

Program

Monday, 05 February

- 08:00 - 16:30 registration in house 4
- 09:15 - 09:30 Opening - Roderich Moessner, director of the MPIPKS & scientific coordinators
- 09:30 - 10:30 **Long Ju** (Massachusetts Institute of Technology)
Fractional quantum anomalous Hall effect in graphene
- 10:30 - 11:00 **Tingxin Li** (Shanghai Jiao Tong University)
Integer and fractional quantum anomalous Hall effects in 2D semiconductor moiré superlattices
- 11:00 - 11:30 coffee break
- 11:30 - 12:00 **Emil Bergholtz** (Stockholm University)
Fractional Chern insulators and their competitors
- 12:00 - 12:30 **Trithep Devakul** (Stanford University)
Designer topological bands from an electrostatic superlattice
- 12:30 - 13:30 lunch
- 13:30 - 14:00 discussion
- 14:00 - 14:30 **Yonglong Xie** (Rice University)
Fractional Chern insulators and symmetry breaking in twisted graphene

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- 14:30 - 15:00 **Nicolas Regnault**
(École Normale Supérieure de Paris)
Moiré fractional Chern insulators
- 15:00 - 15:30 **Fengcheng Wu** (Wuhan University)
Interaction-driven topological phase diagram of
twisted bilayer $MoTe_2$
- 15:30 - 16:00 **Kai Sun** (University of Michigan)
Topological exact flat bands beyond K-valley
- 16:00 - 16:30 coffee break
- 16:30 - 17:30 **fqah24 colloquium**
Xiaodong Xu (University of Washington)
Observation of fractional quantum anomalous Hall
effect
- 17:30 - 18:30 poster session (focus on odd poster numbers)
- 18:30 - 19:30 welcome dinner
- 19:30 discussion

Tuesday, 06 February

- 09:30 - 10:00 **Bogdan A. Bernevig** (Princeton University)
Moiré Chern insulators and moiré fractional Chern insulators
- 10:00 - 10:30 **Wang Yao** (The University of Hong Kong)
QAH effects and non-contact probe of topological transition in magnetic insulating phases of $tMoTe_2$
- 10:30 - 11:00 **Dmitry Kovrizhin** (Université de Cergy-Pontoise)
to be announced
- 11:00 - 11:30 group photo (to be published on the event website) & coffee break
- 11:30 - 12:00 **Di Xiao** (University of Washington)
Topological phases in twisted $MoTe_2$
- 12:00 - 12:30 **Jeil Jung** (University of Seoul)
Layer pseudospin magnetism and electric field induced anomalous Hall effects in rhombohedral multilayer graphene
- 12:30 - 13:30 lunch
- 13:30 - 14:00 discussion
- 14:00 - 14:30 **Rui-Rui Du** (Peking University)
Bosonic Laughlin state in a moat band without magnetic field
- 14:30 - 15:00 **Jun Zhu** (The Pennsylvania State University)
Quantized quantum valley Hall effect at zero magnetic field

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- 15:00 - 15:30 **Mark Oliver Goerbig** (Université Paris-Sud)
SU(4) spin-valley skyrmions in graphene Landau levels
- 15:30 - 16:00 coffee break
- 16:00 - 16:30 **Nathan Goldman** (Université Libre de Bruxelles
& Laboratoire Kastler Brossel, Collège de France, Paris)
Strongly-correlated topological matter with quantum gases
- 16:30 - 17:00 **Jan Carl Budich** (Technische Universität Dresden
& MPIPES Dresden)
Computational representation and dynamical preparation of chiral topological states
- 17:00 - 17:30 **Maria Daghofer** (Universität Stuttgart)
Interplay of fractional Chern insulators and charge density waves
- 17:30 - 18:00 discussion
- 18:00 - 19:00 dinner
- 19:00 - 20:00 poster session (focus on even poster numbers)

Wednesday, 07 February

- 09:30 - 10:00 **Sankar Das Sarma** (University of Maryland)
Analyzing QAHE experiments in the context of QHE
- 10:00 - 10:30 **Andreas Läuchli** (PSI & EPFL)
Competition between FCI and symmetry breaking phases
- 10:30 - 11:00 **Steven H. Simon** (Oxford University)
Kekule spirals in twisted graphene
- 11:00 - 11:30 coffee break
- 11:30 - 12:00 **Oskar Vafek**
(National High Magnetic Field Laboratory)
Correlated states of twisted $MoTe_2$ and their response to external out-of-plane magnetic field
- 12:00 - 12:30 **Inti Sodemann Villadiego** (Universität Leipzig)
Excitonic Laughlin states in ideal topological insulator flat bands and possible presence in moiré superlattice materials
- 12:30 - 13:30 lunch
- 13:30 - 14:00 discussion
- 14:00 - 14:30 **Kenke Xu** (University of California, Santa Barbara)
The conjugate composite Fermi liquid
- 14:30 - 15:00 **Ady Stern** (Weizmann Institute of Science)
Electrons and composite fermions in the half-filled Chern band

Program

- 15:00 - 15:30 **Jie Wang** (Temple University)
Exact fractional Chern insulators in ideal flatbands
- 15:30 - 16:00 coffee break
- 15:40 leaving for the guided tour through
the Old Masters' Picture Gallery
- 16:15 - 18:00 guided tour through the Old Masters' Picture Gallery
- 18:30 workshop dinner at the restaurant 'Anna im Schloss'
Schlossstr. 27, 01067 Dresden
phone: +49-351-79511535

Thursday, 08 February

- 10:00 - 10:30 **Jianpeng Liu** (ShanghaiTech University)
Theory of fractional Chern insulator states in
pentalayer graphene moiré superlattice
- 10:30 - 11:00 **Ting Cao** (University of Washington)
New theoretical insights into moiré solids from
machine learning
- 11:00 - 11:30 coffee break
- 11:30 - 12:00 **Shi-Zeng Lin** (Los Alamos National Laboratory)
Conditions for realizing fractional Chern insulator
in moiré superlattice
- 12:00 - 12:10 closing remarks
- 12:10 - 13:40 lunch
- 13:40 discussion