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Coexistence of Superconductivity and Magnetism in $EuFe_2(As_{0.7}P_{0.3})_2$ A.A. ACZEL, Oak Ridge National Lab, T.J. WILLIAMS, McMaster University, T. GOKO, F.L. NING, Y.J. UEMURA, C. ARGUELLO, Columbia University, W. YU, G.F. CHEN, Renmin University of China, G.M. LUKE, McMaster University — We have performed resistivity, magnetization, and μSR studies on single crystalline $EuFe_2(As_{0.7}P_{0.3})_2$. These measurements provide clear evidence for bulk superconductivity in this system, with the sample resistance dropping to zero around 12 K. This work has also revealed ferromagnetic ordering of the S = 7/2 Eu^{2+} moments along the c-axis ($T_{curie} \sim 19$ K). Finally, our μSR results indicate that the Eu magnetism is very homogeneous and occupies the full-volume fraction, pointing to real-space coexistence of magnetism and superconductivity in this material.

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