

Synthesis and Characterization of Non-Aqueous Electrodeposited ZnSe Thin Film

Authors : S. R. Kumar, Shashikant Rajpal

Abstract : A nanocrystalline thin film of ZnSe was successfully electrodeposited on copper substrate using a non-aqueous solution and subsequently annealed in air at 400°C. XRD analysis indicates the polycrystalline deposit of (111) plane in both the cases. The sharpness of the peak increases due to annealing of the film and average grain size increases to 20 nm to 27nm. SEM photograph indicate that grains are uniform and densely distributed over the surface. Due to annealing the average grain size increased by 20%. The EDS spectroscopy shows the ratio of Zn & Se is 1.1 in case of annealed film. AFM analysis indicates the average roughness of the film reduces from 181nm to 165nm due to annealing of the film. The bandgap also decreases from 2.71eV to 2.62eV.

Keywords : electrodeposition, non-aqueous medium, SEM, XRD

Conference Title : ICMMME 2015 : International Conference on Mining, Material and Metallurgical Engineering

Conference Location : Singapore, Singapore

Conference Dates : March 29-30, 2015