Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Stability of nodal quasi-particles in superconductors with coexisting orders EREZ BERG, CHENG-CHIEN CHEN, STEVEN A. KIVELSON, Stanford University — The possible existence of nodal quasi-particles is one of the most distict properties of unconventional superconductors. Nodal quasi-particles have many unique experimental fingerprints, such as a linear temperature dependence of the superfluid density. It is therefore interesting to ask under what conditions can they exist generically. Here, we establish a condition for the perturbative stability of zero energy nodal points in the quasi-particle spectrum of superconductors in the presence of a general coexisting *commensurate* order. The nodes are found to be stable if the Hamiltonian is invariant under time reversal followed by a lattice translation. The principle is demonstrated with a few examples. Some experimental implications of various types of assumed order are discussed in the context of the cuprate superconductors.

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Date submitted: 26 Nov 2007 Electronic form version 1.4