

Hysteresis Effect in Organometallic Perovskite Solar Cells with Mesoscopic NiO as a Hole Transport Layer

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Abstract : In this paper, the mesoscopic NiO was used as a hole transport layer in the inverted planar organometallic hybrid perovskite solar cell to study the effect of hysteresis. The devices we fabricated have the structures Fluorine Tin Oxide (FTO)/mesoscopic NiO/perovskite/[6,6]-phenyl C₆₁-butyric acid methyl ester (PC₆₁BM) photovoltaic device. The perovskite solar cell was done by toluene air (TLA) method and horn sonication for the dispersion of the NiO nanoparticles in deionized water. The power conversion efficiency was 12.07% under 1.5 AM illumination. We report hysteresis in the in current-voltage dependence of the solar cells with mesoscopic NiO as a hole transport layer.

Keywords : perovskite, mesoscopic, hysteresis, toluene air

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