

PR-9**INVESTIGATION ON SYNTHESIS, STRUCTURAL
AND OPTICAL PROPERTIES OF CDS NANOPARTICLES****G. Thirumala Rao,^{1*} R. V. S. S. N. Ravikumar,² N. Bakthavatchala Reddy,³
Grigory V Zyryanov^{3,4}**

¹*Physics division, Department of Basic Science & Humanities,
GMR Institute of Technology, GMR Nagar, Rajam-532 127, A.P., India.*

²*Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar,
Guntur-522510, A.P., India.*

³*Ural Federal University, Chemical Engineering Institute Yekaterinburg,
620002, Russian Federation.*

⁴*I. Ya. Postovskiy Institute of Organic Synthesis,
Ural Division of the Russian Academy of Sciences, 22 S. Kovalevskoy St.,
620219 Yekaterinburg, Russian Federation.*

*Corresponding author e-mail: thirumalarao.g@gmrit.org, thirumalaphy@gmail.com

Abstract. Hexagonal wurtzite structured CdS nanoparticles were synthesized by using chemical precipitation method. Various spectroscopic technics were used for the characterization of the prepared sample. X-ray diffraction pattern shows the high intense crystalline peaks and the average crystallite size is found to be 19 nm. FT-IR spectrum exhibited a metal sulfide band at 615 cm^{-1} and other functional groups. SEM micrographs reveal the non-uniformly distributed spherical shaped structures. EDS analysis confirms the stoichiometric composition and presence of target elements. Optical absorption spectrum exhibited a broad peak at 510 nm, which indicates the shifting of absorption range of CdS nanoparticles into the visible region. PL spectrum exhibited the characteristic emission bands in visible region.