

Abstract Submitted
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Superconducting Properties of Lead-Bismuth Films Controlled by Ferromagnetic Nanowire Arrays ZUXIN YE, IGOR F. LYUKSYUTOV, WENHAO WU, DONALD G. NAUGLE, Department of Physics and Astronomy, Texas A&M University — Superconducting properties of lead-bismuth (82% Pb and 18% Bi) alloy films deposited on ferromagnetic nanowire arrays have been investigated. Ferromagnetic Co or Ni nanowires are first electroplated into the columnar pores of anodic aluminum oxide (AAO) membranes. Superconducting $\text{Pb}_{82}\text{Bi}_{18}$ films are then quench-condensed onto the polished surface of the AAO membranes filled with magnetic nanowires. A strong dependence of the $\text{Pb}_{82}\text{Bi}_{18}$ superconducting properties on the ratio of the superconducting film thickness to the magnetic nanowire diameter and the material variety was observed.

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