Supplementary Information (SI) for RSC Advances.

Modulating Phase Composition and Crystallization of 2D Ruddlesden–Popper Perovskite Films via a Polyvinylidene Fluoride Buried Interface

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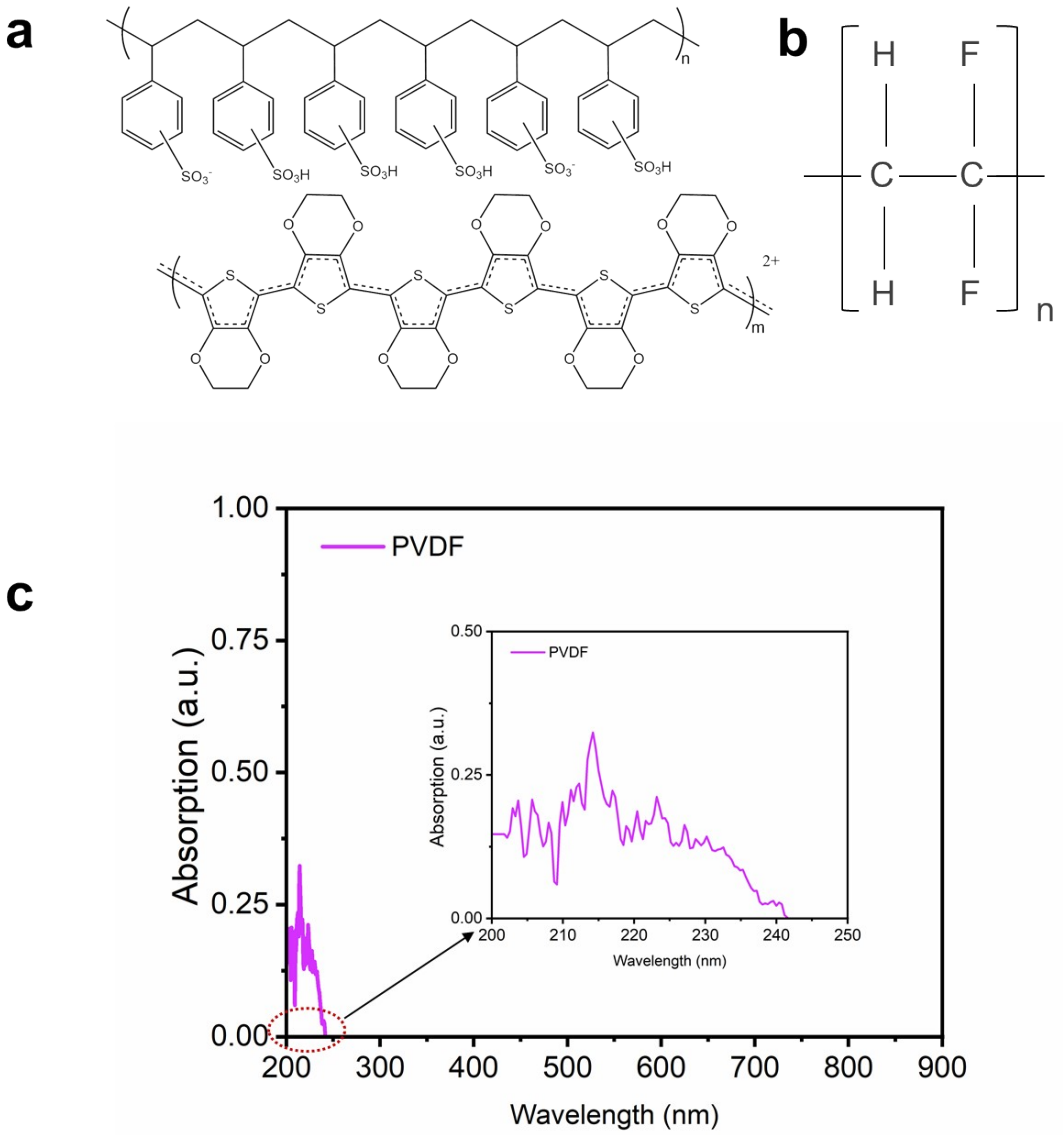

Figure S1(a-b) The chemical structure of PEDOT:PSS and PVDF, (c) The UV-vis absorption spectrum of PVDF onto Quartz, inset Figure shows the absorption spectrum of 200-250nm PVDF.

