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Effect of sulfur on dielectric properties of Cd-Se Glassy system

By: **Ganaie, M** (Ganaie, Mohsin)^[1]; **Alvi, MA** (Alvi, M. A.)^[2]; **Zulfequar, M** (Zulfequar, M.)^[1]

JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS

Volume: 27 Issue: 3 Pages: 2974-2978

DOI: 10.1007/s10854-015-4118-5

Published: MAR 2016

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Abstract

Cd₄Se_{96-x}S_x with x = 0, 4, 8, 12 amorphous semiconductor has been prepared by melt-quenching technique. Bulk samples in the form of powder were characterized by XRD which shows the amorphous nature of the prepared samples. The dielectric parameters were studied in the temperature range of 300-350 K and in the frequency range of 20 Hz-1 MHz. Dielectric dispersion are observed in the Cd-Se-S system, these results are explained on the basis of dipolar type of dielectric dispersion. It is also observed that DC conductivity increases and activation energy decrease with increase of sulfur concentration, which is mainly due to increase in the density of localized state in the mobility gap or decrease in the band gap.

Keywords

KeyWords Plus: HOT-PRESSED AIN; THIN-FILMS; CHALCOGENIDE GLASSES; ELECTRICAL-CONDUCTIVITY; AC CONDUCTIVITY; ALLOYS; RELAXATION; BEHAVIOR; MECHANISM

Author Information

Reprint Address: Zulfequar, M (reprint author)

+ Jamia Millia Islamia, Dept Phys, New Delhi 110025, India.

Addresses:

+ [1] Jamia Millia Islamia, Dept Phys, New Delhi 110025, India

+ [2] King Abdulaziz Univ, Dept Phys, Jeddah 21589, Saudi Arabia

E-mail Addresses: mzulfe@rediffmail.com

Funding

Funding Agency	Grant Number
University Grants Commission (UGC), New Delhi (India)	

[View funding text](#)

Publisher

SPRINGER, VAN GODEWIJCKSTRAAT 30, 3311 GZ DORDRECHT, NETHERLANDS

Categories / Classification

Research Areas: Engineering; Materials Science; Physics

Web of Science Categories: Engineering, Electrical & Electronic; Materials Science, Multidisciplinary; Physics, Applied; Physics, Condensed Matter

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000372170800107

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ISSN: 0957-4522
eISSN: 1573-482X

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