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Hybrid Organic–Inorganic Perovskites Materials: A review on Architecture and Stability for Power Conversion Efficiency

Abstract

In the past decade, solar technology has emerged with the three competing technologies of crystalline semi-conductors, polymeric and carbon nanostructures based. These technologies face to challenges that include cost and conversion efficiency. More recently, hybrid organic–inorganic perovskite (HOIP) materials has been proven as promising for new technologies of cost effective solar cells devices. Due to their tunable band gap, low temperature processing and abundant elemental constituents, in combination with their flexibility and simplicity of fabrication methods, hybrid perovskite materials allow us to reach an impressive power conversion efficiency (PCE) of 35.3% . In this review, we discuss the importance of perovskite film preparation, characterization and properties in achieving high performance HOIP photovoltaic cells. The review also focuses on highlighting the post-deposition and thermal annealing treatments.

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