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Title:	Vacuum annealing level evolution of titania thin films: Functionality as potential optical window in solar cells
Authors:	Agarwal, R. (/jspui/browse?type=author&value=Agarwal%2C+R.) Chander, S. (/jspui/browse?type=author&value=Chander%2C+S.)
Keywords:	E-beam evaporation Microstructure Thin films Titania Vacuum evolution
Issue Date:	2020
Publisher:	Elsevier B.V.
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Abstract:	The titania films have potential to work as an electron transport layer in perovskite and optical window layer in Cd-based solar cells, therefore in this letter, we vigilantly report the influence of different vacuum annealing levels on properties of titania thin films. The titania films are developed by electron beam evaporation and post-annealed at 200 °C for 1 hour with different vacuum levels in range of 10^{-2}–10^{-3} mbar. The XRD study confirms presence of amorphous phase and surface morphology of pristine films shows non-homogenous nature. Annealing in vacuum facilitates titania films for variation in conductivity along with ohmic nature. Optical properties show fall in band gap in range of 3.66–3.43 eV. Surface topography reveals increment in grain size and RMS roughness with vacuum levels owing to removal of residual water molecules. The present study demonstrates a direct impact of vacuum levels on the physical properties of titania films.
Description:	Authors sequences are not necessary in order
URI:	https://www.sciencedirect.com/science/article/abs/pii/S0167577X20310739 (https://www.sciencedirect.com/science/article/abs/pii/S0167577X20310739) http://hdl.handle.net/123456789/3281 (http://hdl.handle.net/123456789/3281)
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