

Abstract Submitted  
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**Temperature-Dependent Studies of Charge Density Wave States in TbTe<sub>3</sub>** MICHAEL BOYER, AARON KRAFT, LING FU, BISHNU SHARMA, Clark University, IAN FISHER, Stanford University — We use temperature-dependent scanning tunneling microscopy (STM) to study charge density wave (CDW) states in TbTe<sub>3</sub>. TbTe<sub>3</sub> undergoes a bulk CDW transition near 335 K, though x-ray data shows evidence for CDW fluctuations up to 363 K.[1] Our STM measurements characterize the well-established, long-range, unidirectional CDW state ( $q_{\text{cdw}} = 0.71 \text{ c}^*$ ) at 300 K. Our temperature-dependent measurements above  $T_{\text{CDW}}$  show evidence for localized static CDW order which is consistent with x-ray detection of CDW fluctuations above  $T_{\text{CDW}}$ . Surprisingly, we also find evidence for localized static order associated with a second CDW along the a-axis, a CDW state which never establishes long-range coherence in the bulk of TbTe<sub>3</sub> even at low temperatures. [1] Ru et al., PRB 77, 035114 (2008).

Michael Boyer  
Clark University

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