**Abstract**

Thin films of In2Se3 were prepared by thermal evaporation. X-ray diffraction indicated that the as-grown films were amorphous in nature and became polycrystalline γ- In2Se3 films after annealing. The ac conductivity and dielectric properties of In2Se3 films have been investigated in the frequency range 100 Hz–100 kHz. The ac conductivity σac is found to be proportional to ωn where n < 1. The temperature dependence of both ac conductivity and the parameter n is reasonably well interpreted by the correlated barrier hopping (CBH) model. The values of dielectric constant ε and loss tangent tan δ were found to increase with frequency and temperature. The ac conductivity of the films was found to be hopping mechanism. In I–V characteristic for different field and temperature were studied and it has been found that the conduction process is Poole–Frenkel type.