BREAKFAST</i>	
08:30 – 09:15	Helmut Zacharias	The Spin of Photoelectrons from Monolayers of Helical Molecules
09:15 – 10:00	Yossi Paltiel	Chiral Spintronics Using Chiral - Chiral Interactions
10:00 – 10:45	Jaemin Lim	Analyzing CISS Mechanisms through Spin-Dependent Dispersion Relations
10:45 – 11:30	<i>COFFEE BREAK</i>	
11:30 – 12:15	Yonatan Dubi	Surface Magnetic Stabilization and the Photo-emission Chiral-induced Spin-selectivity Effect
12:15 – 13:00	Joseph Subotnik	Momentum Conservation and Phase Space Approaches to Electronic Structure
13:00	<i>LUNCH</i>	
14:30	Excursion	
18:30	<i>HERAEUS DINNER</i> (social event with cold & warm buffet with complimentary drinks)	

Program

Thursday, 05 December 2024

07:30	<i>BREAKFAST</i>	
08:30 – 09:15	Ron Naaman	CISS - More Surprises to Come
09:15 – 10:00	Jeanne Crassous	Helicene Derivatives for Potential Optoelectronic and Spintronic Applications
10:00 – 10:45	Abraham Nitzan	Chirality of Molecular Vibrations and Its Dynamical Implications
10:45 – 11:30	<i>COFFEE BREAK</i>	
11:30 – 12:15	Poster Prizes	
12:15 – 13:00	Concluding Remarks	
13:00	<i>LUNCH</i>	

End of the seminar and departure

For participants leaving on Friday a self-service breakfast will be provided on Friday morning.