

Abstract Submitted  
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**Compositional dependence of the superconducting resonance in underdoped  $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$**  G.S. TUCKER, D.K. PRATT, A. THALER, N. NI, Ames Laboratory and Department of Physics & Astronomy, Iowa State University, K. MARTY, A.D. CHRISTIANSON, M.D. LUMSDEN, B.C. SALES, A.S. SEFAT, Quantum Condensed Matter Division, Oak Ridge National Laboratory, S.L. BUD'KO, P.C. CANFIELD, A. KREYSSIG, A.I. GOLDMAN, R.J. MCQUEENEY, Ames Laboratory and Department of Physics & Astronomy, Iowa State University — The low energy magnetic fluctuation spectra of  $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$  single crystals in the range  $0.040 \leq x \leq 0.055$  were studied in their antiferromagnetically ordered state, above and below their superconducting transition temperature ( $T_c$ ), using inelastic neutron scattering. The normal state excitation spectra are best described by a model of overdamped correlated spin fluctuations characteristic of the paramagnetic phase. Upon entering the superconducting state the excitation spectra is modified by the superconducting resonance. The superconducting resonance energy and its relation to  $T_c$ , the dispersion of the resonance and its dimensionality, and the absolute spectral weight of the resonance will be discussed in terms of their composition dependence.

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