Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Vortex-Antivortex coexistence in Nb based Superconductor/Ferromagnet heterostructures C. DI GIORGIO, E.R. Caianiello Physics Department, University of Salerno, IT; Physics Department, Temple University, Philadelphia, PA, F. BOBBA, E.R. Caianiello Physics Department, University of Salerno, IT, A. SCARFATO, M. LONGOBARDI, Department of Condensed Matter Physics, University of Geneva, CH, M. IAVARONE, S.A. MOORE, Physics Department, Temple University, Philadelphia, PA, G. KARAPETROV, Physics Department, Drexel University, Philadelphia, PA, V. NOVOSAD, V. YEFREMENKO, Materials Science Division, Argonne National Laboratory, Argonne, IL, A.M. CUCOLO, E.R. Caianiello Physics Department, University of Salerno, IT — Superconductor/Ferromagnet thin film heterostructures, based on Niobium/Permalloy (Nb/Py), have been studied by low temperature Magnetic Force Microscopy. The experimental observation of spontaneous Vortex-Antivortex in these systems depends on the Nb penetration depth and thickness, on the intensity of the Py stray field induced by the small, alternating up-and-down, out-of-plane component M_0, and the width of the Py stripe-like magnetic domains. Comparison with the available theoretical models allows to estimate the threshold of the local M_0 for different Py thicknesses.

Cinzia Di Giorgio
E.R. Caianiello Physics Department, University of Salerno, IT;
Physics Department, Temple University, Philadelphia, PA

Date submitted: 04 Nov 2014 Electronic form version 1.4