

Stable Cs_2ReX_6 (X – Cl, Br) Vacancy-Ordered Perovskites for Solar Water Splitting

Neelam Venkata Phani Chandra,^a Muhammed Hamdan,^a Aravind Kumar Chandiran^{*ab}

^a Department of Chemical Engineering, Indian Institute of Technology Madras, Adyar, Chennai 600036, Tamil Nadu, India

^b Centre for Photo- and Electro-Chemical Energy Sciences, Indian Institute of Technology Madras, Adyar, Chennai 600036, Tamil Nadu, India

* aravindkumar@iitm.ac.in

ELECTRONIC SUPPLEMENTARY INFORMATION

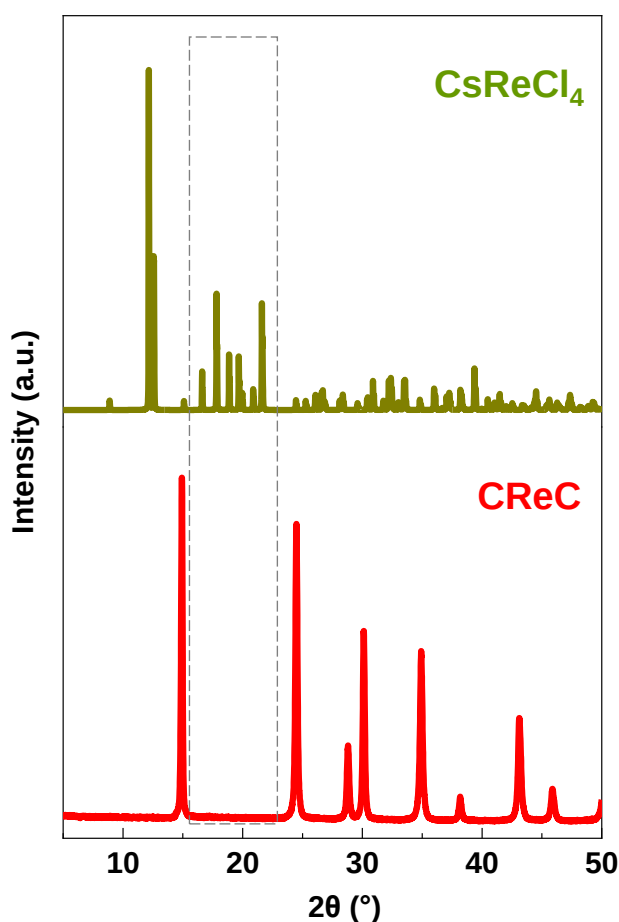


Figure S1. Comparison of PXRD pattern of Cs_2ReCl_6 with simulated CsReCl_4 .

