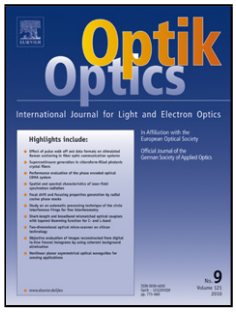

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PII: S0030-4026(16)31260-8
DOI: http://dx.doi.org/doi:10.1016/j.ijleo.2016.10.074
Reference: IJLEO 58342

To appear in:

Received date: 23-8-2016
Accepted date: 24-10-2016

Please cite this article as: N.Manjula, A.R.Balu, Double doping (Mn+Cl) effects on the structural, morphological, photoluminescence, optoelectronic properties and antibacterial activity of CdO thin films, Optik - International Journal for Light and Electron Optics http://dx.doi.org/10.1016/j.ijleo.2016.10.074

Double doping (Mn+Cl) effects on the structural, morphological, photoluminescence, optoelectronic properties and antibacterial activity of CdO thin films

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Abstract

The effects of (Mn+Cl) double doping on some physical properties and antibacterial activity of CdO thin films deposited by spray technique using perfume atomizer is reported in this paper. XRD studies confirm the polycrystalline nature of the films. CdO:Mn and (Mn+Cl) doubly doped CdO thin films exhibit face-centered cubic structure similar to that of the undoped CdO film. Decreased transparency is observed for the Mn-doped CdO film which got enhanced for the (Mn+Cl) doubly doped films. Optical band gap exhibit a red shift for the CdO:Mn thin film and with (Mn+Cl) double doping it exhibit a blue shift which may be attributed to Moss-Burstein (MB) effect. Increased resistivity is observed for the Mn-doped CdO film and for the (Mn+Cl) doubly doped films it decreases. From the obtained results it is observed that CdO thin films doubly doped with Mn and Cl precursor ions exhibit better physical properties which make them suitable for future optoelectronic device applications. Antibacterial activity of the as deposited films were carried out against E.coli a gram negative bacteria and from the zone of inhibition it is confirmed that the (Mn+Cl)