

Abstract Submitted  
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**Nanoscale investigation of mesoscopic phenomena in superconductor/ferromagnet hybrid structures using low-temperature scanning tunneling microscopy and spectroscopy**<sup>1</sup> C. DI GIORGIO<sup>2</sup>, S. A. MOORE, A. PUTILOV<sup>3</sup>, E. LECHNER, Department of Physics, Temple University, Philadelphia, PA 19122, J. E. PEARSON, V. NOVOSAD, Materials Science Division, Argonne National Laboratory, Argonne, IL, G. KARAPETROV, Department of Physics, Drexel University, Philadelphia, PA 19104, M. IAVARONE, Department of Physics, Temple University, Philadelphia, PA 19122 — Superconductor/ferromagnet (S/F) heterostructures exhibit unique electronic phenomena which strongly depend on the nature of the constituent materials and the coupling between the layers. Using low-temperature scanning tunneling microscopy and spectroscopy we have investigated S/F structures in the regimes of magnetic and proximity coupling. Here, in the case of S/F systems made of conventional low- $T_c$  lead films with different ferromagnet materials, the spatial and temperature dependent effects on the local density of states which emerge at the nanoscale will be discussed.

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<sup>3</sup>Permanent address: Institute for Physics of Microstructures RAS, Nizhny Novgorod, Russia

S. A. Moore  
Department of Physics, Temple University, Philadelphia, PA 19122

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