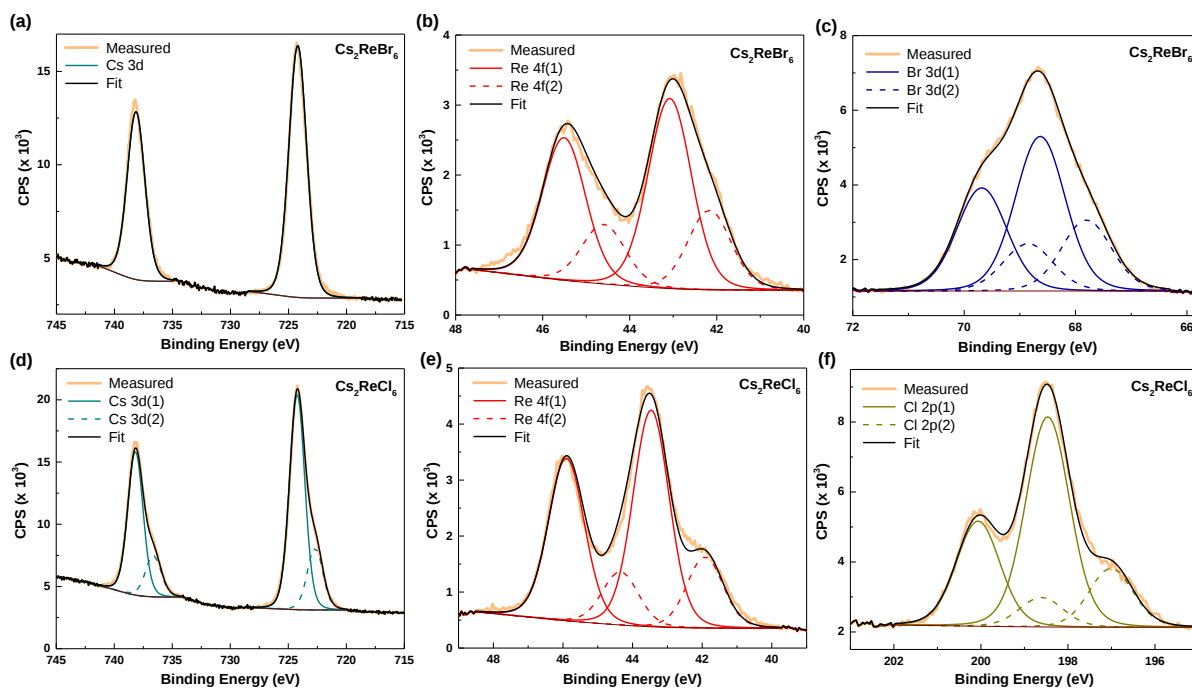


Figure S2. X-ray photoelectron spectra of (a-c) Cs_2ReBr_6 and (d-f) Cs_2ReCl_6 . (a) & (d) correspond to cesium, (b) & (e) correspond to rhenium and (c) & (f) correspond to halogen

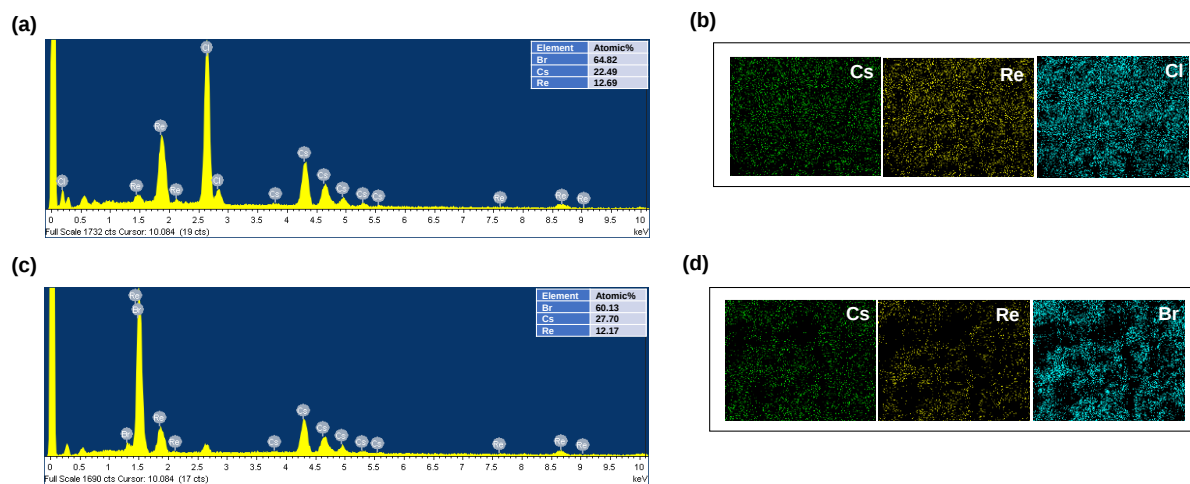


Figure S3. Energy dispersive X-ray spectroscopy of (a,b) Cs_2ReCl_6 and (c,d) Cs_2ReBr_6

