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A Magnetic Nanorod Array on a Superconducting Thin Film WONBAE BANG[1], K. D. D. RATHNAYAKA[1], I. F. LYUKSYUTOV[1], [1]Department of Physics and Astronomy, Texas A&M University, W. TEIZER[1,2], [1]Department of Physics and Astronomy, Texas A&M University, [2]WPI-AIMR, Tohoku University, Japan, D. G. NAUGLE[1], [1]Department of Physics and Astronomy, Texas A&M University — We have fabricated a magnet-superconductor hybrid (MSH) by using electron beam lithography, thermal evaporation, and electroplating. The MSH is composed of a magnetic nanorod array on top of a superconducting thin film. The array is insulated from the thin film. We have studied temperature and external magnetic fields dependence of electrical resistivity near the MSHs critical temperature. We have observed strong hysteresis and enhanced superconductivity when the array is magnetized by an external magnetic field.

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