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Title:	Thermal evolution to MgCl <sub>2</sub> activation on physical properties of CdTe thin films for solar cell applications
Authors:	Chander, S. (/jspui/browse?type=author&value=Chander%2C+S.)
Keywords:	Heat treatment Optical properties Structural properties Electrical properties Thin films
Issue Date:	2020
Publisher:	American Institute of Physics Inc.
Citation:	AIP Conference Proceedings, 2265
Abstract:	The CdCl <sub>2</sub> -activation is a well-known procedure to influence the performance of cadmium telluride (CdTe) solar cells as it passivates the boundaries of grains and improve the grain size. An alternative to this process, the activation treatment by environment friendly MgCl <sub>2</sub> compound is undertaken on the surface of evaporated CdTe films to augment the physical properties of absorber layer. CdTe films having thickness of 550 nm were deposited on ITO and glass substrates using electron-beam evaporation method and sublimated to chemical treatment in a saturated MgCl <sub>2</sub> solution followed by heat-treatment at different temperature within range of 170-470 °C for one hour. The effect of MgCl <sub>2</sub> -activation treatment on physical properties was examined by characterization tools concerned(XRD, UV-Vis spectrophotometer, AFM, source-meter and EDS) and an improvement in grain-size and increase in direct optical band-gap were observed with the MgCl <sub>2</sub> treatment while the electrical-conductivity was varied. The investigated results showed that films surface activation by MgCl <sub>2</sub> treatment is an effective process to enhance the physical properties, and treated films could be used as an effective absorber layer to the Cd-based solar cells.
Description:	Only IISERM authors are available in the record.
URI:	<a href="https://aip.scitation.org/doi/10.1063/5.0017266">https://aip.scitation.org/doi/10.1063/5.0017266</a> ( <a href="https://aip.scitation.org/doi/10.1063/5.0017266">https://aip.scitation.org/doi/10.1063/5.0017266</a> ) <a href="http://hdl.handle.net/123456789/3238">http://hdl.handle.net/123456789/3238</a> ( <a href="http://hdl.handle.net/123456789/3238">http://hdl.handle.net/123456789/3238</a> )
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