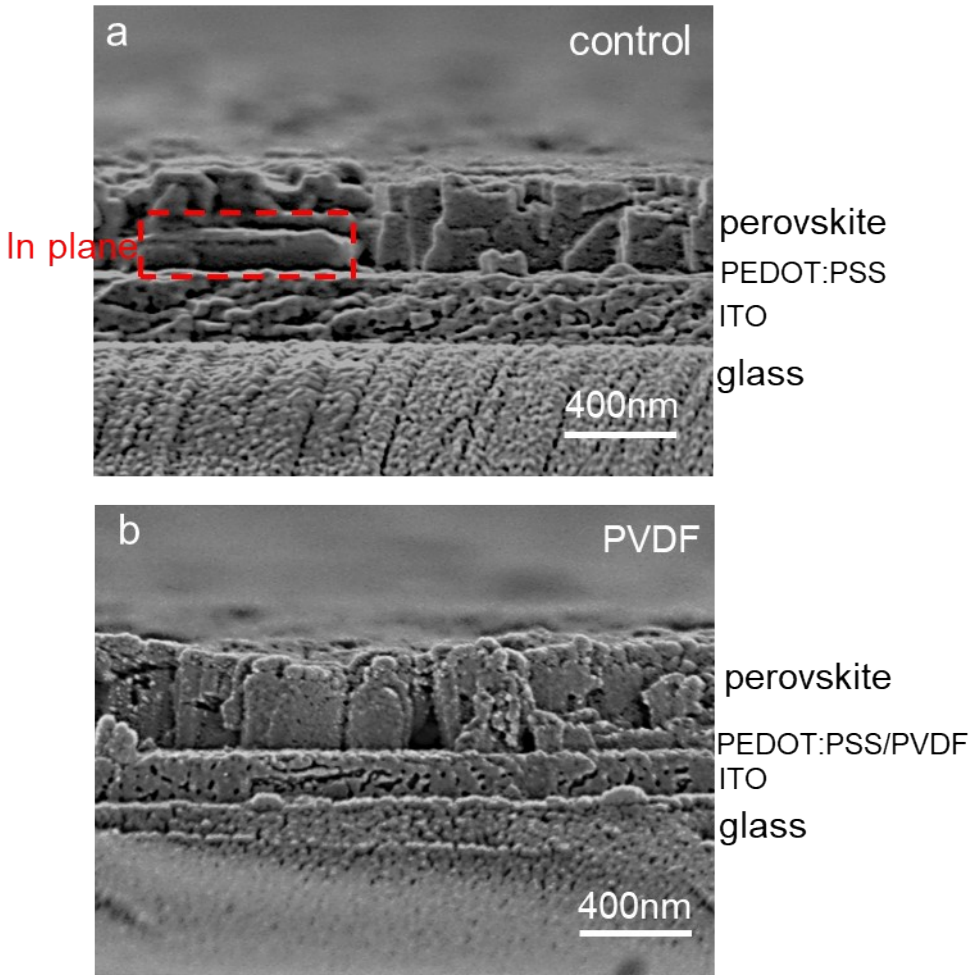

Figure S2 The cross-sectional SEM of perovskite fabricated onto different substrates.

