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High Precision QMC Study of the 2D Hubbard Model CHRISTOPHER VARNEY, SIMONE CHIESA, RICHARD SCALETTAR, University of California, Davis — The Hubbard model has provided insight into a wide variety of strongly correlated systems, including the cuprates and manganites. Recent advances in the generation of optical lattices allow for the possibility of experimentally studying the 2D Hubbard model in a new context. To enhance our understanding of the model, we examine the magnetic correlations on a rectangular lattice using Determinant Quantum Monte Carlo. In this talk, we discuss high precision calculations of the anti-ferromagnetic order parameter as a function of interaction strength and the effect of the aspect ratio on finite size scaling.

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