

Applying Aniline for P-doping of PEDOT:PSS Films to Improve Their Conductivity and Efficiency of Perovskite Solar Cells

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Abstract: Poly(3,4- ethylenedioxythiophene):polystyrene sulfonate (PEDOT: PSS) is responsible for hole extraction efficiency and hole transport in the perovskite solar cell structure. The inclusion of PSS reduces the conductivity of the PEDOT films, which inhibits hole transport and results in a low photo current of the perovskite solar cell. In this work, an aniline solution was used as an additive in the PEDOT: PSS thin film to increase electrical conductivity. Two different methods were used to incorporate the additive: surface and volume treatment. The results show that the surface treatment with aniline solution can significantly increase the conductivity of PEDOT: PSS film. Moreover,

the photoconversion efficiency of the perovskite solar cell with such a PEDOT: PSS layer is increased 1.5 times compared to the untreated one.

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