

Abstract Submitted
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Hysteretic magneto-transport in superconductor/ferromagnet hybrids with variable domain structure¹ XAVIER PALERMO, VICTOR ROUCO, ADRIAN BALAN, CONSTANCE MOREAU-LUCHAIRE, SOPHIE COLLIN, WILLIAM LEGRAND, KARIM BOUZEHOANE, CNRS, JACOBO SANTAMARIA, Univ. Complutense Madrid, ANKE SANDER, VINCENT CROS, JAVIER E. VILLEGAS, CNRS — We report magneto-transport experiments in hybrid stacks consisting of an amorphous $\text{Mo}_{1-x}\text{Si}_x$ superconducting film (S) with a perpendicular magnetic anisotropy ferromagnetic (F) multilayer (either Co/Pt or Ir/Co/Pt) on top. Unlike in plain superconducting films, the magnetoresistance shows a strong hysteresis which is observed during the F layer magnetization reversal and closely follows its dynamics. This effect is strongly dependent of the size and morphology of the domain structure, which results in qualitatively and quantitatively different behavior in Co/Pt and Ir/Co/Pt. The microscopic mechanisms that could explain our results will be reviewed, including domain-wall superconductivity and stray-field to vortex coupling.

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