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Defects in Halide Perovskites

Open circuit voltage VOC is the main parameter which affects the power conversion efficiency of a perovskite solar cell. Its value is negatively affected by the number of defects in the material. Therefore, it is important to determine their amount, and location and develop effective ways to remove or passivate them. Here, we present an overview of our work on this topic. We discuss the relation between Urbach energy and losses in VOC. Moreover, we demonstrate a new way of interpreting photothermal deflection spectroscopy measurement to differentiate between surface and bulk defects and suggest a nitrogen plasma treatment as an industry-ready technology for defect treatment.

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