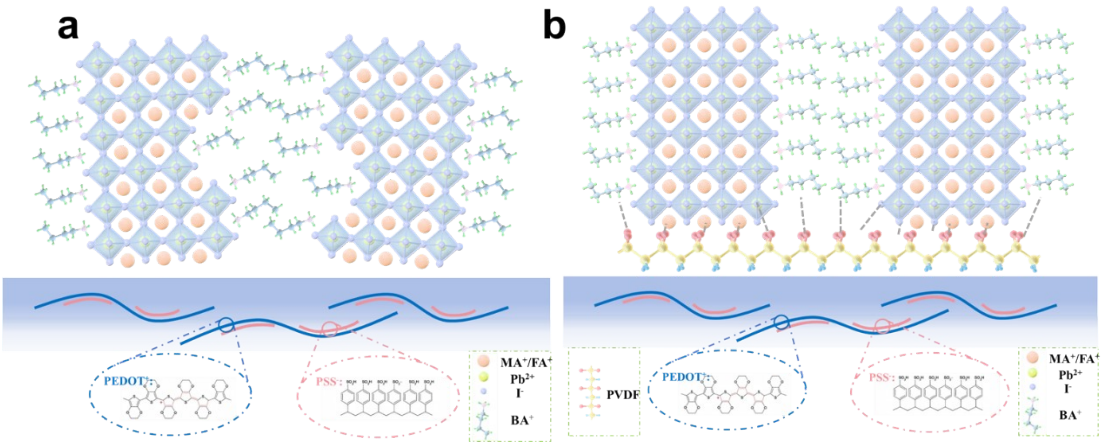

Figure S3 Schematic illustration of the interaction between PVDF and perovskite:(a) perovskite onto PEDOT:PSS, (b)perovskite onto PVDF/PEDOT:PSS.

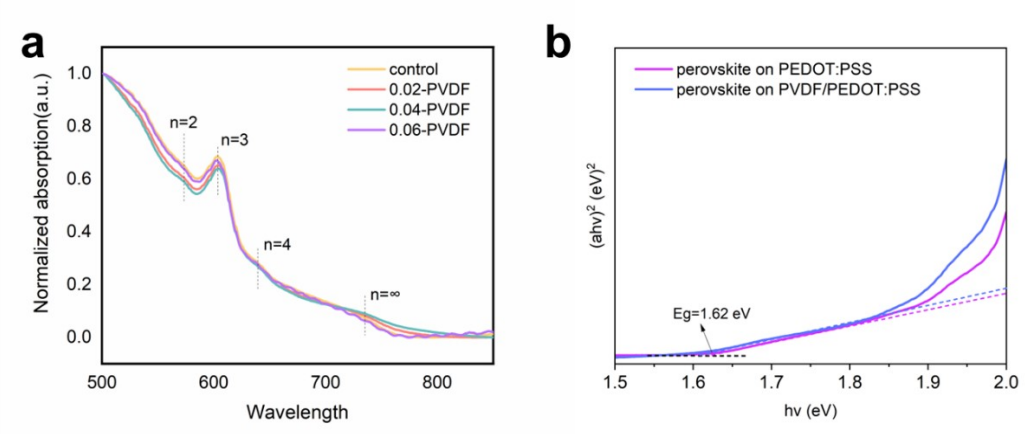

Figure S4 (a) The absorption of perovskite on PVDF/PEDOT:PSS, where the concention of PVDF are 0.02 mg/ml (0.02-PVDF)、0.04mg/ml (0.04PVDF) and 0.06g/ml (0.06 PVDF), respectively. (b) The optical bandgaps of perovskite on PEDOT:PSS and 0.04mg/ml PVDF onto PEDOT:PSS.

