

Abstract Submitted  
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**Measurement of Local Reactive and Resistive Photoresponse of a Superconducting Microwave Device**<sup>1</sup> STEVEN M. ANLAGE, CSR, Physics Dept., University of Maryland, USA, ALEXANDER P. ZHURAVEL, Inst. for Low Temperature Physics, NASU, Kharkov, Ukraine, ALEXEY V. USTINOV, Physics Institute III, University of Erlangen-Nuremberg, Germany — Despite the voluminous work on the nature of nonlinear effects in high-temperature superconductors (HTS), the causes are not completely clear and remain under debate. The Laser Scanning Microscope (LSM) is a spatially-resolved method that can simultaneously measure optical and high frequency properties of HTS devices. Earlier results showed high resolution images of non-uniform microwave current distributions near the edge of a patterned transmission line structure [A. P. Zhuravel, A. V. Ustinov, K. S. Harshavardhan, and S. M. Anlage, *Appl. Phys. Lett.* **81**, 4979 (2002)]. We have developed a new operational mode in which the microscope separately images the resistive and inductive components of the bolometric photoresponse. The two images show interesting and dramatic differences, leading to new insights about linear and nonlinear properties of HTS microwave devices.

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Steven Anlage  
University of Maryland

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