

## High-transmittance nanopatterning hole-extraction layer for inverted planar perovskite solar cells

양화영, 왕유생, Tahmineh mahmoudi, 한윤봉<sup>†</sup>  
전북대학교

Organometal halide perovskite solar cells (PSCs) have exhibited a rapid increase in energy conversion efficiency. PSCs are emerging as one of the most promising candidates for next-generation photovoltaic technology due to strong absorption over the incident solar spectrum, high carrier mobility, and simple processes such as solution techniques at low temperatures. The increasing light harvesting is the best way to improve the energy conversion efficiency of solar cells. Because the perovskite device consist of thin film layers, it is difficult to adapt the light harvesting materials in perovskite solar cells with well crystal quality of perovskite film. Nanoimprinting technique has been regarded as an effective method to construct nanostructures for improving light absorption in optoelectronic devices. Here we used nanoimprint lithography technique to form highly uniform and well-designed nanopatterning hole-extraction layer in inverted planar perovskite solar cells. Compared to the plain layer of hole-extraction layer, the nanopatterned device resulted in high photocurrent density and thus improvement of light harvesting efficiency.