Resistive Losses in Single-Crystal Ba$_{0.6}$K$_{0.4}$Fe$_2$As$_2$ BRENDAN BENAPFL, University of Notre Dame, CHENGLIN ZHANG, PENGCHENG DAI, University of Tennessee, Knoxville, H.A. BLACKSTEAD, University of Notre Dame

Recently, we conducted surface resistance measurements using electron spin resonance techniques on single-crystal Ba$_{0.6}$K$_{0.4}$Fe$_2$As$_2$ samples ($rf$ frequency $= 20.3$ GHz), testing temperature and field dependence. In the superconducting state, the samples exhibit dissipative losses which increase monotonically as a function of applied field for fixed temperature. The level of field-dependent dissipation increases as $T$ approaches $T_C$ from below, and vanishes at the transition. The dissipation is also dependent on the angle between the $rf$ field and the static field, consistent with flux-flow models of other high-temperature superconductors, such as YBCO.