

Electrochemical deposition of $\text{PbSe}_{1-x}\text{Te}_x$ nanorod arrays using ion track etched membranes as template

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MOLECULAR CRYSTALS AND LIQUID CRYSTALS 418 (2004) 21-27

Lead chalcogenides (PbS, PbSe, PbTe) are narrow band gap semiconductors which have been studied in the field of IR detection and thermoelectric devices. The template method is a general approach for synthesizing nanomaterials within the pores of membranes. The membranes employed contain cylindrical pores with monodisperse diameters, and corresponding cylindrical nanostructures are obtained. The aim of the present study was to prepare $\text{PbSe}_{1-x}\text{Te}_x$ nanorod arrays using electrodeposition. The process was investigated by cyclic voltammetry and electrochemical impedance spectroscopy. The resulted $\text{PbSe}_{1-x}\text{Te}_x$ nanostructures were characterized using scanning electron microscopy (SEM) as well as energy dispersive X-ray analysis (EDAX).