

Abstract Submitted
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Synthesis and properties of artificially layered (Ba,K)BiO₃ and Ba(Bi,Pb)O₃ structures¹ G.W.J. HASSINK, K. MUNATAKA, R.H. HAMMOND, T.H. GEBALLE, M.R. BEASLEY, Geballe Laboratory for Advanced Materials, Stanford University, Stanford, California 94305, USA — The possibility of superconductivity in a negative U material due to the proximity effect with a normal metal (Berg, Phys.Rev.B 78, 094509), and of doping via charge transfer at interfaces (Ohtomo, Nature 427, 423-426) has led us to investigate the properties of artificially-layered films of BaBiO₃ (a negative-U insulator) and BaPbO₃ (a normal metal) and of their doped variants (Ba,K)BiO₃ and Ba(Bi,Pb)O₃, both of which are isotropic (3D) and are superconducting over a specific range of doping. Samples were either Ruddlesden-Popper phases of (Ba,K)BiO₃ synthesized by pulsed laser deposition or bi-layers of BaPbO₃ and BaBiO₃ and their variants by e-beam evaporation. We studied the transport properties of these samples to investigate the presence of superconductivity and the influence of anisotropy.

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