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Preparation and Anisotropic Elastic Property of Bi-Sr-Ca-Cu-O Whiskers

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Abstract: Flexible and superconducting Bi-Sr-Ca-Cu-O whiskers have been prepared by sintering the melt-quenched glassy powder at 830°C in oxygen atmosphere. X-ray diffraction and a.c. susceptibility measurements reveal that the whiskers belong to 2212 phase with $T_c = 79$ k. The whiskers possess high strength and flexibility along c-axis but were found to be weak and brittle when bent normal to the c-axis. The anisotropic micromechanical elastic property of the whiskers have been demonstrated under a low power optical microscope.

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