

Crystallization and Interfacial Regulation of CsPbI₃ Perovskites by Dimethylammonium Chloride for Efficient and Stable Solar Cells

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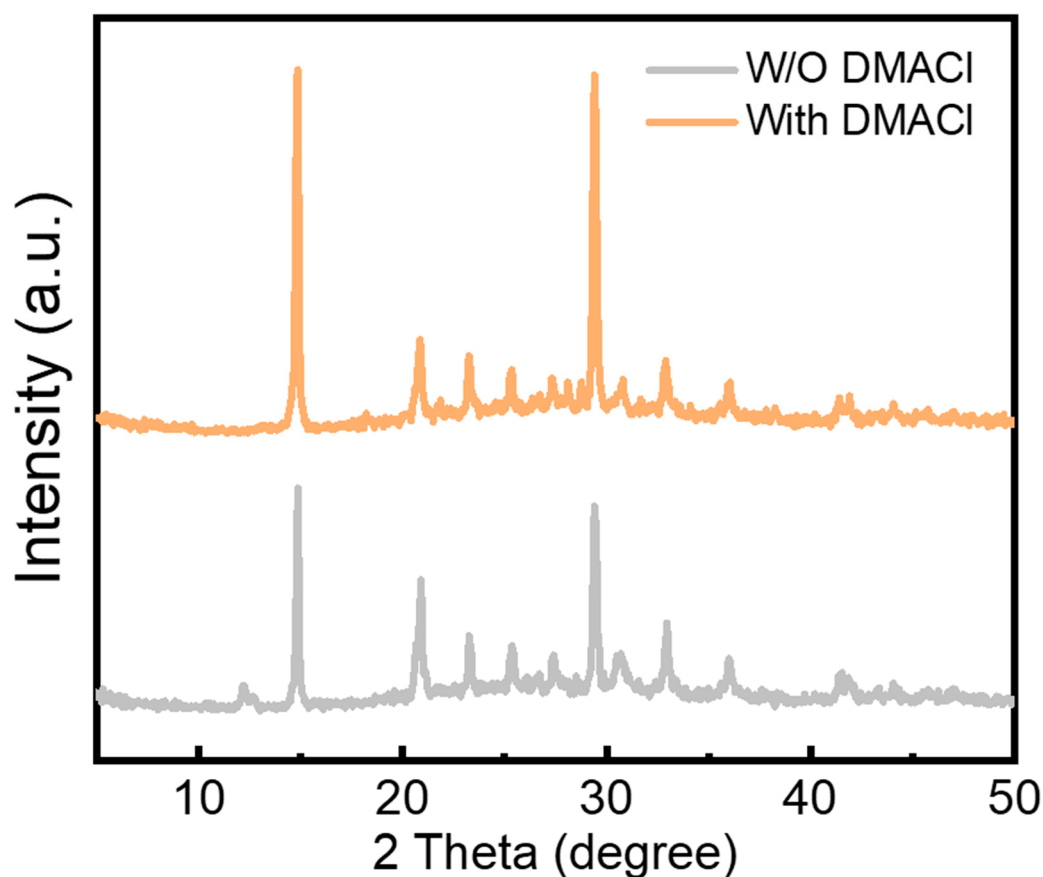


Figure S1. X-ray diffraction (XRD) patterns of CsPbI₃ films without and with DMACl treatment.

