INSIGHT SEMINAR: Kinetic magnetism in semiconductor moire materials

ATAC IMAMOGLU

November 09, 2023
15:00 to 16:00
Seminar Room

Moire superlattices in two dimensional semiconductors have enabled the observation of a wealth of phenomena driven by strong electronic correlations, ranging from Mott-Wigner states to fractional Chern insulators. In this talk, I will describe magnetic properties of van der Waals heterostructures forming a frustrated triangular lattice in the vicinity of Mott-insulator states of electrons. By directly measuring electronic magnetization through the strength of the polarization-selective attractive polaron resonances, we find that when the Mott state is electron doped, the system exhibits ferromagnetic correlations in agreement with Nagaoka model. Our observations, which are in agreement with DMRG calculations, provide a direct evidence for itinerant magnetism with a kinetic origin.

Hosted by: Prof. Dr. Maciej Lewenstein