

Structural and Optical Properties of Cu Thin Films Deposited with rf Sputtering

¹Kimmi, ²Sunil Kumar, ³Ravneet Singh Sandhu, ⁴Anupinder Singh, ⁵Mandeep Singh

^{1,2,3,4,5}Multifunctional Materials Laboratory, Department of Physics, GNDU, Amritsar, Punjab, India

Abstract

In Modern technology thin films plays an important role for different applications. Thin film technology is the basic of development in solid state electronics. The usefulness of the optical properties of metal films, and scientific curiosity about the behavior of two-dimensional solids has been responsible for the immense interest in the technology of the thin films. Thin film materials are the key elements of continued technological advances made in the fields of optoelectronic, photonic, and magnetic devices. Thin films, both crystalline and amorphous, have immense importance in the age of high technology. Few of them are: microelectronic devices, magnetic thin films in recording devices, magnetic sensors, gas sensor, photoconductors, IR detectors, interference filters, solar cells, polarizer's, temperature controller in satellite, anticorrosive and decorative coatings.

Thin films of Cu were deposited using RF sputtering technique. The XRD pattern confirms the formation of pure Cu film. There is a increase in grain size in Cu thin film when annealed at 200°C. The PL spectra show a shift in luminescence intensity toward higher wavelength when thin films were annealed at 200°C.

Keywords

Cu Thin Films, rf Sputtering