

## Thickness Dependence of Irreversibility Field in Bi-2212 Thin Films

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It is known that the irreversibility field along the  $c$ -axis is lower for a thinner superconductor for Y-123 and Bi-2223. This shows that the flux bundle size is limited by the thickness of superconducting specimen. These results are consistent with the observed longitudinal correlation length of flux lines of the order of ten  $\mu\text{m}$ . Since this correlation length is determined magnetically and is independent of the dimensionality of superconducting material, it is speculated that the irreversibility field of the most two-dimensional Bi-2212 also depends on the specimen thickness.

In this study, the irreversibility field is measured for four Bi-2212 thin films of thickness ranged from 0.1 to 1.0  $\mu\text{m}$ . These samples were prepared by a laser ablation method. The irreversibility field was determined magnetically using a SQUID magnetometer under a magnetic field along the  $c$ -axis. The measured irreversibility field depends on the thickness of films and agrees with the prediction of the flux creep theory.

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