Abstract Submitted
for the TSF06 Meeting of
The American Physical Society

X-ray diffraction methods for semiconductors structure analysis of photovoltaic devices FATIMA AMIR, EDUARDO MALDONALDO, KEVIN CLARK, WILEY KIRK, NanoFAB Center and Electrical Engineering Department, University of Texas at Arlington — X-ray diffraction is a powerful tool for characterizing any kind of crystal; analysis can be performed across a whole spectrum of material types from perfect single crystals to amorphous materials. X-ray methods are generally non-destructive, in that specimen preparation is not required, and they can provide an appropriate route for obtaining structural information on thin films and multilayers without disturbing the layers. To improve the quality of photovoltaic device, it is important to improve the structure of the sample, and have a single crystal. We will report performance of different x-ray experiments on several semiconductor samples involving the molecular beam epitaxy growth of II-VI compound semiconductors on silicon substrates. We will present out of plane, in plane, and reflectivity data that have been taken on various types of samples.

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Date submitted: 08 Sep 2006 Electronic form version 1.4