

Effect of columnar defects on the vortex dynamics in a twinned YBCO 123 crystal

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Vortex dynamics is investigated in a high quality twinned YBCO crystal irradiated to create columnar defects along the crystallographic c -axis with a 0.5 T matching field. The dynamic creep rate Q has been studied as a function of field up to 8 T between 10 K and 91 K. Due to competing correlated disorder from the twins and columns and also underlying point defect pinning, the dynamic behaviour is complicated at low fields. At fields above 2 T, the dynamics resembles that of unirradiated twinned YBCO crystals at all temperatures.