

## TiO<sub>2</sub> 나노 입자의 중간 전극을 이용한 직렬 적층형 유기 태양 전지

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### Solution-processed Polymer Tandem Cells Using Nano Crystalline TiO<sub>2</sub> Interlayer

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**Abstract** : For the polymer tandem cell, simple and advantaged solution-based method to electron transport intermediate layer is presented which are composed TiO<sub>2</sub> nanoparticles. Device were based on a regioregular Poly(3-hexylthiophene)(P3HT) and [6,6]-phenyl C<sub>61</sub> butyric acid methyl ester(PC<sub>60</sub>BM) blend as a donor and acceptor bulk-heterojunction. For the middle electrode interlayer, the TiO<sub>2</sub> nanoparticles were well dispersed in ethanol solution and formed thin layer on the P3HT:PCBM charge separation layer by spin coating. The layer serves as the electron transport layer and divides the polymer tandem solar cell. The open-circuit voltage (Voc) for the polymer tandem solar cells was closed to the sum of those of individual cells.

**Key Words** : TiO<sub>2</sub>, organic photovoltaics, polymer, tandem