

Supporting Information for

Performance improvement of inverted two-dimensional perovskite solar cells using a non-fullerene acceptor as the trap passivator

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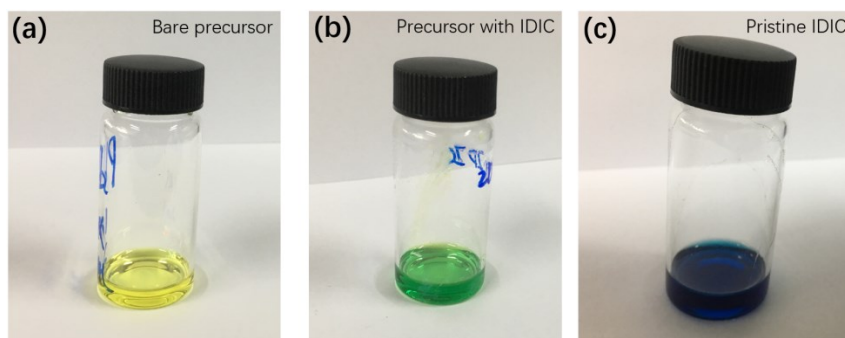


Fig. S1. Photographs of (a) bare perovskite precursor; (b) perovskite precursor with IDIC; (c) pristine IDIC solution.

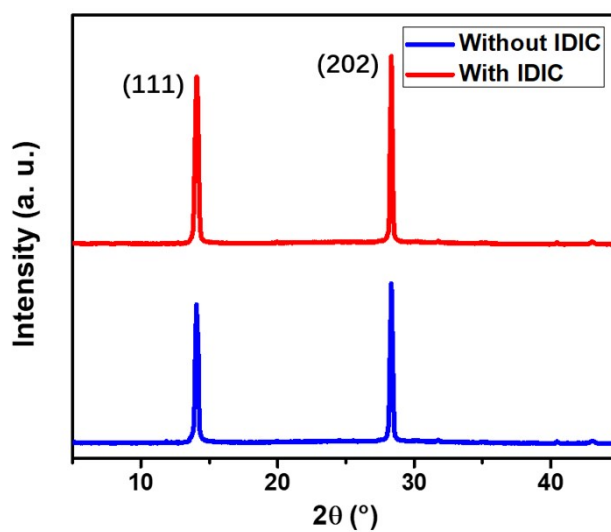


Fig. S2. XRD patterns of the perovskite films without and with IDIC.

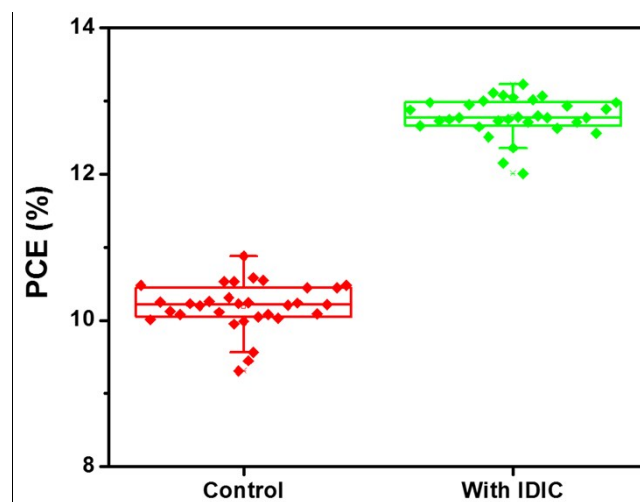


Fig. S3. Statistical PCE values for 32 individual PSCs without and with IDIC in the perovskite film.

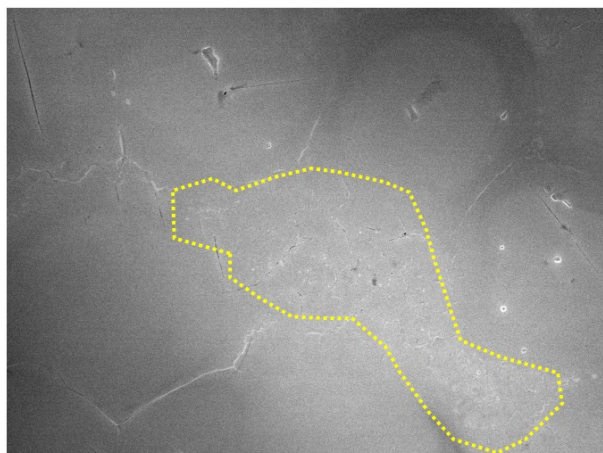


Fig. S4. SEM image of an example perovskite film with 2.0 mg mL⁻¹ of IDIC.