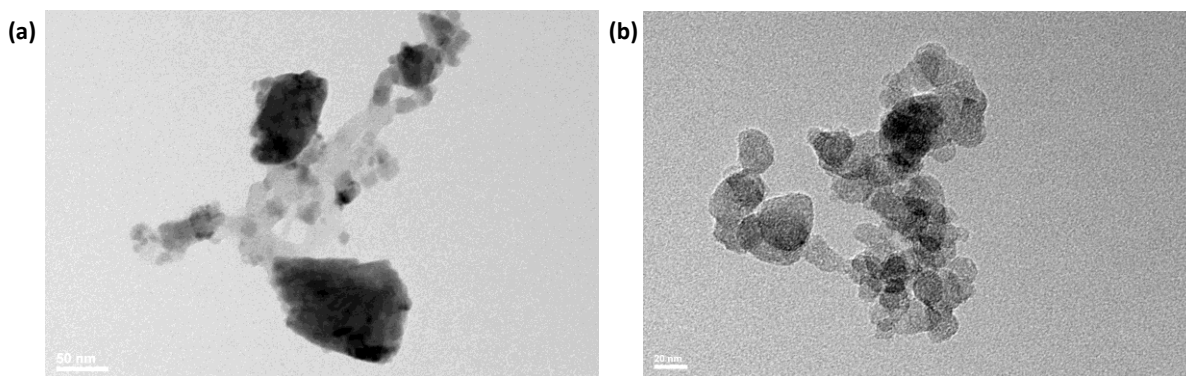


Figure S4. TEM micrographs of (a) Cs_2ReBr_6 and (b) Cs_2ReCl_6

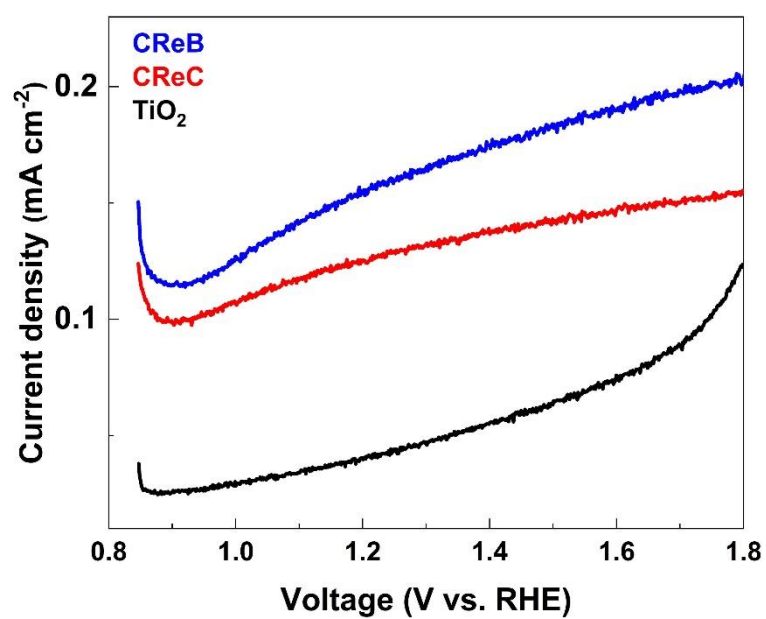


Figure S5. Linear sweep voltammogram of with (Cs_2ReBr_6 - blue, Cs_2ReCl_6 - red) and without (black) perovskite absorbers, under AM1.5G illumination.

