

## **Absence of correlated flux pinning by columnar defects in irradiated epitaxial $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ thin films**

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Using heavy-ion irradiation, we produced columnar defects of different density and orientation in epitaxial  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$  thin films. Although this increases the normal state resistivity and the critical temperature is reduced proportionally to the volume fraction of damaged material, pinning-related quantities like critical current density, activation energy and depinning field are enhanced in external magnetic fields. Transport measurements in dependence of the magnetic field and its orientation consistently indicate *two-dimensional* pinning of pancake vortices at the columnar defects. We observe the absence of correlated flux pinning by columnar defects and compare to heavy-ion-irradiated single crystals and tapes, where line-like correlations have been observed.