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Scanning Tunneling Microscopy of Charge Density Wave states in TbTe₃ AARON KRAFT, LING FU, BISHNU SHARMA, Clark University, IAN FISHER, Stanford University, MICHAEL BOYER, Clark University — Charge density wave (CDW) states are broken symmetry states which involve a periodic lattice distortion and an opening of a band gap. While these states are prevalent in condensed matter systems, often coexisting with other states such as superconductivity, much is still not understood about the microscopic properties of CDWs or their onset through T_{CDW} . For these reasons we use scanning tunneling microscopy (STM) to study CDW states in TbTe₃ where $T_{\text{CDW}} \sim 335$ K. We will present temperature dependent STM data through T_{CDW} as well as our efforts in modeling the combined effects of crystal lattice structure, CDW states, and wave-vector mixing to understand the periodicities detected in our topographic images.

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