Abstract Submitted
for the SES05 Meeting of
The American Physical Society

Optimization of Chemical Bath Deposited CdS Thin Films Using Two Different Cadmium Sources HANI KHALLAF, Department of Physics, University of Central Florida, Orlando, FL 32816, ISAIAH OLADEJI, ATMEL North Tyniside Ltd., Middle Engine Lane, Newcastle Upon Tyne, NE28 9NZ, UK, LEE CHOW, Department of Physics, University of Central Florida, Orlando, FL 32816 — Owing to its transparency, photoconductivity, and high electron affinity, CdS is known to be the best transparent conducting semiconductor for thin film II-VI compound heterojunction solar cells. In this work, a new method to optimize the deposition of CdS using chemical bath deposition technique is presented. $CdSO_4$, and $CdCl_2$ have been used as two different Cd sources. NTA (Nitrilotriacetic acid) in addition to KOH have been used as Ligand. Thiourea has been used as the sulfur source. The effect of changing the KOH and NTA concentrations on the film thickness, transmission, and energy gap has been studied. The results were used to develop a set of experiments that include the optimum deposition conditions by involving all other parameters that affect the deposition process. Thicker and better quality films have been obtained for both $CdSO_4$ and $CdCl_2$ cases.

Lee Chow
Department of Physics, University of Central Florida, Orlando, FL 32816

Date submitted: 09 Aug 2005 Electronic form version 1.4