

High- T_c Superconducting Joints for Ag-Clad Bi-2223 Tapes

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Abstract

A high- T_c superconducting tape joint between two Ag-clad Bi-2223 tapes has been fabricated and characterized. Two pre-sintered tapes with one side of the silver striped were lapped and then wrapped by a silver foil. The complex was uniaxially pressed and followed by appropriate sintering to form a high- T_c superconducting tape joint. Transport critical current through the joint (I_{cj}) was determined at liquid nitrogen temperature. It was found that the ratio of critical currents through the joint to that of the tape, I_{cj}/I_c , depended on the uniaxial pressure and the sintering conduction. For a test sample, I_{cj}/I_c reached 99%. Persistent current loops formed by Bi-2223 tapes have also been fabricated and tested. Joint resistance of a loop was determined to be $\sim 4 \times 10^{-13} \Omega$ after the initial decay time of 2 minutes.