Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Superconducting gap symmetry evolution in a model of correlated fermions IRINA BARIAKHTAR, Boston College, ALEX NAZARENKO, Harvard University — We investigate the evolution of the symmetry of the energy gap in the spectrum of the superconducting quasiparticles as a function of the density of carriers in a strongly correlated 2D fermionic model. Considered are several different types of 2D lattices, including square and triangle. In the latter case we find strong indication of the triplet pair formation in the isotropic case near half-filling. In the case of the square lattice the higher densities away from half-filling favor the singlet extended s-wave symmetry, which eventually becomes dominant. We also show that gradual inclusion of the 3rd dimension produces the same effect even near half-filling. We relate our results to the existing phenomenological models. Also we provide the implications of the found behavior on experimental measurements.

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Date submitted: 26 Dec 2013 Electronic form version 1.4