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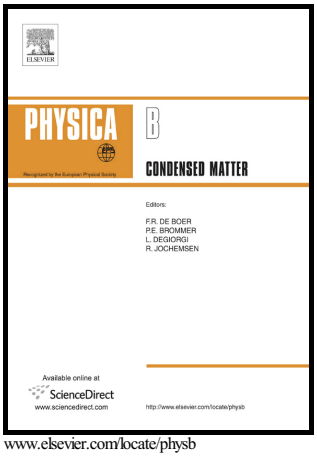

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A functional material based photodiode for solar tracking systems

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Abstract

To prepare phosphotungstic acid (PTA) thin film was used drop-coating method. The film was dropped on p-Si having ohmic contact. The electrical and photovoltaic properties the fabricated Al/p-Si/phospotungstic acid(PTA)/Al photodiode were investigated. The current-voltage (I-V) measurements were carried out under dark and various illumination intensities. Under illumination, the photocurrent of the photodiode was found to be higher than the dark current. The prepared photodiode exhibited photovoltaic behavior. Also, the transient photocurrent measurement confirms that the photocurrent is sensitive to the illumination intensities. In addition, the capacitance/conductance-voltage (C/G-V) measurements were studied in the frequency range of 10 kHz-1 MHz. The capacitance decreases with increasing frequency, suggesting a continuous distribution of interface states. As result, the prepared photodiode can be used in optoelectronic device applications.

Keywords: *Phosphotungstic acid(PTA); Photodiode; Photovoltaic behaviour*

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