

Performance improvement of perovskite solar cells by optimizing electron-hole transport

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A uniform and pinhole-free hole-blocking layer is necessary for fabricating high-performance perovskite-based solar cells. Several metal oxides were investigated to form thin blocking layers. We utilized the spin coating method to coat the thin metal oxide layer on transparent conductive oxide substrate. Highly ordered nanoporous TiO₂ layer was also prepared via a surfactant-templating method for efficient charge transport. In addition, the effects of various additives on the photovoltaic properties were systematically studied in terms of the electron-hole transports.

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