Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Revisit of Orbital Selective Phase Transition Induced by Different Orbitals with Different Band Dispersions ZE-YI SONG, YU-ZHONG ZHANG, Shanghai Key Laboratory of Special Artificial Microstructure Materials and Technology, School of Physics Science and Engineering, Tongji University — Orbital selective phase transition (OSPT) was first suggested to explain a possible coexistence of localized and itinerant electrons in a multi-orbital system, $Ca_{2-x}Sr_xRuO_4$, as interaction increases. Recently, this scenario was applied to the iron-based superconductors. Up to now, several mechanisms have been proposed, such as different orbitals with different bandwidth, different orbitals with different degeneracies, different orbitals with different magnetic states, and different orbitals with different band dispersions, etc. Unlike other mechanisms which were investigated under a constraint of paramagnetic solution, different orbitals with different band dispersions was only studied with magnetic order. Therefore, here we investigate the mechanism of different orbitals with different band dispersions in paramagnetic state by dynamical mean field theory with exact diagonalization as an impurity solver in order to reveal whether OSPT can still happen. Possible indications of our results will also be discussed.

Ze-Yi Song
Shanghai Key Laboratory of Special Artificial Microstructure Materials
and Technology, School of Physics Science and Engineering,
Tongji University

Date submitted: 08 Nov 2013 Electronic form version 1.4