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TiO₂/solid state polymer junction for photovoltaic application (Conference Paper)

Alaei, I.  **Al-Bat'hi, S.A.M.** 

Department of Manufacturing and Materials Engineering, Faculty of Engineering, International Islamic University Malaysia, Jalan Gombak, 53100 Kuala Lumpur, Malaysia

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Abstract

Solid state polymer electrolyte blend of polyethylene oxide, chitosan, ammonium iodide, and iodine crystals has been prepared by solution cast **technique**. The highest ionic conductivity of the polymer electrolyte was $1.18 \times 10^{-5} \text{ S cm}^{-1}$ at room temperature. Addition of chitosan to the electrolyte has improved its mechanical properties. A photovoltaic junction with configuration ITO/TiO₂-solid state polymer blend electrolyte/ITO has been constructed. The open circuit voltage V_{oc} , short circuit current density J_{sc} , and fill factor FF% obtained from the photovoltaic system under white light illumination of 100W Tungsten lamp are 320-350 mV, 0.59-2.5 μAcm^{-2} and 42%-59% respectively. © (2012) Trans Tech Publications, Switzerland.

Author keywords

Junction; Nanocrystalline TiO₂; Photovoltaic; Polymer; Thin film

Indexed keywords

Fill factor; Iodine crystals; Junction; Nanocrystalline TiO; Photovoltaic; Photovoltaic applications; Photovoltaic systems; Polymer electrolyte; Room temperature; Solid state polymer electrolyte; Solution cast; TiO; Tungsten lamps; White-light illumination

Engineering controlled terms: Ammonium compounds; Chitosan; Incandescent lamps; Manufacture; Mechanical properties; Open circuit voltage; Polyelectrolytes; Polyethylene oxides; Polymers; Thin films

Engineering main heading: Titanium dioxide

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