Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Switchable pinning landscapes for flux quanta using arrays of "magnetic vortices"[1] JAVIER E. VILLEGAS, Unite Mixte de Physique CNRS/Thales, Palaiseau, France, KEVIN D. SMITH, Physics Department, University of California, San Diego, La Jolla CA, LEI HUANG, YIMEI ZHU, Department of Condensed Matter Physics and Materials Science, Brookhaven National Laboratory, Upton, NY, RAFAEL MORALES, Departamento de Física, Universidad de Oviedo, Oviedo, Spain, IVAN K. SCHULLER, Physics Department, University of California, San Diego, La Jolla CA — We constructed a superconducting/ferromagnetic hybrid system in which the *ordering* of the pinning potential landscape for flux quanta can be manipulated. Flux pinning is induced by an array of magnetic nanodots in the "magnetic vortex" state, and controlled by the magnetic history. This allows switching *on* and *off* the collective pinning of the flux-lattice. In addition, we observed field-induced superconductivity that originates from the annihilation of flux quanta induced by the stray fields from the "magnetic vortices."

[1]Work supported by US NSF and AFOSR.

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Date submitted: 08 Nov 2007 Electronic form version 1.4