

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Flux turbulence in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ single crystals ZUXIN YE, QIANG LI, GENDA GU, Brookhaven National Laboratory — We present magneto-optical imaging studies of flux turbulence in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ single crystals. When magnetic flux is trapped by pinning in a $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ single crystal and a moderate field of reverse direction is subsequently applied, a boundary of zero flux density will divide the regions of flux and antflux. The propagation of this boundary shows turbulent behavior in narrow temperature ranges around 25 K. This is the first time that the flux turbulence is observed in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ single crystals. In addition, the flux turbulence was found to be strongly correlated with the second-peak flux penetration. The implication of this study to the available theoretical models will be discussed.

Zuxin Ye
Brookhaven National Laboratory

Date submitted: 22 Nov 2004

Electronic form version 1.4