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VO2 nanorod as a new candidate for near infrared light harvesting

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Vanadium dioxide (VO2) thermocromic properties have been widely applied in many devices in an attempt to solving the world energy crises. One of such devices is thermochromic/switchable/smart window, an energy saving window which is transparent to infrared light with high refractive index above 70 degree C (the transition temperature of VO2) and refracts infrared light with low refractive index below this temperature. In this current attempt, we have investigated the potentials of VO2 nanorod structure for near infrared light harvesting by coating the material on p-type Si wafers using a simple doctor blading method. The n-VO2|p-Si solar cell was annealed at 70 degree C and tested with a SF 150 small beam simulator by SCIENCETECH Inc. from Ontario Canada.
Photon power conversion efficiency (PCE) was calculated form the values of the open-circuit voltage (Voc), fill factor (FF), and short-circuit current density (Jsc), and a decreasing trend of PCE was observed with the photon power.

Are you currently a postgraduate student? (Yes/No)

Yes

At what level of studies are you currently? (Hons/MSc/PhD)

MSc

Please provide the name and email address of your supervisor.

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