

Center for Nanophase Materials Sciences (CNMS)



CNMS DISCOVERY SEMINAR SERIES

Joint Meeting with the

CONDENSED MATTER THEORY SEMINAR SERIES

Friday, March 31, 2006

11:00 am

3025M, Auditorium (3rd floor)

Refreshments will be served at 10:45 am

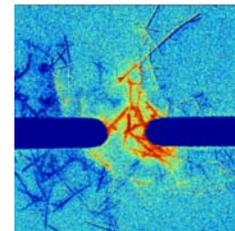
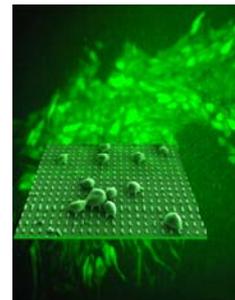
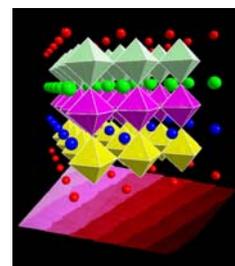
“Modeling and Dynamical Cluster Simulations of the Cuprates”

Mark Jarrell

University of Cincinnati
Cincinnati, Ohio

Abstract

The Hubbard Model has long been the paradigm for the cuprate, high-temperature superconductors. Recent innovations in the form of Quantum Cluster extensions to the Dynamical Mean Field Theory, together with improvements in computer infrastructure have led to a systematic numerical study of the model, at least in the limit of moderate coupling strengths. These results reveal a superconducting phase driven by ($S=1$) spin fluctuations. I will discuss these calculations as well as more recent efforts to include more realistic band structure and lattice vibrations into the model.



Host: Randy Fishman, 574-5786, fishmanrs@ornl.gov

