Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Doping dependence of ordered phases in the Hubbard-Holstein model CHRISTIAN MENDL, SLAC National Accelerator Laboratory and Stanford University, ELIZABETH NOWADNICK, Cornell University, YVONNE KUNG, BRIAN MORITZ, SLAC National Accelerator Laboratory and Stanford University, STEVEN JOHNSTON, University of Tennessee, THOMAS DEVEREAUX, SLAC National Accelerator Laboratory and Stanford University — Complex phase diagrams of strongly correlated materials are often accessed by the addition or removal of carriers, for example the emergence of high-temperature superconductivity from a charge transfer insulating state in the cuprates, and the metal-insulator transition in the nickelates. In many cases, these doping-dependent transitions are closely linked to the competition between multiple phases of similar energy scales, e.g., charge-stripe and superconducting states in the cuprates. The Hubbard-Holstein model, which includes electron-electron and electron-phonon interactions, provides a framework to study competing phases. In this talk I will present determinant quantum Monte Carlo (DQMC) simulations of the Hubbard-Holstein model and use spin and charge susceptibilities and single-particle spectral functions to elucidate the doping evolution of the competition between spin and charge order.

Christian Mendl
SLAC National Accelerator Laboratory and Stanford University

Date submitted: 06 Nov 2015 Electronic form version 1.4