

Mechanically Durable High Efficiency Perovskite Solar Cells

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Organic-inorganic lead halide perovskites ($\text{CH}_3\text{NH}_3\text{PbX}_3$, X: I-, Br-, Cl-) being spotlighted as powerful light harvesters have realized certified efficiency as high as 20.1% within very few years since first report of 3.8% in 2009, opening new era for photovoltaic fields. The excellent properties as absorbers and inexpensive solution processing establish perovskite solar cells as promising candidates for commercialization of photovoltaic. However, most of state-of-the-art perovskite solar cells need expensive noble metal (Au and Ag) as metal back contacts, still raising the cost of perovskite solar cells. Therefore, replacement of noble metals with low-cost and earth abundant materials is highly desirable and that is one of the important topics for perovskite solar cell fields. In this work, for the first time, we develop a noble-metal free mesoscopic perovskite solar cell based on low-cost Mo cathode.