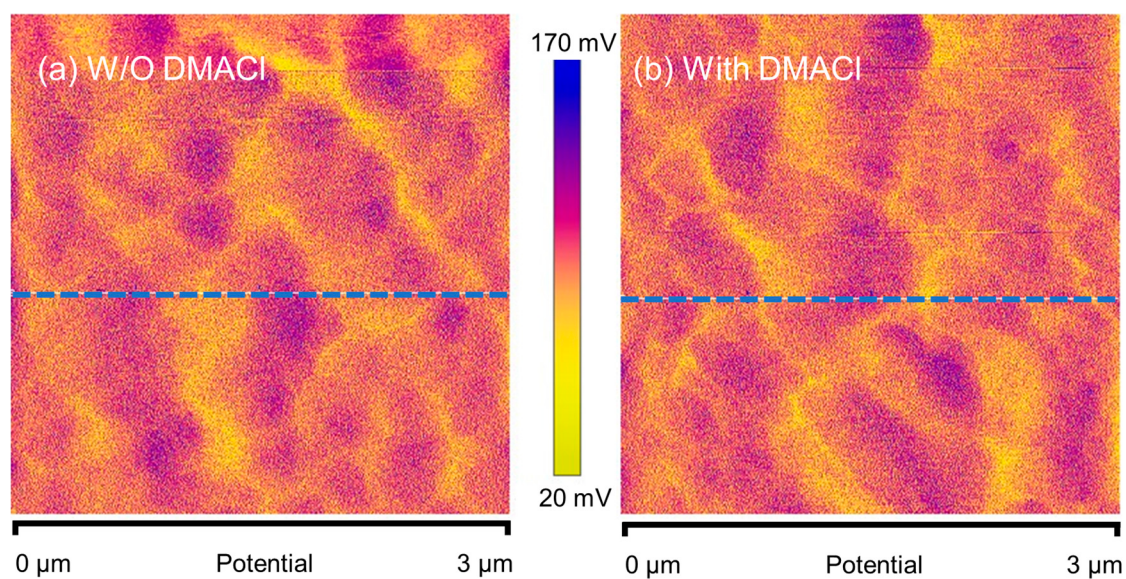


Figure S2. Kelvin probe force microscopy (KPFM) surface potential maps of the CsPbI₃ films without and with DMACI treatment, respectively.

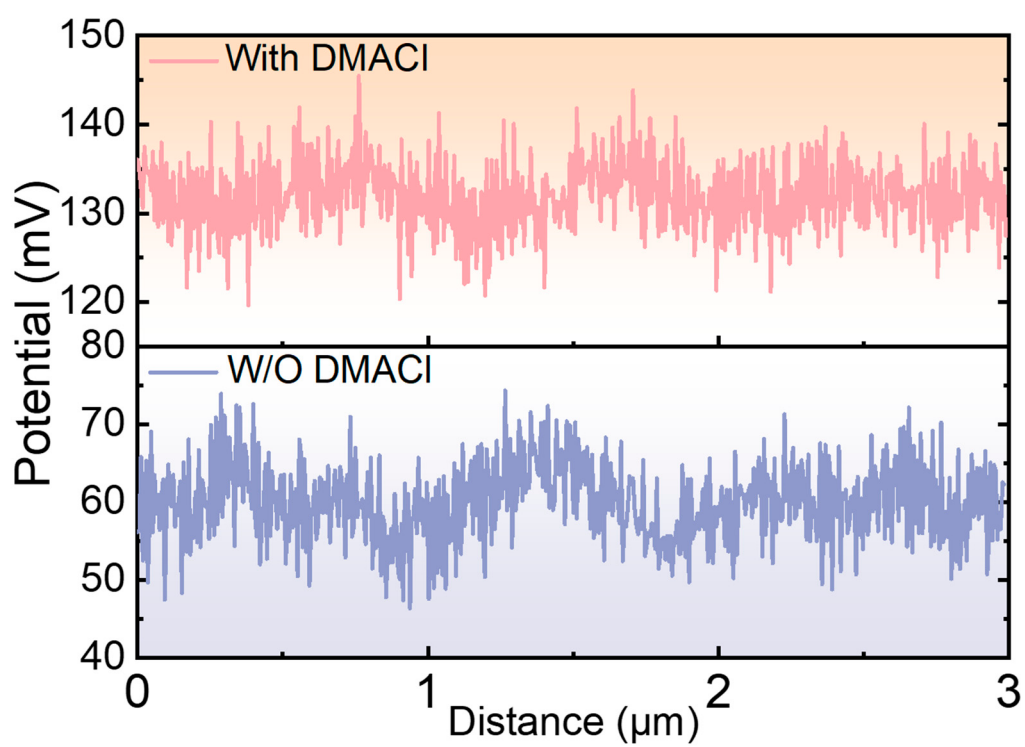


Figure S3. Corresponding surface potential profiles extracted along the dashed lines in Figure S2.

