

Abstract Submitted
for the OSF07 Meeting of
The American Physical Society

Optical Thickness Monitoring System for a High Vacuum Deposition Chamber for Thin Film Photovoltaic Solar Cells RYAN ZELLER, University of Toledo — Groups at the University of Toledo studying CdTe/CdS based thin film photovoltaic solar cells require precise measurement and variation of film parameters to produce the most efficient cells possible. Controlling film thickness of the CdTe and CdS layers is essential to optimizing cell efficiency and desired cell characteristics. A non-destructive film thickness monitoring system for in-situ, real time chamber depositions in the AJA International Inc High Vacuum RF magnetron sputtering chamber was constructed. The monitoring system visualizes interference fringes of reflected laser light from front and back surfaces of the deposited film. Sample thickness is determined from known optical properties of the film material. Complications due to sample rotation during growth, background noise, and limitations from chamber geometry were overcome to achieve clear signal detection.

Ryan Zeller
University of Toledo

Date submitted: 27 Sep 2007

Electronic form version 1.4