

## Electrical Property Improvement of Organic Solar Cell by Oxygen Plasma Surface Treatment

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Solar cell technology based on conjugated polymer-fullerene composites continues to be of interest as a potential sustainable energy. Polymer solar cells were fabricated with interpenetrated network of poly(2-methoxy-5-(2'-ethyl-hexyloxy)1-4-Phenylene- vinylene) (MEH-PPV) as electron donor and fullerene derivative (6'6)-phenyl-C61-butyric acid methyl ester (PCBM) as electron acceptor. The photovoltaic performances were strongly dependent on the surface properties of anode, conductivity of hole-transporting material, the thickness of MEH-PPV:PCBM composite film.

In this study, electrical characteristics of organic solar cell were investigated as plasma treatment of ITO surface changed. Oxygen plasma treated ITO surface was carried out by controlling RF power. Power conversion efficiency (PCE) of 1.21% and fill factor up to 31% are achieved under Air Mass 1.5, 100 mW/cm<sup>2</sup> illumination for the device prepared with a PCBM concentration (3 wt. %) film and oxygen plasma treated ITO.