Max-Planck-Institut für Struktur und Dynamik der Materie

Max Planck Institute for the Structure and Dynamics of Matter

Friday, Oct 22nd 2021 - 11:00

Hybrid: SR I, II, III and Zoom

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Revisiting the Mott transition with new materials: from an old problem to new physics

The Mott transition, the localization of electrons by Coulomb forces, as simple as it may seem, is one of the most intriguing problems in strong correlation physics. Whether a continuous Mott transition from a non-magnetic Mott insulator to a Landau Fermi liquid is possible remains as an open question. Such a transition, if possible, has been theorized as a route to realize exotic quantum spin liquids. In this talk, I will first review the history and the basic concepts of the Mott transition. I will then discuss the realization of the continuous Mott transition in semiconductor moiré materials and the electronic and magnetic properties near the transition. I will end with a brief outlook on the future opportunities and challenges in studying the Mott transition with moiré materials.

Host: Angel Rubio, Andrea Cavalleri

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