

Abstract Submitted
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Coexistence

of ferromagnetism and superconductivity in CeO_{0.3}F_{0.7}BiS₂ JOOSEOP LEE, Quantum Condensed Matter Division, Oak Ridge National Laboratory, KAZUKI IIDA, SEUNG-HUN LEE COLLABORATION¹, MATTHEW STONE, GEORGE EHLERS COLLABORATION², ASHFIA HUQ COLLABORATION³, YOSHIKAZU MIZUGUCHI, OSUKE MIURA COLLABORATION⁴, YOSHIHIKO TAKANO, KEITA DEGUCHI, SATOSHI DEMURA COLLABORATION⁵ — Neutron scattering measurements have been performed on a polycrystalline sample of the newly discovered layered superconductor CeO_{0.3}F_{0.7}BiS₂ with or without a magnetic field. This system exhibits the rare and interesting case of the coexistence of ferromagnetism and superconductivity, which is hardly realized in the conventional phonon mediated superconductors due to their antagonistic nature. The crystal and magnetic structures was investigated together with the spin fluctuations, and the spin Hamiltonian describing the spin dynamics in this system was determined. In addition, we examined the external magnetic field dependence of both magnetic structure and its excitation. It seems that superconductivity is robust against a magnetic field and there is no direct relationship between magnetism and superconductivity in this system.

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