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Exploring the Local Electronic Structure of Monolayer 1T'-WTe_2 via Scanning Tunneling Spectroscopy ZAHRA PEDRAMRAZI, UC Berkeley, SHUJIE TANG, CHAOFAN ZHANG, Stanford University, DILLON WONG, HSIN-ZON TSAI, SALMAN KAHN, UC Berkeley, CHUNJING JIA, BRIAN MORITZ, HAO YAN, ROBERT MOORE, Stanford University, HYEJIN RYU, JUAN JIANG, Lawrence Berkeley National Lab, MAKOTO HASHIMOTO, DONGHUI LU, SLAC National Accelerator Lab, CHANCUK HWANG, POSTECH, CHOONGYU HWANG, Pusan National University, ZAHID HUSSAIN, Lawrence Berkeley National Lab, YULIN CHEN, University of Oxford, MIGUEL UGEDA, Basque Foundation for Science, ZHI LIU, XIAOMING XIE, Chinese Academy of Sciences, THOMAS DEVEREAUX, Stanford University, SUNG-KWAN MO, Lawrence Berkeley National Lab, ZHI-XUN SHEN, Stanford University, MICHAEL CROMMIE, UC Berkeley — The transition metal dichalcogenides host many novel electronic states of matter, and still others have been theoretically predicted. For example, strong spin-orbit coupling is known to cause type-II Weyl semimetal behavior in the three-dimensional T_d phase of WTe_2, and has also been predicted to lead to two-dimensional topological insulator behavior in the single-layer 1T' phase of WTe_2. We have used scanning tunneling spectroscopy to help test this latter prediction by measuring the local electronic structure of single-layer WTe_2 in the 1T' phase. Our scanning tunneling spectroscopy measurements reveal spatial variations in the local electronic structure between the edge of WTe_2 single layers and their interior bulk regions.

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