

STUDY OF CADMIUM ARACHIDATE MULTILAYERS DEPOSITED BY LANGMUIR-BLODGETT TECHNIQUE

DHRUBOJYOTI ROY, NAYAN MANI DAS & P. S. GUPTA

Department of Applied Physics, Indian School of Mines, Dhanbad 826004, India

ABSTRACT

Langmuir Blodgett(LB) technique was used for preparation of different multilayers of Cadmium Arachidate (CdAA) on hydrophilic Glass(SiO_2) substrate. Different multilayers of LB films were studied by X-ray diffraction which shows well order layered growth of CdAA molecules, with out of plane crystallinity along $(00l)$ direction. XRD studies also shows excellent periodicity in multilayers with hydrocarbon tails of CdAA almost normal to the substrate. X-ray reflectivity techniques shows similar layered growth of CdAA molecules. Fourier transform infrared (FTIR) studies are also consistent with XRD and XRR studies of ordered deposition of chain molecule with excellent periodicity. Electron density profiles (EDP) shows that the coverage of films remains almost constant with increase in bilayer thickness.

KEYWORDS: Langmuir-Blodgett Multilayers, Cadmium Arachidate, Order layered growth