Light scattering effect of TiO_2 Photoelectrode based on silicon resin for Dye-Sensitized Solar Cells

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The dye-sensitized solar cells (DSSC) are working with photosynthesis principle. The DSSC consists of dye molecules, the electrolyte, counter electrode and nonocrystalline TiO_2 based photoelectrde. In view of the this paper so far achieved using the TiO_2 semiconductor layer with different scattering layers was investigated in DSSC. But this coating the different scattering layers was a complicated procedure. The silicone resin (SR) was used as material of the diffusion of light and an index of refraction was 1.43. The SR added to the TiO_2 paste and this paste applying for DSSC were investigated. The photocurrent-voltage properties of the thin films and the performance of DSSC were measured by photovoltaic-current density, AC impedance. DSSC based on the SR powder was obtained conversion efficiency of 6.6% under irradiation of AM 1.5(100mWcm^{-2}).

Acknowledgements
This research was financially supported by the Ministry of Education, Science Technology (MEST) and Korea Industrial Technology Foundation (KOTEF) through the Human Resource Training Project for Regional Innovation.