

عنوان مقاله:

Investigation of the Effect of Temperature on Growth Mechanism of Nanocrystalline ZnS Thin Films

محل انتشار:

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تعداد صفحات اصل مقاله: 2

نویسندگان:

R Sahraei - Department of Chemistry, Ilam University

G Motedayen Aval - Physical Chemistry Department

A Baghizadeh - Van de Graaff Laboratory

M Lamehi-Rachti - Van de Graaff Laboratory

خلاصه مقاله:

In this work the temperature effect on the growth mechanism of ZnS thin films prepared in a chemical bath containing Zinc acetate-ethylenediamine-thioacetamide aqueous solutions has been studied in the temperature range between 25 and 75 °C. These ZnS thin films possess a nanocrystalline structure and exhibit quantum size effects due to the small crystal size. This produces a blue shift in the optical spectra. The growth mechanism of the thin films was found to proceed by accumulation of ZnS nanocrystals formed on the substrate according to a cluster-by-cluster mechanism. Using X-ray diffraction, and scanning electron microscopy; this blue shift was correlated to a decrease in crystal size.

کلمات کلیدی:

nanocrystalline ZnS thin films; chemical bath deposition; mechanism of crystal growth

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