

## **STUDY OF ELECTRICAL PROPERTIES OF CADMIUM SULPHIDE THIN FILMS WITH POLYANILINE FOR OPTOELECTRONIC APPLICATIONS**

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### **ABSTRACT**

A thin film of CdS and Polyaniline has been developed by vacuum evaporation technique for their electrical characterization in this paper. These prepared thin films then deposited onto glass as well as the metallic substrate. The glass substrate was thoroughly cleaned in aquaregia, washed in distilled water and isopropyl alcohol, prior to film deposition. The samples so prepared then subjected for their electrical measurements by using Keithley Electrometer. The conduction of charge across Polyaniline and CdS junction is typically a mixture of an electron from the n-CdS side and polaron & bipolaron from the p-PANI side. This heterojunction also holds the promise of being studied and converted into an active optoelectronic device for their application in the field. A relatively low value of fill factor and conversion efficiency can be attributed to the polycrystallinity of the CdS thin film and vacuum deposited PANI thin film, as they don't make extremely sharp and perfect heterojunction. The substrate has a strong influence on the surface morphology of the films. The junction characteristics of PANI/CdS thin films are complex of many conduction mechanisms and cannot be explained by simple theory.

**KEYWORDS:** *Heterojunction, Vacuum Evaporation, CdS, PANI*

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### **Article History**

**Received: 18 Jan 2019 | Revised: 25 Jan 2019 | Accepted: 30 Jan 2019**

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