

Abstract Submitted
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Measurement of the Mott insulating gap of Sr_2IrO_4 with a scanning tunneling microscope¹ J. NICHOLS, University of Kentucky, G. CAO, K.-W. NG, john.nichols@uky.edu — Recently the 5d transition metal oxide Sr_2IrO_4 has become a material of interest. This is due to comparable interaction strengths between crystal field splitting, the Coulomb interaction, and spin-orbit coupling, resulting in a Mott insulating ground state that has a finite resistance even at cryogenic temperatures. In order to fully understand this material it is important to measure the Mott insulating gap. A scanning tunneling microscope is an excellent tool for studying this material for its ability to directly measure this gap. Our preliminary results show this gap measured on single crystals to be ~ 50 meV which is comparable to the activation energy of this sample. We will discuss our current STM results and compare our results with other optical conductivity data obtained from this material.

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