

The Fabrication of mixed halide perovskite ($\text{CH}_3\text{NH}_3\text{PbI}_{3-x}\text{Cl}_x$) solar cells by single step coating without annealing process

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The mixed halide perovskite ($\text{CH}_3\text{NH}_3\text{PbI}_{3-x}\text{Cl}_x$) is used for highly efficient photovoltaic material because of its improved charge transport property and diffusion length by Cl doping without band gap change. The one-step method is the most simplest coating method to form perovskite thin-films by using of one-solution which dissolved methyl ammonium iodide and lead chloride in solvent. However, if mixed halide perovskite is fabricated with one-step method, it should be annealed long time (about 40 min at 100 °C) to obtain pure perovskite layer with elimination of excess MAI (methyl ammonium iodide) and Cl in one-step solution. This perovskite layer cannot cover substrate enough because it agglomerates itself by annealing process. Consequentially, it brings poor morphology of perovskite layer. So we tried to form mixed halide perovskite thin-films without remove annealing process through one-step method.