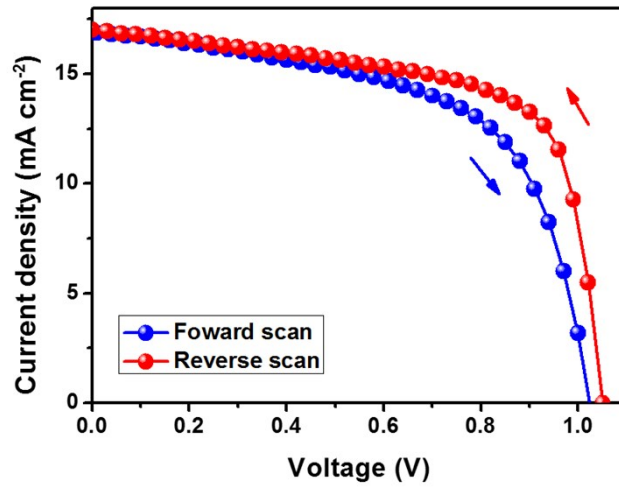


Fig. S5. Forward and reverse J - V characteristics of the reference 2D PSCs without IDIC in the perovskite film.

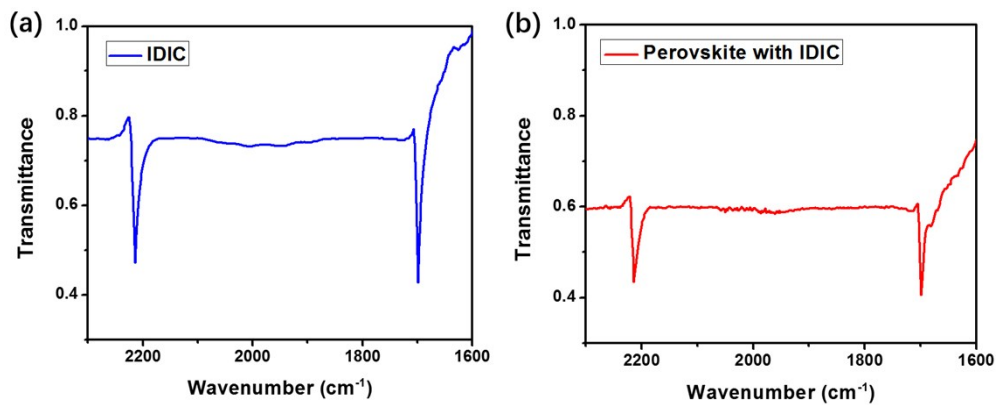


Fig. S6. FT-IR spectra of (a) bare IDIC and (b) perovskite with IDIC powders.

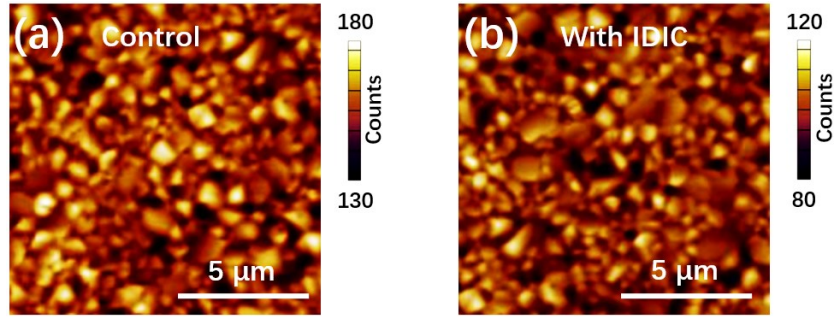


Fig. S7. PL maps of bare perovskite (a) and perovskite with IDIC (b) films. The PL signals were generated using a 532 nm laser source at 2000 mW cm^{-2} .

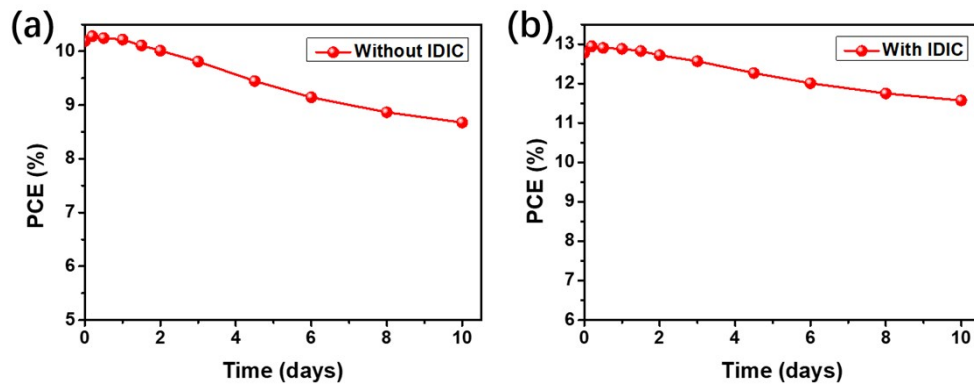


Fig. S8. PCE as a function of time for PSCs without (a) and with (b) IDIC.

Table S1. Summary of the photovoltaic parameters, for the best sample among the PSCs with IDIC in the perovskite film.

Scan	J_{sc} (mA cm ⁻²)	V_{oc} (V)	FF (%)	PCE (%)
Forward	18.8	1.04	67.6	13.23
Reverse	18.8	1.04	68.4	13.37

Table S2. Summary of the photovoltaic parameters, for the best reference sample among the PSCs without IDIC in the perovskite film.

Scan	J_{sc} (mA cm ⁻²)	V_{oc} (V)	FF (%)	PCE (%)
Forward	17.3	1.02	59.8	10.53
Reverse	17.4	1.04	62.7	11.34