Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Magnetic resonance from the interplay of frustration and superconductivity ILYA EREMIN, Institute for Theoretical Physics III, Ruhr-University Bochum, JOHANNES KNOLLE, Max Planck Institute for the Physics of Complex Systems, JOERG SCHMALIAN, Karlsruhe Institute of Technology, Institute for Theory of Condensed Matter, RODERICH MOESSNER, Max Planck Institute for the Physics of Complex Systems — Motivated by iron-based superconductors, we develop a self-consistent electronic theory for the itinerant spin excitations in the regime of coexistence of the antiferromagnetic stripe order with wave vector $\mathbf{Q}_1 = (\pi, 0)$ and $s^{+?}$ superconductivity. The onset of superconductivity leads to the appearance of a magnetic resonance near the wave vector $\mathbf{Q}_2 = (0, \pi)$, where magnetic order is absent. This resonance is isotropic in spin space, unlike the excitations near $\mathbf{Q}_1$, where the magnetic Goldstone mode resides. We discuss several features which can be observed experimentally.

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Date submitted: 04 Nov 2011 Electronic form version 1.4