

Effect of columnar defects on the vortex dynamics in BSCCO 2212 single crystals

Totty JT, Cohen LF, Perkins GK, Kadowaki K, Wirth G, Paul McK D, Balakrishnan G
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The form of the dynamic relaxation of high quality BSCCO 2212 single crystals irradiated with 2.25 GeV Au ions to produce columnar defects along the crystallographic c -axis is reported. It is found that below 10 K, the columns do not significantly inhibit flux motion once the vortex density exceeds the column density. Above 10 K, and at low vortex densities, the columns depress the dynamic behaviour in a systematic way as a function of temperature. At high vortex densities, the columns are decreasingly effective as the temperature is raised and in a manner which is a non linear function of irradiation dose.