

Abstract Submitted  
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**Shot noise measurement in a strongly correlated material** PAN-PAN ZHOU, WILL HARDY, Department of Physics and Astronomy, Rice University, ETHAN CHO, SHANE CYBART, ROBERT DYNES, Department of Physics, University of California, San Diego, DOUGLAS NATELSON, Department of Physics and Astronomy, Rice University — In strongly correlated materials, the motion of an electron is strongly affected by interactions with other electrons, leading to many interesting phenomena including metal-insulator transitions, colossal magnetoresistance, and high temperature superconductivity. Shot noise is one experimental probe for electronic correlations beyond simple electronic transport. Shot noise, which originates from the discrete nature of the charge-carrying particles, can be strongly affected by electronic correlations. Here we report initial shot noise measurements in tunnel junctions prepared from a  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  film sample, with nanoscale junctions written by focused helium ion beam. We will discuss a comparison of the shot noise between the YBCO film sample and standard tunnel junctions, as a function of temperature and bias, and the implications of these results.

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