

Abstract Submitted
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Superstructure and its domain structure in layered IrTe₂ at low temperatures Y. HORIBE, F.T. HUANG, Rutgers Center for Emergent Materials, and Department of Physics and Astronomy, Rutgers University, J.J. YANG, Laboratory for Pohang Emergent Materials, Postech, Korea, Y.S. OH, Y.J. CHOI, A. HOGAN, S.-W. CHEONG, Rutgers Center for Emergent Materials, and Department of Physics and Astronomy, Rutgers University — IrTe₂, forming in layered CdI₂ structure, exhibits a unique phase transition accompanied by the appearance of diamagnetism and a sharp increase of electrical resistivity. This transition has been discussed to be due to a charge-density-wave formation related to the Fermi surface nesting [1]. In this talk, we will report the three dimensional superstructure below the transition temperature, obtained from electron diffraction patterns using low-temperature transmission electron microscopy. The superstructure is characterized by the presence of the superlattice reflections with the modulation wave vector $q=1/5$ [101]. Its domain structure and chemical doping effects on the modulation wave vector will also be discussed.

[1] J. J. Yang et al., PRL 108, 116402 (2012).

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