



Physics Colloquium

Tuesday, 18 April 2023 at 16:30

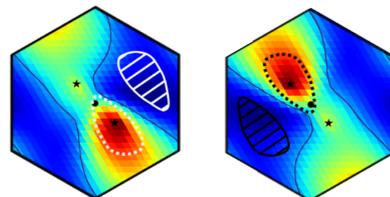
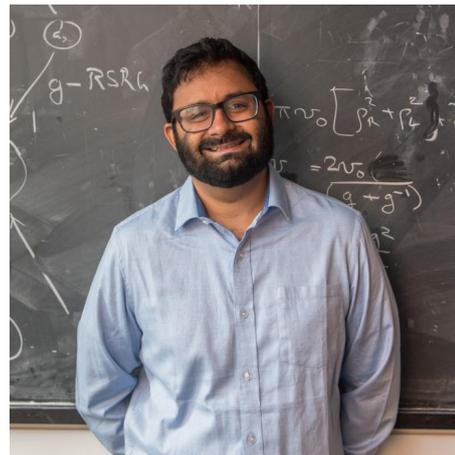
Prof. Dr. Siddharth Parameswaran

University of Oxford

Moiré is Different: New Twists in the Tale of Strong Correlations

The ability to isolate individual atomically thin layers and engineer them into heterostructures held together by van der Waals forces have ushered in a new era of two-dimensional materials. Activity in the field has been spurred greatly by the discovery of gate-tunable superconductivity in few-layer moiré heterostructures of graphene twisted to a “magic angle” of approximately 1 degree.

In this colloquium, I will explain how graphene and other moiré materials are driving us to revisit and update our understanding of the interplay of topology, superconductivity, and electron correlations in low dimensions. I will give an illustrative example of a new phase of matter intrinsic to the moiré setting, termed the “Kekulé spiral” [1,2], that has been recently observed in high-resolution scanning tunnelling microscopy experiments on moiré graphene bilayers [3] and trilayers [4].



[1] Y.H. Kwan, G. Wagner, T. Soejima, M.P. Zaletel, S.H. Simon, S.A.P., and N. Bultinck, PRX 11, 041063 (2021).

[2] G. Wagner, Y.H. Kwan, S.H. Simon, N. Bultinck, and S.A.P., Phys. Rev. Lett. 128, 156401 (2022).

[3] K.P. Nuckolls et al., arXiv:2303.00024

[4] H. Kim et al., to appear.

Venue: Universität Leipzig, Faculty of Physics and Earth Sciences

04103 Leipzig, Linnéstraße 5, **Change of room: Small Lecture Hall**

Everyone invited to a **reception at 17:30 with snacks and drinks** in the Aula after the lecture

For an up-to-date semester program, sign-up for the physics colloquium mailing list, and subscription to the digital calendars in CalDAV format, head to the colloquiums web page www.physgeo.uni-leipzig.de/events.

