

BKT resistive transitions

Within BKT theory a resistive transition is described by the equation

$$R_{BKT}(T) = R_n(T) e^{a + \left(b \left[\frac{T}{T_{BKT}} - 1\right]\right)^{-1/2}}$$

Where a and b are constants. $R_n(T)$ is the normal state above the superconducting state. To extract this we have extrapolated a linear fit to the high-temperature resistance (where the dependence is linear). The reduced temperature is defined as

$$t = \left[\frac{T}{T_{BKT}} - 1 \right]$$

To perform these fits regions of the transition that can be described by this form are first identified (i.e. where R_n is exponential in $t^{-1/2}$). Regions where $\log[R/R_n] \sim t^{-1/2}$ can be described by the above equation.

Fitted parameters in (a) and (c) are shown in the panels, and (b) and (d) show the respective linear dependencies in $\log[R/R_n] \sim t^{-1/2}$.