

TiN/TiO₂ Nanostructure Coating on Glass Substrate

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Abstract : In this work, a nanostructured TiO₂ layer was coated onto a FTO-less glass substrate using screen printing technique for back contact DSSC application. Then, titanium nitride thin film was applied on TiO₂ layer by plasma assisted chemical vapor deposition (PACVD) as charge collector layer. The microstructure of prepared TiO₂ layer was characterized by SEM. The sheet resistance, microstructure and elemental composition of titanium nitride thin films were analysed by four point probe, SEM, and EDS, respectively. TiO₂ layer had porous nanostructure. The EDS analysis of TiN thin film showed presence of chlorine impurity. Sheet resistance of TiN thin film was 30 Ω/sq. With respect to the results, PACVD TiN can be a good candidate as a charge collector layer in back contacts DSSC.

Keywords : TiO₂, TiN, charge collector, DSSC

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