Nematicity in 3-band Hubbard model of cuprate superconductors
KYUNGMIN LEE, JUNPING SHAO, Cornell University, RICHARD SCALET-TAR, University of California - Davis, MICHAEL LAWLER, SUNY Binghamton, EUN-AH KIM, Cornell University — The recent discovery of intra-unit-cell nematicity in STM studies of cuprate superconductors [1] underscores the importance of the role played by oxygen orbitals in CuO2 plane. Motivated by this observation we study 3-band Hubbard model using exact diagonalization. In particular, we investigate the effects various interaction parameters (Ud, Up, Vpd, Vpp) have on nematicity. Interestingly, we find that Ud, the on-site repulsion at copper sites, enhances nematicity in the strongly coupled regime.