



Showcasing research from Professor Hemamala Karunadasa's laboratory, Department of Chemistry, Stanford University, California, United States.

Evidence for I_2 loss from the perovskite–gas interface upon light-induced halide segregation

Sunlight-induced halide segregation in mixed bromide-iodide lead perovskites, which limits obtainable voltages from these solar-cell absorbers, reverses in the dark. However, sustained illumination at 1 sun leads to irreversible I_2 loss from the perovskite–air interface at ambient conditions. Although I_2 off-gassing is less likely in bromide-rich perovskites, light-induced halide segregation brings the iodides into proximity and forms electronic states that are energetically poised to trap and accumulate holes, providing a driving force for I_2 loss. Thus, even bromide-rich mixed-halide perovskite absorbers will benefit from I_2 -impermeable encapsulation for long-term stability.

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See Hemamala I. Karunadasa *et al.*, *Chem. Sci.*, 2025, **16**, 9662.