

Abstract Submitted
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Measuring the Thermal Fluctuations in Bulk YBCO and BSCCO Superconductors JEREMY MASSENGALE, PAUL VOYTAS, Wittenberg University — High temperature (HT_c) superconductors have been studied rigorously for over twenty years because of their potential for both research-driven and industrial applications, as well as emerging technologies such as smart grids and power transmission. Their unique ability to become superconducting at high temperatures ($T > 77K$) has ignited much interest in the development of new materials that push the critical temperature, T_c , to ever higher limits. Due to the high transition temperatures, short coherence length and layered structure, thermal fluctuations near the transition temperature are unusually large. We explore these effects in measurements of the resistivity as a function of temperature in bulk YBCO and BSCCO using equipment standard in most undergraduate universities. The experimental arrangement and results to date will be presented.

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