

Synthesis and Characterization of Transparent Cadmium Sulphide (CdS) Thin Films By Chemical Bath Deposition Technique

Waghmare Suraj S¹, Kamthe Vishal M¹, Desai Anjana S¹, Patil Mahendra² and **Mujawar Sarfraj H^{1*}**

¹Rayat Shikshan sanstha's Mahatma Phule Mahavidyalaya, Pimpri, Pune-411017, ²Department of Physics, Dada patil Mahavidyalaya, Karjat-414402

* Corresponding author Email: sarfraj100@gmail.com

Manuscript Details

Available online on <http://www.irjse.in>
ISSN: 2322-0015

Editor: Dr. Arvind Chavhan

Cite this article as:

Waghmare Suraj S, Kamthe Vishal M., Desai Anjana S., Patil Mahendra and Mujawar Sarfraj H. Synthesis and Characterization of Transparent Cadmium Sulphide (CdS) Thin Films By Chemical Bath Deposition Technique, *Int. Res. Journal of Science & Engineering*, January 2018, Special Issue A3: 69-72.

© The Author(s). 2018 Open Access

This article is distributed under the terms of the Creative Commons Attribution 4.0 International License

(<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

ABSTRACT

In the present manuscript we report the synthesis and characterization of transparent CdS thin films on glass and conducting (FTO) substrate by chemical bath deposition technique. As prepared samples were further characterized by X-ray diffraction (XRD), Scanning electron microscopy (SEM) and UV-VIS spectroscopy for the investigation of structural and optical properties of CdS respectively. XRD pattern recorded for the as prepared sample reveals the nanocrystalline cubic structure of CdS. From the SEM images it observed that the sample exhibits nanocrystalline CdS platelets like morphology. At low magnification structure seems like cabbage. For the study of optical properties of CdS absorption and transmission spectra were recorded. UV-VIS absorption spectra clearly gives the information that the absorption initiates at 524 nm and therefore band gap of CdS sample is ~ 2.36 eV. Similarly, from the UV-VIS transmission spectra, it is observed that transmittance of CdS thin film is approximately 99% above 400 nm.

Keywords: Nanocrystalline, X-ray diffraction, CBD technique, Platelets, Absorption spectra, Transmittance.

