Stability of the AFM phase in the three-band Hubbard-Holstein model EDWIN HUANG, Stanford Univ, STEVE JOHNSTON, University of Tennessee, YVONNE KUNG, Stanford Univ, BRIAN MORITZ, SLAC, TOM DEVEREAUX, Stanford Univ / SLAC — The interplay between electron-electron interactions and electron-phonon coupling in cuprates can be explored via the Hubbard-Holstein model. Here, we use determinant quantum Monte Carlo simulations to study the three-band version of the model with electron coupling to c-axis optical oxygen vibrations. The model exhibits competition between an antiferromagnetic phase and a charge density wave phase. The corresponding phase diagram is compared against that from existing single-band Hubbard-Holstein results. Finally we investigate the evolution of the phase diagram due to changes in doping and temperature.

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