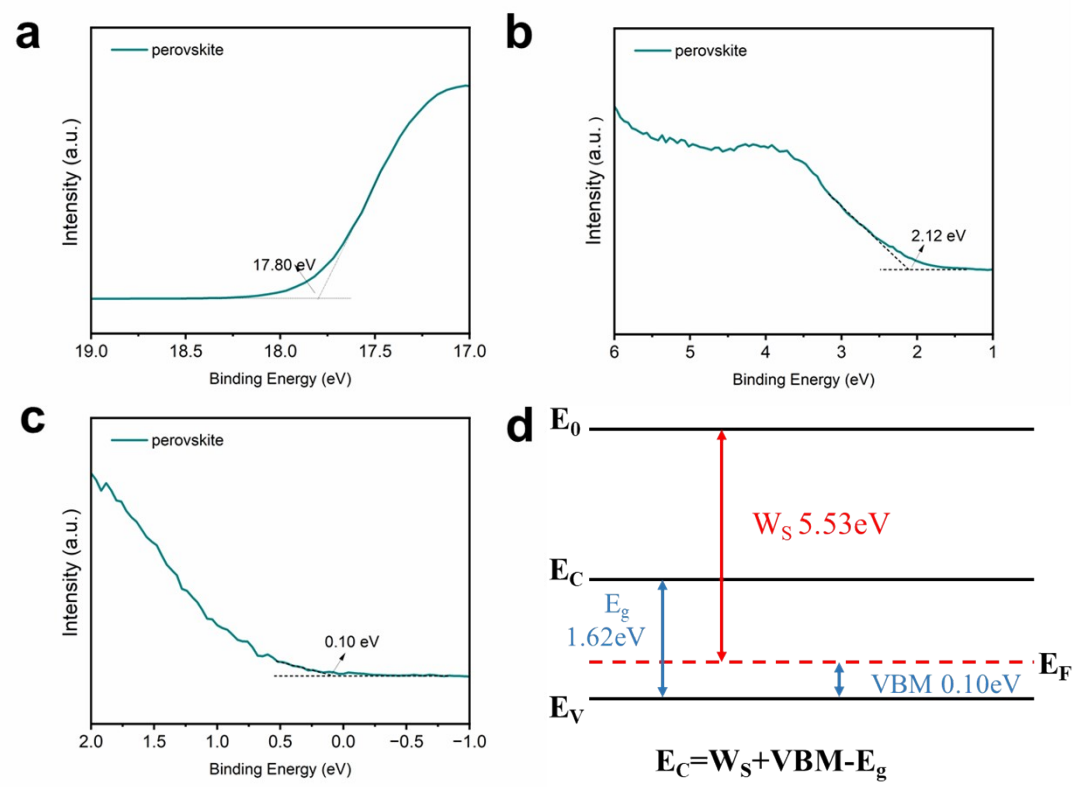

Figure S5 The UPS data of the perovskite film. (a) cutoff ($E_{cut-off}$) and (b) onset (E_i). (c) Valence band. (d) Schematic energy level diagram of the 2D RPP layer.

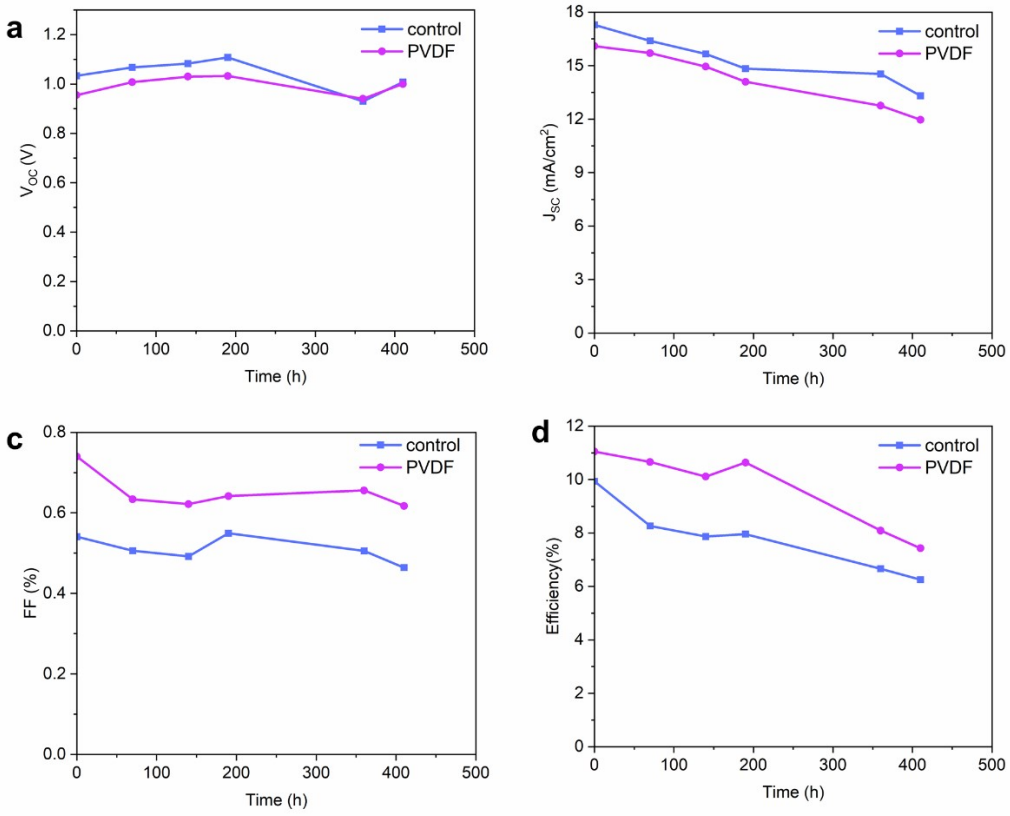

Figure S6 The stability of unsealed 2D PSCs based on PEDOT:PSS and PVDF/PEDOT:PSS which keep in the air at dark condition.