

P25/카본메조포러스 복합체를 투명전극으로 하는
DSSC의 광기전효과측정

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This study examined the characterization of nanoporous structured carbon/titanium dioxide composites and its application to dye-sensitized solar cells. TEM of nanoporous structured carbon revealed nanopore sizes of 2.0~3.0 nm with a regular hexagonal form. When nanoporous structured carbon was mixed to P-25 TiO₂ particles (Degusa, P-25, 20~70 nm) and then was applied to DSSC, the energy conversion efficiency was enhanced considerably compared with that using nanometer sized pure TiO₂: the energy conversion efficiency of the DSSC prepared from nanoporous carbon/P-25 TiO₂ composites was approximately 8.94%, compared to 2.29% using pure P-25 TiO₂. We confirmed from FT-IR spectroscopy that the dye molecules were attached perfectly to the surface and more was absorbed on the nanoporous structured carbon than on the nano-sized TiO₂ particles. Electrostatic force microscopy (EFM)