

## Electrical and Optical Properties of Polyaniline: Cadmium Sulphide Quantum Dots Nanocomposites

**Authors :** Akhtar Rasool, Tasneem Zahra Rizvi

**Abstract :** In this study, a series of the cadmium sulphide quantum dots/polyaniline nanocomposites with varying compositions were prepared by in-situ polymerization technique and were characterized using X-ray diffraction and Fourier transform infrared spectroscopy. The surface morphology was studied by scanning electron microscopy. UV-Visible spectroscopy was used to find out the energy band gap of the nanoparticles and the nanocomposites. Temperature dependence of DC electrical conductivity and temperature and frequency dependence of AC conductivity were investigated to study the charge transport mechanism in the nanocomposites. DC conductivity was found to be a typical for a semiconducting behavior following Mott's 1D variable range hopping model. The frequency dependent AC conductivity followed the universal power law.

**Keywords :** conducting polymers, nanocomposites, polyaniline composites, quantum dots

**Conference Title :** ICEMOP 2018 : International Conference on Energy, Materials, Optics and Photonics

**Conference Location :** Toronto, Canada

**Conference Dates :** July 19-20, 2018