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Title:	Understanding the physical properties of CdCl ₂ treated thin CdSe films for solar cell applications
Authors:	Chander, S. (/jspui/browse?type=author&value=Chander%2C+S.)
Keywords:	CdSe films Electron beam evaporation Physical properties Absorber layer
Issue Date:	2019
Publisher:	Elsevier
Citation:	Optical Materials
Abstract:	Nowadays the traditional post CdCl ₂ thermal treatment to Cd-based thin films is an emerging route to improve the crystallinity and to passivate the grain boundaries which results into augmentation in physical properties of absorber layer. Therefore, in this communication an impact of CdCl ₂ thermal treatment on physical properties of e-beam deposited CdSe absorber layers has been investigated. The XRD results reveal that these films have dominant reflection (111) plane with cubic phase upto 320 °C and then cubic phase transformed into hexagonal phase with partial oxidation at higher annealing. The optical absorbance is found to be good and transmittance is observed to be very low in the visible region. Surface topological study indicates that the surface roughness is improved with the treatment while the observed Cd and Se along with Cl peaks in EDAX spectra to elemental analysis confirm the deposition of films and CdCl ₂ treatment. The ohmic nature of the films is visible in current-voltage behavior within the voltage range of -2 and +2 V. The chloride activated CdSe films processed at 320 °C might be anticipated as an efficient absorber-layer for the fabrication of Cd-based solar cells.
Description:	Only IISERM authors are available in the record.
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