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Superconducting crystallite interfaces with T_c up to 21 K in Bi and Bi-Sb bicrystals of inclination type

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Abstract

Magnetic properties of high quality Bi and Bi1-x-Sbx (x \leq 0.07) bicrystals of inclination type were studied in the temperature range (1.8–30) K using a quantum design SQUID magnetometer. It is found that the crystallite interfaces of some of these bicrystals show clear evidence for a superconducting transition at much higher critical temperatures (\sim 21 K) than other Bi nanoobjects.