

Crystal grain growth of halide perovskite thin-film by metal halide substitution during spray coating

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Many researchers aim to solve global warming problems by studying low-pollution energy sources and sustainable energy sources. As one of solutions, solar energy has been intensive studied until now because it is clean, abundant and renewable. Especially, solar cells have been of great interest because they can directly convert the solar light energy to electricity, which is the most convenient and safe form of energy in everyday life. However, the power generation cost of solar cells are still more expensive than that of fossil fuel. So it is great challenging to develop high efficiency and low-cost third generation solar cells. Recently, perovskite solar cells(PSCs) are expected to exhibit high power conversion efficiency(PCE) due to their low exciton binding energy and long carrier diffusion length and can be fabricated with low-cost due to the solution processability at low temperature. For the fabrication of low-cost and high performance PSCs. here, we used spray coating process to form uniform perovskite thin-film. Because the larger crystal grains have better performance. we tried to form larger crystal grain of perovskite by metal halide substitution during spray coating.