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**Phase fluctuations in a magnetic exchange model of iron-based superconductors** F.J. BURNELL, Princeton University, B. ANDREI BERNEVIG, MEERA M. PARISH, Princeton Center for Theoretical Science — We analyze the phase fluctuations in a two band model of iron- based superconductors. Multi-band superconductors have a sound- like collective excitation (Leggett mode) due to phase oscillations between different condensates. We calculate the spectrum of this mode in a short-range exchange model of iron pnictide superconductors. Unlike previously studied systems, in this model the superconducting order parameters of the particle and hole Fermi surfaces naturally have opposite sign. We describe the consequences of this for the Leggett mode and outline possible experimental signatures of this sign difference between the two superconducting gaps.

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