

# Engineered Quantum Materials

US-German WE-Heraeus-Seminar

07 – 11 January 2024

at the Physikzentrum Bad Honnef, Germany

**WILHELM UND ELSE  
HERAEUS-STIFTUNG**



# Program

**Sunday, 07 January 2024**

17:00 – 20:00 Registration

18:00 *BUFFET SUPPER and informal get-together*

**Monday, 08 January 2024**

08:00 *BREAKFAST*

09:00 Scientific organizers **Welcome words**

09:15 – 10:00 B. Andrei Bernevig **Flat bands in kagome materials, laves phases, and heavy fermion compounds**

10:00– 10:45 Eva Andrei **Moiré Crystals and Quasicrystals in Heterostructures of Twisted Bilayer Graphene and hBN**

10:45 – 11:15 *COFFEE BREAK*

11:15 – 12:00 Titus Neupert **Realizing higher-order topology**

12:00 – 12:15 **Conference Photo** (in the front of the lecture hall)

12:15 *LUNCH*

# Program

Monday, 08 January 2024

14:15 – 15:00	Claudia Felser	<b>Chirality and topology</b>
15:00 – 15:45	Harold Hwang	<b>Topochemical transformations of transition metal oxides</b>
15:45 – 16:30	Ron Naaman	<b>Why it is so difficult to model the CISS effect?</b>
16:30 – 17:00	<i>COFFEE BREAK</i>	
17:00 – 17:45	<b>Poster flash talks I</b>	
17:45 – 18:00	Stefan Jorda	<b>About the Wilhelm and Else Heraeus-Foundation</b>
18:00	<i>DINNER</i>	

# Program

Tuesday, 09 January 2024

08:00            *BREAKFAST*

09:00 – 09:45    Christian Pfleiderer    **Mesoscale quantum textures**

09:45 – 10:30    Judy Cha                **1D topological systems for next-generation electronics**

10:30 – 11:00    *COFFEE BREAK*

11:00 – 11:45    Thomas Heine          **Magnetic Carbon**

11:45 – 12:30    Ingrid Mertig          **Origin of orbital hall effect in static and ultrafast regime**

12:30            *LUNCH*

# Program

Tuesday, 09 January 2024

13:45 – 14:30	Chang-Beom Eom	<b>Electronic-grade epitaxial (111) <math>\text{KTaO}_3</math> heterostructures</b>
14:30 – 15:15	Emilia Morosan	<b>Real- and reciprocal-space topology in the square net series <math>\text{Eu}(\text{Ga}_{1-x}\text{Al}_x)_4</math></b>
15:15– 16:00	Dmitri Efetov	<b>tba</b>
16:00 – 16:30	<i>COFFEE BREAK</i>	
16:30 – 17:15	<b>Poster flash talks II</b>	
17:15 – 18:00	Jairo Sinova	<b>Unconventional magnetism in spintronics: The emergence of altermagnetism and its new variants</b>
18:00	<i>DINNER</i>	
19:00	<b>Postersession</b>	

# Program

Wednesday, 10 January 2024

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Katharina Franke	<b>Diode effect in Josephson junctions with a single magnetic atom</b>
09:45 – 10:30	Silke Paschen	<b>Designing strongly correlated topological semimetals</b>
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Joseph Checkelsky	<b>Natural superlattice design of modulated superconductors</b>
11:45 – 12:30	Felix Lüpke	<b>Engineered quantum states in assembled van der Waals heterostructures studied by scanning tunneling microscopy</b>
12:30	<i>LUNCH</i>	
13:45 – 14:30	Pablo Jarillo-Herrero	<b>Next generation Moiré quantum matter</b>
14:30 – 15:15	Leslie Schoop	<b>From structure to bonds to properties</b>
15:15 – 16:00	Hengxin Tan	<b>Charge density waves in emergent Kagome metals</b>
16:00 – 16:30	<i>COFFEE BREAK</i>	
16:30 – 17:15	Vidya Madhavan	<b>Optical and magnetic field manipulation of the charge density wave in <math>\text{RbV}_3\text{Sb}_5</math></b>
17:15 – 19:00	<b>Postersession</b>	
19:15	<i>HERAEUS DINNER</i> (social event with cold & warm buffet with complimentary drinks)	

# Program

Thursday, 11 January 2024

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Satoru Nakatsuji	<b>Manipulation of Weyl semimetallic states in the chiral antiferromagnet Mn<sub>3</sub>Sn</b>
09:45 – 10:30	Judy Mundy	<b>Antiferromagnetic metal phase in an electron-doped rare-earth nickelate</b>
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Sang-Wook Cheong	<b>Chirality and Kinetomagnetism</b>
11:45 – 12:15	Scientific organizers	<b>Poster award and closing remarks and next workshop</b>
12:15	<i>LUNCH</i>	

**End of the seminar and departure**

*NO DINNER for participants leaving on Friday; however, a self-service breakfast will be provided on Friday morning*