**Three-Beam Diffraction Anomalous fine Structure of thin Films**

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Different from the usual two-beam DAFS (diffraction anomalous fine structure), we have recently developed the multi-beam DAFS (MDAFS) for observing the local structural environment of resonant atoms. With three-beam diffraction data for different photon energies, the visibility *Rv* of the intensity asymmetry related to the phases of structure-factor triplets involved in the three-beam diffraction can be determined. Analysis based on the dynamical diffraction theory and XAFS gives fine structures of DAFS spectra. In this paper, the three-wave diffractions of (100) *CdTe* thin films epitaxially grown on the (100) *InSb* substrates are measured for different photon energies covering all the *L* edges of the constituent atoms. The crystallographic phase of structure-factor triplets and the resonance phase shifts influenced by the substrate could be analyzed to give the interface structures in relation to the *CdTe* and *InSb*. Using this MDAFS technique, we have also extracted the information about the fine structures of *Cd* and *Te* around the interface.

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