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TiN/TiO2 Nanostructure Coating on Glass Substrate

Authors : F. Dabir, R. Sarraf-Mamoory, N. Riahi-Noori

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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