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GEL POLYMER ELECTROLYTE BASED DYE SENSITIZED SOLAR CELL FOR SOLAR PANEL

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MEGA-TREND

- Energy and Power
- Chemicals and Materials

TECHNOLOGY READINESS LEVEL (TRL)

- TRL 3

PATENT/ GRANTED NUMBER

- PI 2016701676

TECHNOLOGY OVERVIEW

The present invention introduces a gel polymer electrolyte based dye sensitized solar cell (DSSC) utilizing polyacrylonitrile (PAN). The electrolyte have a composition of PAN:EC:PC:TBP:Pr4NI:LiI:BMII:I2. The photoelectrode comprises a glass substrate, a fluorine-doped tin oxide layer adjacent to the substrate, a P90 titanium dioxide layer adjacent to the fluorine-doped tin oxide layer , and a ruthenium sensitized P25 titanium dioxide layer adjacent to the P90 titanium dioxide layer. The counter electrode comprises a glass substrate, a fluorine-doped tin oxide layer adjacent to the substrate and a platinum layer adjacent to the fluorine-doped tin oxide layer.

The solar cell embodiment is connected with fifteen same solar cells to form a solar panel, said solar panel is provided with the solar cells in a parallel pair of eight solar cells in series. It was found that current of ~6.4 mA, voltage of ~5.4 V and power of ~35 mW are achieved in this arrangement when exposed under light illumination of 8 W m-2.

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