

CHARACTERIZATION OF PANI/ZnS/GLASS MULTILAYER SYSTEM

¹NEMPAL SINGH, ²PUSHPENDRA SINGH, ³JITENDRA SINGH, ⁴KAPIL SIROHI & ⁵S.K SHARMA

^{1,2}Department of Physics, Indraprastha Institute of Technology, Amroha, India

³Department of Physics, K.G.K (P.G) College, Moradabad, India

⁴Department of Physics, Meerut College, Meerut, India

⁵Department of Physics, N.A.S (P.G) College, Meerut, India

ABSTRACT

We have used absorption and reflection spectra for band gap measurements using Tauc relation, taken by HITACHI spectrophotometer U-3400. Dark conductivity and photoconductivity is taken with digital electrometer (Keithley model 610), also I-V characteristics taken for PANI/ZnS/Glass multilayer system is observed, which indicate that ZnS thin film works as backbone to reduce the band gap.

It is observed that PANI/ZnS/Glass multilayer system is a typically of a heavily doped heterojunction. In PANI/ZnS junction the conduction of charge across the junction is typically a mixture of electron from n-ZnS side and polaron and bipolaron from p-Pani side. In addition to observe a thermionic emission, Schottky I-V characteristic also observed a pool frankely and trap assisted field emission with a non linear behavior. Also PANI/ZnS/Glass heterostructure shows promise of being an active device.

KEYWORDS: PANI, Vacuum evaporation, Heterojunction, I-V Characteristics