

## **Chemical bath deposition of NiSe thin films from aqueous solutions.**

### **ABSTRACT**

The nickel selenide thin films were prepared onto microscope glass slides by a chemical bath deposition technique. The X-ray diffraction, scanning electron microscopy, and atomic force microscopy were used for their structural and morphological characterization. The X-ray diffraction results showed that the thin films prepared for longer deposition time and higher pH were polycrystalline with rhombohedral structure. The atomic force microscopy and scanning electron microscopy results indicated that the thin films covered the glass substrate completely and consisted of irregularly shaped grains. The optical properties of thin films were determined from analysis of the measured absorbance spectrum. The nickel selenide thin films exhibited direct band-gap transition with band gap energy of 1.8 eV.

**Keyword:** Chemical bath deposition; Optical properties; Photovoltaic cells; Thin films.