Indian Journal of Pure and Applied Physics
Volume 45, Issue 8, August 2007, Pages 687-691

Electrical properties of thermally evaporated doped and undoped films of CdSe

Borah, M.N.[a], Chaliha, S.[a], Sarmah, P.C.[b], Rahman, A.[a]

[a] Department of Physics, Gauhati University, Guwahati 781014
[b] Electronics Department, **Regional Research Laboratory**, **Jorhat** 785006

Abstract

Electrical characteristics of Ag-doped and undoped films of CdSe have been reported. The activation energies at lower and elevated temperatures have been found to be 0.22 and 0.6eV, respectively. The Sn/CdSe junction exhibits Schottky barrier characteristics with diode ideality factor deviating from unity. Barrier height obtained from C-V plot and J- V plot are 0.8 and 0.72eV, respectively. The junction has been endowed with high series resistance.

Author Keywords

Activation energy; Cadmium selenide; Electrical properties; Schottky barrier

References (26) view in table layout

Output Select: **Page**

1. Mahawela, P., Jeedigunta, S., Vakkalanka, S., Ferekides, C.S., Morel, D.L.
Transparent high-performance CDSE thin-film solar cells
(2005) *Thin Solid Films*, 480-481, pp. 466-470. Cited 4 times.
doi: 10.1016/j.tsf.2004.11.066

Abstract + Refs View at Publisher

2. Murali, K.R., Austine, A., Jayasutha, B., Trivedi, D.C.
Photoelectrochemical cells based on CdSe films brush plated on high-temperature substrates
(2006) *Solar Energy Materials and Solar Cells*, 90 (6 SPEC. ISS.), pp. 753-759. Cited 2 times.
doi: 10.1016/j.solmat.2005.04.012
Abstract + Refs View at Publisher

3. Klement, U., Ernst, F., Baretzky, B., Plitzko, J.M.
Diffusion of oxygen in CdSe-photosensor arrays
(2002) *Materials Science and Engineering B: Solid-State Materials for Advanced Technology*, 94 (2-3), pp. 123-130. Cited 2 times.
doi: 10.1016/S0921-5107(01)00899-6
Abstract + Refs View at Publisher

4. Gogoi, S., Barua, K.
ELECTRICAL CONDUCTION AND BREAKDOWN PHENOMENON IN DRY AIR STABILIZED CdSe FILMS.
(1979) *Japanese journal of applied physics*, 18 (12), pp. 2233-2236.
Abstract + Refs View at Publisher

5. Lee, M.J., Lee, S.-C.
Extraction of the trap density and mobility in poly-CdSe thin films
(1999) *Solid-State Electronics*, 43 (4), pp. 833-838. Cited 8 times.
doi: 10.1016/S0038-1101(99)00007-6
Abstract + Refs View at Publisher

6. Antohe, S., Ruxandra, V., Alexandru, H.
The effect of the electron irradiation on the electrical properties of thin polycrystalline CdSe and CdS layers
(2002) *Journal of Crystal Growth*, 237-239 (1-4 II), pp. 1559-1565. Cited 8 times.
doi: 10.1016/S0022-0248(01)02371-5
Abstract + Refs View at Publisher

7. Pathinettam Pediyan, D., Marikani, A., Murali, K.R.
(2002) *Mater Chem& Phys*, 78, p. 51. Cited 5 times.
View on Web

8. Murali, K.R., Srinivasan, K., Trivedi, D.C.
Vacuum evaporated CdSe thin films and their characteristics
(2005) *Materials Letters*, 59 (1), pp. 15-18. Cited 2 times.
doi: 10.1016/j.matlet.2004.09.006
Abstract + Refs View at Publisher

9. Sathyalatha, K.C., Uthanna, S., Reddy, P.Jayarama
Electrical and photoconducting properties of vacuum evaporated pure and silver-doped CdSe films
(1989) *Thin Solid Films*, 174 (1 -2 pt 1), pp. 233-238. Cited 8 times.
doi: 10.1016/0040-6090(89)90895-X

