

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Hole mobility in Copper-doped CdTe films¹ Z.X. MA, KIN MAN YU, LBNL, LEI LIU, LBNL, UCB, LAN WANG, DALE PERRY, WLADEK WALUKIEWICZ, LBNL, PETER YU, UCB, LBNL, SAM MAO, LBNL — Copper-doped CdTe films have been grown by the laser epitaxy technique. X-ray diffraction, Rutherford backscattering, and photoreflectance spectroscopy were utilized to characterize the CdTe:Cu films. Structural analysis suggests that the growth of CdTe:Cu on GaAs(100) is initiated along the (100) orientation, but changes to the (111) direction after the film thickness exceeds 400 nm. Hall effect measurements indicate that copper doping can achieve hole mobility over 150 cm²/Vs at room temperature. Changes in the hole effective mass and phonon spectra have been calculated to explain the enhanced hole mobility in Cu:CdTe.

¹Supported by the U.S. Department of Energy, NNSA/NA-22, under contract No. DE-AC02-05CH11231.

Peter Yu
University of California-Berkeley

Date submitted: 27 Nov 2007

Electronic form version 1.4