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**Magnetic and charge correlations in the 2D Hubbard model on a triangular lattice** MATTHEW ENJALRAN, Southern Connecticut State University — The high temperature superconductors have motivated numerous theoretical studies of strongly correlated many-body systems for nearly two decades. The richness of the phase diagram of these materials belies their relatively simple quasi-two-dimensional structure of stacked $CuO_2$ planes, where copper ions form a square lattice. With the recent discovery of superconductivity in $Na_xCoO_2 \cdot yH_2O$, the physics community has an experimental system where strong electron correlations in a quasi-two-dimensional environment are further complicated by geometric frustration arising from the triangular lattice structure of the cobalt ions. Motivated by the interesting experimental phase diagram of $Na_xCoO_2 \cdot yH_2O$, we investigate the 2D Hubbard model on a triangular lattice at different filling fractions. We report preliminary results from a numerical Hartree-Fock calculation for the magnetic and charge correlations in our model. We also discuss the potential application of the constrained path quantum Monte Carlo (CPQMC) method to the study of frustrated 2D Fermi systems.

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