Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Strong Variation of Density of States and Anomalous Isotope Effect in Low and High Tc Superconductors GUANG-LIN ZHAO, Southern University and A&M College — In this work, first-principles density functional theory (DFT) calculations of electronic structures are integrated into the fundamental formalism of many-body physics for superconductivity in Zr, Nb_3Sn, and YBa2Cu3O7. It is shown that the electronic structures of the transition metals and compounds such as Zr, Nb_3Sn, and YBa2Cu3O7 are very complex. The electron densities of states around their Fermi levels possess sharp variations that have a large contribution to the anomalous isotope effect in these superconductors. The work was funded in part by NSF LASIGMA Project (Award No. EPS-1003897, NSF92010-15-RII-SUBR), AFOSR (FA9550-09-1-0367), and NSF project CBET-0754821.

Guang-Lin Zhao
Southern University and A&M College

Date submitted: 30 Oct 2012 Electronic form version 1.4