Title:	Role of low-cost non-toxic MgCl2 treatment on ZnS films: Optimization of physical properties for buffer layers
Authors:	Chander, S. (/jspui/browse?type=author&value=Chander%2C+S.)
Keywords:	ZnS thin films Chloride treatment Thermal annealing Physical properties Window layer
Issue Date:	2019
Publisher:	Elsevier
Citation:	Optik, 199.
Abstract:	The polycrystalline thin films comprise grain boundaries which act as recombination centres that may be passivated by chloride treatment. The conventional CdS and CdCl2 are very famous as optical window and chloride treatment in solar cells respectively, while both are expensive and severely mutagenic. Therefore in this paper, we report MgCl2 treatment on ZnS films, which is a low-cost noncarcinogenic alternative. ZnS thin films were grown on glass and ITO substrates using e-beam evaporation method, treated with MgCl2 and further thermally annealed to optimize physical properties. Films are found amorphous in nature having transmittance of about 95% and band gap increased up to 3.95 eV with annealing. Surface roughness is increased and proper ohmic behaviour is found for 300 °C treated films and EDS pattern ensured the deposition of ZnS films. To minimize the environmental risk and to reduce cost, our results exhibit that CdS optical window may be easily substituted by MgCl2 treated ZnS buffer layer.
Description:	Only IISERM authors are available in the record.
URI:	https://www.sciencedirect.com/science/article/pii/S0030402619312057 (https://www.sciencedirect.com/science/article/pii/S0030402619312057) http://hdl.handle.net/123456789/1681 (http://hdl.handle.net/123456789/1681)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/1681/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/12345

Show full item record (/jspui/handle/123456789/1681?mode=full)
(/jspui/handle/123456789/1681/statistics)