Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Numerical study of magnetic excitations probed by photon spectroscopies in families of high-temperature superconductors CHUNJING JIA, CHENG-CHIEN CHEN, BRIAN MORITZ, ADAM SORINI, THOMAS DEVEREAUX, SIMES, SLAC National Accelerator Laboratory and Stanford University — Magnetic excitation in high-temperature superconductors has been a topic of cutting edge research for many years. In photon spectroscopies, single- and two-magnon excitations can be created and measured efficiently using techniques such as resonant inelastic x-ray scattering and optical Raman scattering. We present numerical studies of the magnetic excitations for different families of high-temperature superconductors, including both copper and iron based superconductors. These magnetic excitations and their dispersions provide important information in understanding the magnetic properties of these materials.

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Date submitted: 10 Nov 2011 Electronic form version 1.4