

Abstract Submitted
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Surface X-Ray Scattering Studies of TiSe_2 Thin Films Grown on Se-Terminated GaAs(111)B XINYUE FANG, Department of Physics, University of Illinois at Urbana-Champaign, HAWOONG HONG, YANG LIU, Advanced Photon Source, Argonne National Lab, SHIH-CHANG WENG, T.-C CHIANG, Department of Physics, University of Illinois at Urbana-Champaign — Titanium Diselenide (TiSe_2) is a prototypical charge density wave (CDW) compound which transforms into a commensurate ($2\times 2\times 2$) superstructure upon cooling to below about 200 K. This transition is marked by substantial changes in the transport properties. Although this systems has been studied extensively, the underlying physical mechanism for the structural distortion is still under debate. Studying thin films of TiSe_2 provides a means to tune the electronic interactions through reduced dimension, and the effects on the CDW transition could provide valuable information about the mechanism. We have successfully grown TiSe_2 epitaxial films on Se-terminated GaAs(111)B substrates via MBE. The optimum growth condition has been determined, and the CDW order parameter has been measured as a function of temperature for different film thicknesses.

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