

Kinetic magnetism of fermions in triangular lattices

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Abstract

This talk will review kinetic magnetism for the Fermi-Hubbard models in triangular type lattices. I will show that in the regime of strong local repulsion between fermions, magnetic interactions arise from propagation of charge carriers in the Mott insulating state. In the case of hole doping, antiferromagnetic polarons originate from kinetic frustration of individual holes in a triangular lattice. In the case of electron doping, Nagaoka type ferromagnetic correlations are induced by propagating doublons. I will discuss applications of these results to both TMDC moire materials and ultracold atoms in optical lattices.