Abstract + Refs View at Publisher

10. Odour, A.O., Gould, R.D.
(1995) *Thin solid Films*, 270, p. 387.

11. Baranski, Andrzej S., Fawcett, W.Ronald, Gatner, Kazimierz, McDonald, Alex C., MacDonald, Jack R., Selen, Mats
STRUCTURAL AND COMPOSITIONAL CHARACTERIZATION OF MIXED CdS-CdSe FILMS GROWN BY CATHODIC ELECTRODEPOSITION.
(1983) *Journal of the Electrochemical Society*, 130 (3), pp. 579-583. Cited 8 times.
Abstract + Refs View at Publisher

12. Glew, R.W.
(1977) *Thin Solid Films*, 49, p. 50.

13. Elango, T., Subramanian, V., Murali, K.R.
Characteristics of spray-deposited CdSe thin films
(2000) *Surface and Coatings Technology*, 123 (1), pp. 8-11. Cited 14 times.
Abstract + Refs View at Publisher

14. Perna, G., Capozzi, V., Minafra, A., Pallara, M., Ambrico, M.
Effects of the indium doping on structural and optical properties of CdSe thin films deposited by laser ablation technique
(2003) *European Physical Journal B*, 32 (3), pp. 339-344. Cited 5 times.
doi: 10.1140/epjb/e2003-00107-6
Abstract + Refs View at Publisher

15. Kainthla, R.C., Pandya, D.K., Chopra, K.L.
SOLUTION GROWTH OF CdSe and PbSe FILMS.
(1980) *Journal of the Electrochemical Society*, 127 (2), pp. 277-283. Cited 54 times.
Abstract + Refs View at Publisher

16. Velumani, S., Narayandass, Sa.K., Mangalaraj, D., Sebastian, P.J., Mathew, X.
Dielectric and conduction studies on hot-wall deposited CdSe films
(2004) *Solar Energy Materials and Solar Cells*, 81 (3), pp. 323-338. Cited 5 times.
doi: 10.1016/j.solmat.2003.11.010
Abstract + Refs View at Publisher

17. Al-Ani, S.K.J., Mohammed, H.H., Al-Fwade, E.M.N.
The optoelectronic properties of CdSe: Cu photoconductive detector
(2002) *Renewable Energy*, 25 (4), pp. 585-590. Cited 3 times.
doi: 10.1016/S0960-1481(01)00088-X
Abstract + Refs View at Publisher

18. Sing, K., Upadhay, D.N., Panday, V.K.
(1989) *Indian J Chem*, A28, p. 832. Cited 3 times.

19. Sarmah, P.C., Rahman, A.
Electrical and optical properties of rf-sputtered CdTe films
(1998) *Bulletin of Materials Science*, 21 (2), pp. 149-154. Cited 4 times.
Abstract + Refs

20. Buragohain, M., Barua, K.
(1983) *Thin Solid Films*, 99, pp. L-1. Cited 3 times.

21. Perna, G., Capozzi, V., Ambrico, M., Augelli, V., Ligonzo, T., Minafra, A., Schiavulli, L., (...), Pallara, M.
Structural and optical characterization of Zn doped CdSe films
(2004) *Applied Surface Science*, 233 (1-4), pp. 366-372. Cited 3 times.
doi: 10.1016/j.apsusc.2004.03.252
Abstract + Refs View at Publisher

22. Sebastian, P.J., Sivaramakrishnan, V.
(1989) *Phys Rev, B40*, (9767), pp. 14-15.

23. Rhoderik, E.H.
(1978) *Metal-Semiconductor Contact*, 46, p. 132.
Clarendon Press, Oxford

24. Sze, S.M.
(1985) *Semiconductor Devices : Physics and Technology*, p. 164. Cited 1107 times.
John Willey & Sons, New York

25. Sze, S.M.
(1981) *Physics of Semiconductor Devices*, 806, p. 547.
Wiley Eastern Limited, New Delhi

26. Henish, H.K.
(1984) *Semiconductor Contacts*, p. 113. Cited 88 times.
Clarendon Press, Oxford

Sarmah, P.C.; Electronics Department, **Regional Research Laboratory**, **Jorhat** 785006, ; email:pratap_sarmah@yahoo.com

Indian Journal of Pure and Applied Physics
Volume 45, Issue 8, August 2007, Pages 687-691