

Abstract Submitted
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Charge and magnetic order in the triangular lattice Hubbard model at one-third filling¹ MATTHEW ENJALRAN, Southern CT State University — Experimental work over the last decade on layered triangular lattice materials with itinerant electrons has increased the motivation to study these systems theoretically. As in insulating magnets, frustration in itinerant systems enriches the phase diagram of the material. In a class of organic charge transfer salts and sodium cobalt oxide spin liquid, superconducting, charged ordered, and magnetically ordered phases have been observed. With the kinetic energy of electrons, a Hubbard type model on a triangular lattice is an appropriate starting point to study much of the correlated physics of these systems. We consider a single band Hubbard model on a triangular lattice with variable electron filling and anisotropic hopping. Within mean-field theory we observe a transition at one-third filling on the isotropic lattice to a charge ordered antiferromagnet on a honeycomb sublattice at a critical interaction $U_c/t = 5.0$. We will also present preliminary results for other regions of the phase diagram.

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