

Abstract Submitted  
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**The SQCRAMscope: Probing exotic materials with quantum gases**<sup>1</sup> SHENGLAN QIAO, RICHARD TURNER, JACK DISCIACCA, BENJAMIN LEV, Stanford University — Microscopy techniques co-opted from nonlinear optics and high energy physics have complemented solid-state probes in elucidating exotic order manifest in condensed matter materials. Up until now, however, no attempts have been made to use modern techniques of ultracold atomic physics to directly explore properties of strongly correlated or topologically protected materials. Our talk will present the SQCRAMscope, a novel Scanning Quantum CRyogenic Atom Microscope technique for imaging magnetic and electric fields near cryogenically cooled materials. With our SQCRAMscope, we aim to image inhomogeneous transport and domain percolation in technologically relevant materials whose order has evaded elucidation.

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