

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Parallels and contrasts in the pairing mechanism between cuprate and organic superconductors THOMAS MAIER, Oak Ridge National Laboratory — The organic superconductors share many characteristics with the cuprates, such as the existence of antiferromagnetism, unconventional superconductivity and Mott insulating behavior. In addition, despite their complexity, their physics can be approximated by a single-band Hubbard model on a two-dimensional lattice. Here, we will present dynamic cluster quantum Monte Carlo simulations of a half-filled “dimer” Hubbard model on an anisotropic triangular lattice, which find a transition from an antiferromagnetic phase to a d-wave superconducting phase with increasing frustration. In particular, we will discuss commonalities and differences in the nature of the superconducting behavior between the dimer Hubbard model of the organic compounds and the standard Hubbard model of the cuprate materials.

Thomas Maier
Oak Ridge National Laboratory

Date submitted: 06 Dec 2010

Electronic form version 1.4