

## Hysteric Properties of Bicrystalline $\text{Dy}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$

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We measured the critical current densities of grain boundaries (GB) in the bicrystalline  $\text{Dy}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$  films of several misorientation angles under various applied fields.  $J_{cb}$  is showed hysteresis curves as functions of fields. The main features of the data were qualitatively consistent with the calculation results. In the calculations,  $J_{cb}$ 's were expressed as functions of the densities of Josephson vortices, which were estimated from the field distributions around GB. We calculated the field distributions using the Brandt's formula and expressed  $J_{cb}$  by the modified Kim's model.

keywords : Replication, solid solution, interfacial layer, BaO

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