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Kinetic magnetism in triangular lattices

Wednesday 7 January 2026 09:05 (35 minutes)

This talk will review kinetic magnetism in the Fermi Hubbard model in triangular lattices. Focus will be on the regime of strong interactions, $t << U$. In such systems for densities close to $n = 1$ dominant magnetic interactions arise from magnetic polaron dressing of charge carrier propagating in a spin incoherent Mott insulator. In the case of hole doping, antiferromagnetic polarons originate from kinetic frustration of individual holes in a triangular lattice. In the case electron doping, Nagaoka type ferromagnetic correlations are induced by propagating doublons. I will discuss how this mechanism explains some of the surprising magnetic phenomena observed in moire systems of transition metal dichalcogenides. I will also review recent experimental studies of this phenomena in experiments with quantum gas microscopes and Rydberg atom arrays.

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