Synthesis of PbSe thin film by chemical bath deposition and its characterization using XRD, SEM and UV-Vis spectrophotometer

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Abstrak

Lead selenide thin films were prepared by chemical bath deposition method using aqueous of lead nitrate, sodium selenate and sodium tartrate. The influence of bath temperature towards the properties of the thin films was studied. The films were characterized by X-ray diffraction, scanning electron microscopy and UV-Vis spectrophotometer. The XRD results confirmed the polycrystalline cubic structure of PbSe films. The intensity of major peak at 2Θ= 25.1° which belonged to (111) plane of PbSe, increased with bath temperature from 40 to 80 °C. The SEM micrographs showed that the most homogeneous surface and larger grain sizes could be seen for the films deposited at 80 °C as compared with other bath temperatures.