Synthesis of air-stable two-dimensional nanoplatelets of Ruddlesden-Popper organic-inorganic hybrid perovskites

Jayesh Cherussery,1+, Sreekanth J Varma1+, Basudev Pradhan1, Jinxin Li2, Jitesh Kumar1,2, Elizabeth Barrios1,4, Mohammed Zain Amin1, Andrew Towers1,3, Andre Gesquiere1,2,3, Jayan Thomas1,2,4*

Fig. S1. SEM image of bulk 2D RP crystals, scale bar = 200µm.
**Fig. S2.** EDX analysis of bulk 2D RP crystals. (a) SEM image of bulk 2D RP crystals used in the EDX elemental mapping of carbon (b), nitrogen (c), lead (d), and (e) iodine.
**Fig. S3.** TEM images of the quantum dots of 2D RP crystals prepared by (a) bath and (b) probe sonication methods, respectively.

**Fig. S4.** (a,b) HRTEM images of the nanoplatelets (scale bar 5nm) showing lateral dimension and thickness, (c) profile analysis of the HRTEM image showing d-value of 0.313nm corresponding to (222) plane of the 2D RP sample.
Fig. S5. UV-visible absorption spectrum of 2D RP nanoplatelets on the first day of preparation and after 60 days.

![UV-visible absorption spectrum](image)

Fig. S6. Profile analysis of the AFM topography image showing the thickness of nanoplatelets around 5nm.

![Profile analysis of AFM topography image](image)