Flux dynamics in $Y_3Ba_5Cu_8O_{18}$ superconductor

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Abstract
We have studied the thermally activated flux creep of a newly fabricated superconductor $Y_3Ba_5Cu_8O_{18}$ with the superconducting transition temperature 102 K. Analysis of the transition spread from the normal state to superconducting state in the electrical resistivity revealed that the thermally activated flux creep explains the electron share in the vicinity of the transition temperature $T_c$. The activation energy $U$ in a magnetic field below 15 kOe has been calculated by the corrected thermally activated flux creep model, and the pinning energy is exponentially related to the magnetic field.

Keywords: high temperature superconductor, flux dynamics, pinning energy

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