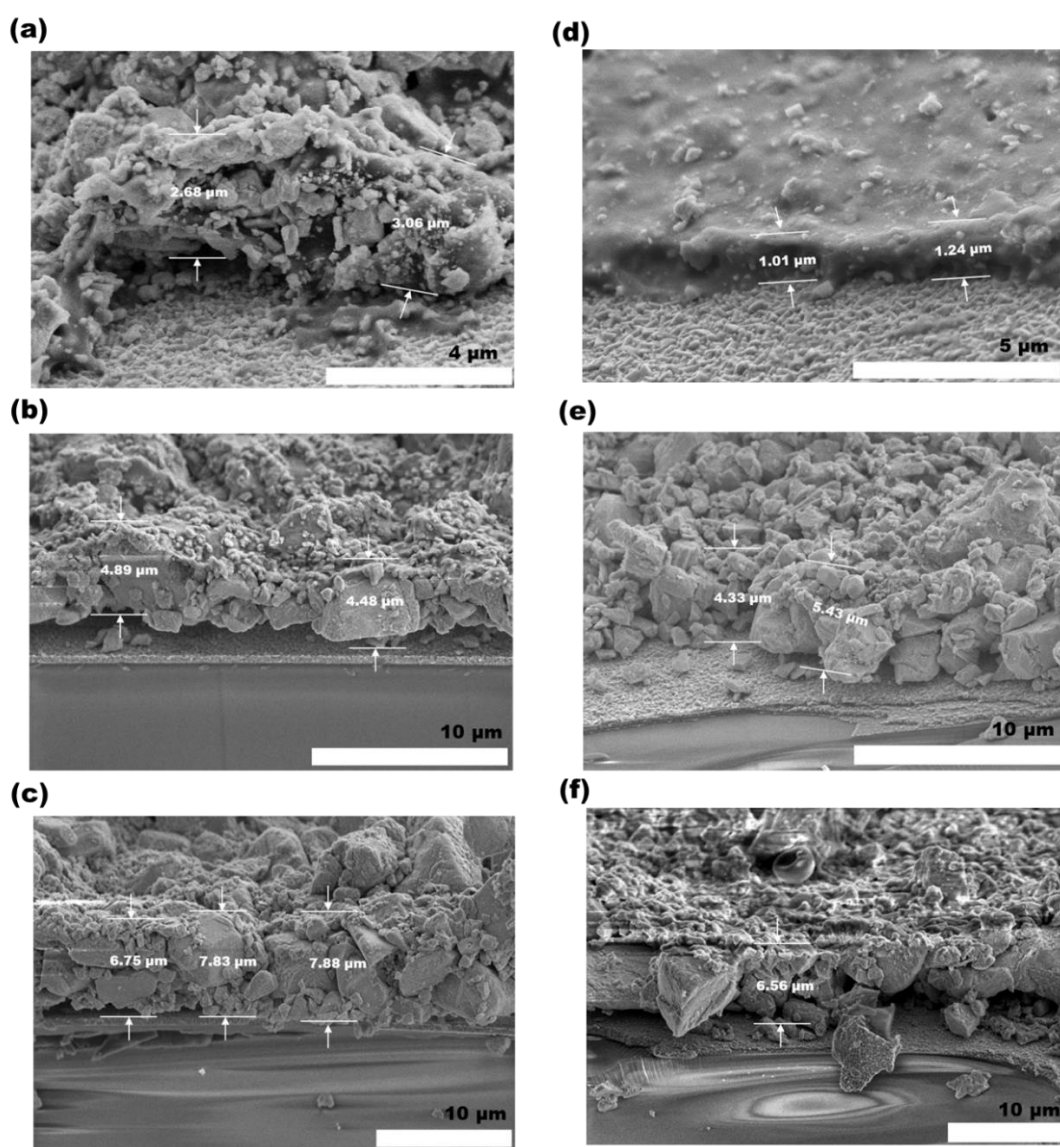


Figure S6. Cross-sectional SEM micrographs of Cs_2ReCl_6 ((a) 50 μL , (b) 100 μL , and (c) 150 μL) and Cs_2ReBr_6 ((d) 50 μL , (e) 100 μL , and (f) 150 μL)

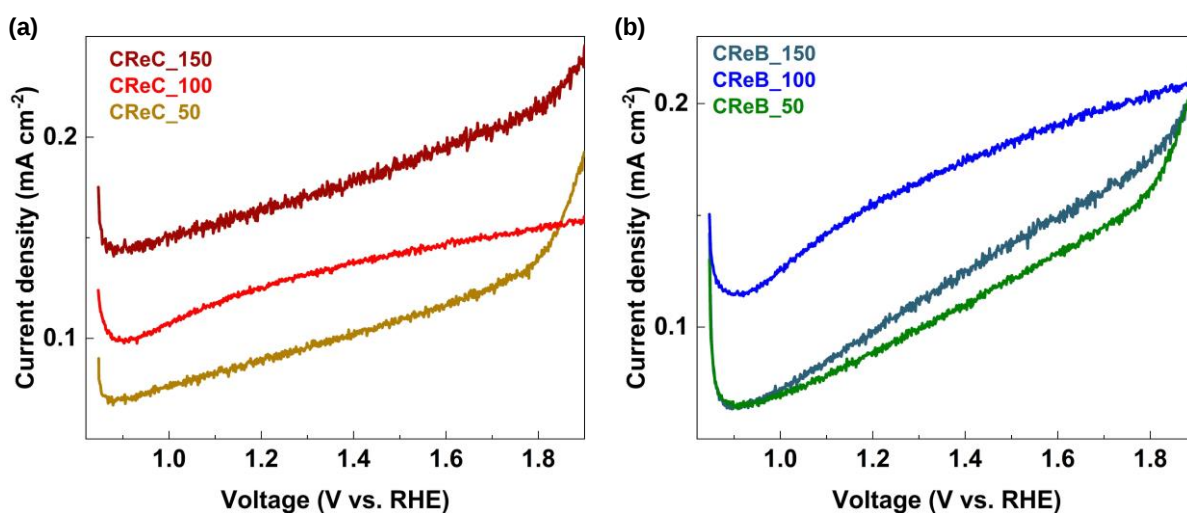


Figure S7. Linear sweep voltammograms of (a) Cs_2ReCl_6 and (b) Cs_2ReBr_6 at different deposition volumes (50 μL , 100 μL and 150 μL). The LSVs were taken under AM1.5G illumination.