

Towards Functional van der Waals magnets by Unlocking Synergies with Orbitronics, Magnonics, Altermagnetism, and Optics

803. WE-Heraeus-Seminar

**02 - 05 January 2024
at the**

Physikzentrum, Bad Honnef, Germany

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Tuesday, 2 January 2024

17:00 – 21:00	Registration	
From 18:00	<i>BUFFET SUPPER</i>	
19:30 – 19:45	Scientific organizers	Opening and Welcome
19:45 – 20:30	Je-Geun Park	Birth and future of van der Waals magnetism

Wednesday, 3 January 2024

08:00 – 09:00	<i>BREAKFAST</i>	
09:00 – 09:45	Hidekazu Kurebayashi	Spin dynamics of $\text{Cr}_2\text{Ge}_2\text{Te}_6$ probed by superconducting resonators and spin-orbit torques in electrostatically gated $\text{Cr}_2\text{Ge}_2\text{Te}_6$
09:45 – 10:30	Anna Delin	Magnetism and spin dynamics in low-dimensional materials
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Amilcar Bedoya-Pinto	Realization of easy-plane magnetism in a van der Waals monolayer
11:45 – 12:00	Jonah Elias Nitschke	Unveiling transient dynamics of d-d excitations in the van der Waals antiferromagnet FePS3 via time-resolved ARPES
12:00 – 12:15	Elina Zhakina	Curvilinear superconducting vortices in three-dimensional nanoarchitectures
12:20	<i>Conference Photo</i>	
12:30	<i>LUNCH</i>	

Program

Wednesday, 3 January 2024

13:45 – 14:30	Sayantika Bhowal	Electrical control of the orbital degrees of freedom in van der Waals materials
14:30 – 15:15	Claire Donnelly	Mapping and controlling three dimensional spin textures
15:15 – 16:00	<i>COFFEE BREAK</i>	
16:00 – 16:45	Dmytro Afanasief	Shining light on van der Waals antiferromagnets
16:45 – 17:30	Eva Schmoranzero	Effect of Beam Shift on Helicity Dependent Photoresistance Measurement
17:30 – 18:15	Timo Kuschel	Cubic magneto-optic Kerr effect in Ni thin films
18:15	<i>HERAEUS DINNER (social event with cold & warm buffet and complimentary drinks)</i>	
19:30	Posters	

Program

Thursday, 4 January 2024

08:00 – 09:00	<i>BREAKFAST</i>	
09:00 – 09:45	Tomas Jungwirth	Altermagnetism: The third magnetic class
09:45 – 10:30	Dominik Kriegner	Altermagnetic properties of MnTe thin films
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Jeroen van den Brink	Domain wall properties, fluctuation induced piezomagnetism and anomalous hall effects in altermagnets — models and materials
11:45 – 12:00	Rhea Hoyer	Zero-Field Crystal Thermal Hall Effect in Insulating Altermagnets
12:00 – 12:15	Lishu Zhang	Van der Waals Spin-Orbit Torque Antiferromagnetic Memory
12:30	<i>LUNCH</i>	
13:45 – 15:15	Posters, Discussions	
15:15 – 16:00	<i>COFFEE BREAK</i>	
16:00 – 16:45	Silvia Viola Kusminskiy	Light-Matter Interaction in Antiferromagnets: probing and controlling antiferromagnetic magnons
16:45 – 17:30	Yixi Su	Topological magnons in van der Waals ferromagnets CrXTe₃ (X = Si, Ge)
17:30 – 18:15	Antonio Costa	Theory of spin excitations in van der Waals heterostructures
18:15	<i>DINNER</i>	
19:30 – 19:45	Poster Awards	
19:45 – 20:30	Ursula Wurstbauer	Strong exciton-phonon coupling in 2D magnetic semiconductor CrSBr

Program

Friday, 5 January 2024

08:00 – 09:00 *BREAKFAST*

09:00 – 09:45 Dongwook Go **On the reciprocity between direct and inverse orbital Hall effects**

09:45 – 10:30 Mathias Kläui **Topological Spin Structures and Spin-Orbitronics in ferromagnets and antiferromagnets: from van der Waals 2D systems to multilayer heterostructures**

10:30 – 11:00 *COFFEE BREAK*

11:00 – 11:45 Annika Johansson **Spin and orbital Edelstein effects in topological oxides and Rashba multilayers**

11:45 – 12:30 Pietro Gambardella **Orbital torques and magnetoresistance in metallic heterostructures**

12:30 – 13:45 *LUNCH*

End of the seminar and departure