Quantum Monte-Carlo study of a two-band boson Hubbard model
SIEGFRIED GUERTLER, The University of Hong Kong, Department of Physics, MATTHIAS TROYER, ETH Zurich, Institute for theoretical Physics, FUCHUN ZHANG, The University of Hong Kong, Department of Physics — We consider a two band boson Hubbard model, in which the on-site interaction is infinity for the intra-band bosons and repulsive for the inter-band bosons. The on-site inter-band boson interaction may facilitate condensation of vacancies of $a$-boson and interstitials of $b$-boson. We report results of large scale quantum Monte Carlo simulations to study possible supersolid phases of the model.