Structural, morphology and electrical properties of layered copper selenide thin film

Abstract

Thin films of copper selenide (CuSe) were physically deposited layer-by-layer up to 5 layers using thermal evaporation technique onto a glass substrate. Various film properties, including the thickness, structure, morphology, surface roughness, average grain size and electrical conductivity are studied and discussed. These properties are characterized by X-ray diffraction (XRD), atomic force microscopy (AFM), ellipsometer and 4 point probe at room temperature. The dependence of electrical conductivity, surface roughness, and average grain size on number of layers deposited is discussed.

Keyword: CuSe thin films, electrical conductivity, surface roughness, film thickness, grain size.