

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Imaging Superconductivity and Charge Density Waves in 1T-Cu_xTiSe₂ using Scanning Tunneling Microscopy THOMAS NEULINGER, ZHENYU WANG, SHICHAO YAN, DAVIDE IAIA, VIDYA MADHAVAN, University of Illinois at Urbana-Champaign, Department of Physics — 1T-Cu_xTiSe₂ exhibits both charge density wave (CDW) order and superconductivity. The nature of and interplay between these two phases in this material is not yet well-understood. It has been shown that right above the superconducting dome, the CDW undergoes a commensurate/incommensurate transition due to the formation of domain walls, which may play an important role in the superconducting transition. Here, we present scanning tunneling microscopy and spectroscopy measurements investigating the topography and electronic properties of Cu_{0.08}TiSe₂ with temperature down to 300mK. We find CDW order coexists with s-wave superconductivity, and we study the influence of CDW domain walls on the superconductivity in this material. This work seeks to clarify open questions regarding the phase diagram of this material.

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Date submitted: 11 Nov 2016

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