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Theoretical investigation of hybrid organic-inorganic perovskite

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The light shone upon hybrid organic–inorganic perovskite (HOIP) has never been brighter. Many researchers have claimed that this material could hold the key to the new era of photovoltaic technology, owing to its efficiency, both energetically and economically. Despite all its merits, perovskite solar cell is plagued by an indispensable draw back; it degrades precipitously under sunlight. Not only sunlight that has destructive effects on perovskites, humidity and high temperature also cause the compound to disintegrate. In this seminar, we present a review on structural properties of the archetypal perovskite, the methylammonium lead iodide perovskite, as reported by various experiments. The correlation between the ion disorder and structural instability, which ultimately leads to phase transition, is eminent. We also cover the most up-to-date reports on pressurization experiments. The effects of pressure on the material characteristics will be discussed.

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