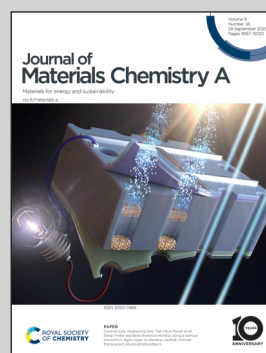


**Showcasing research from Professor Yongqing Cai's laboratory, Institute of Applied Physics and Materials Engineering, University of Macau, Macau, China.**

Recipe for the design of mixed cation lead halide perovskites: adsorption and charge transfer from A-site cations to  $\text{PbI}_2$

Single type lead halide perovskite suffers from a low stability. One remedy is through a mixture engineering of A-site cations ( $\text{Cs}^+$ ,  $\text{Rb}^+$ ,  $\text{FA}^+$  and  $\text{MA}^+$ ). Here the ideal recipe of the mixed A-site cations is provided by the amount of charge transfer from these cations to  $\text{PbI}_2$ . A mechanism of initial growth of perovskite is proposed *via* ionic diffusion of iodine and A-site cations driven by a built-in electric field across the adsorbate- $\text{PbI}_2$  interface.

**As featured in:**



See Yongqing Cai *et al.*,  
*J. Mater. Chem. A*, 2023, **11**, 19349.