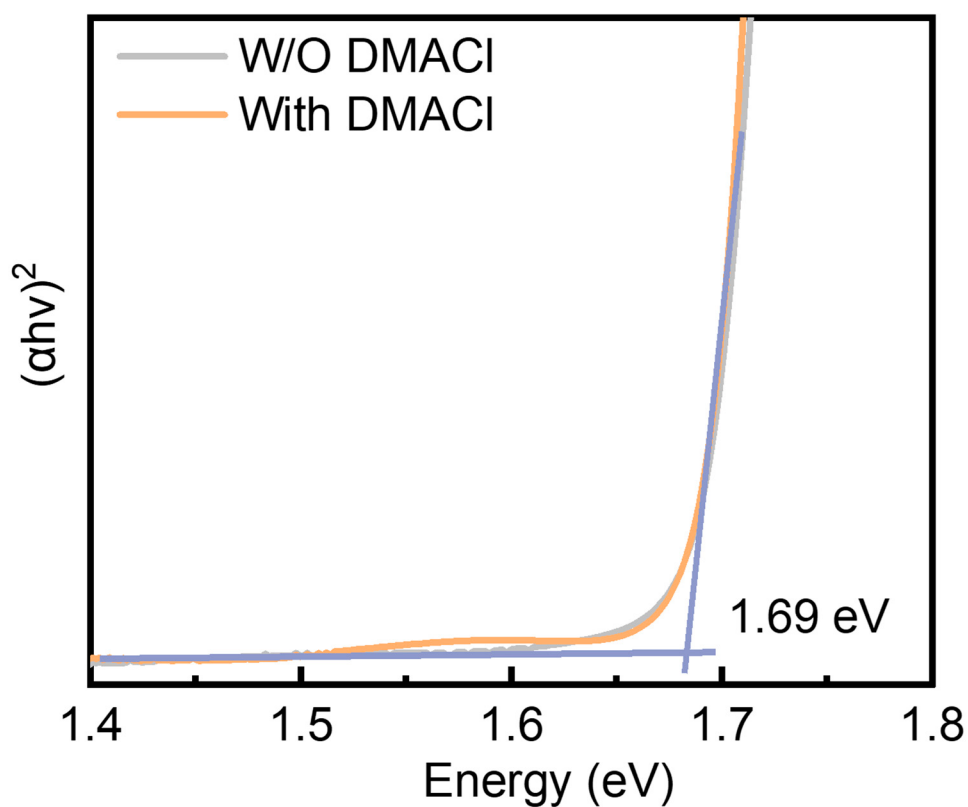


Figure S4. Tauc plots of the CsPbI₃ films without and with DMACI treatment for determination of the optical bandgap.

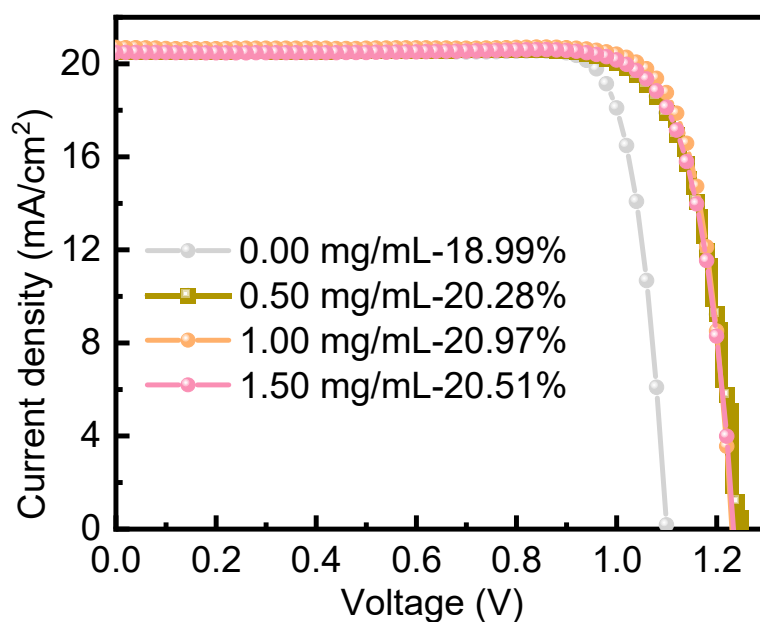


Figure S5. J-V characteristics of the champion PSCs with DMACI treatment at different concentrations under reverse scan.

Table S1. Photovoltaic parameters of CsPbI₃ PSCs fabricated with different DMACI concentrations, including PCE, V_{oc} , J_{sc} , and FF.

Sample	PCE (%)	V_{oc} (V)	J_{sc} (mA/cm ²)	FF (%)
0.00 mg/mL	18.99	1.100	20.56	83.92
0.50 mg/mL	20.28	1.243	20.52	79.51
1.00 mg/mL	20.97	1.230	20.70	82.37
1.50 mg/mL	20.51	1.234	20.48	81.15

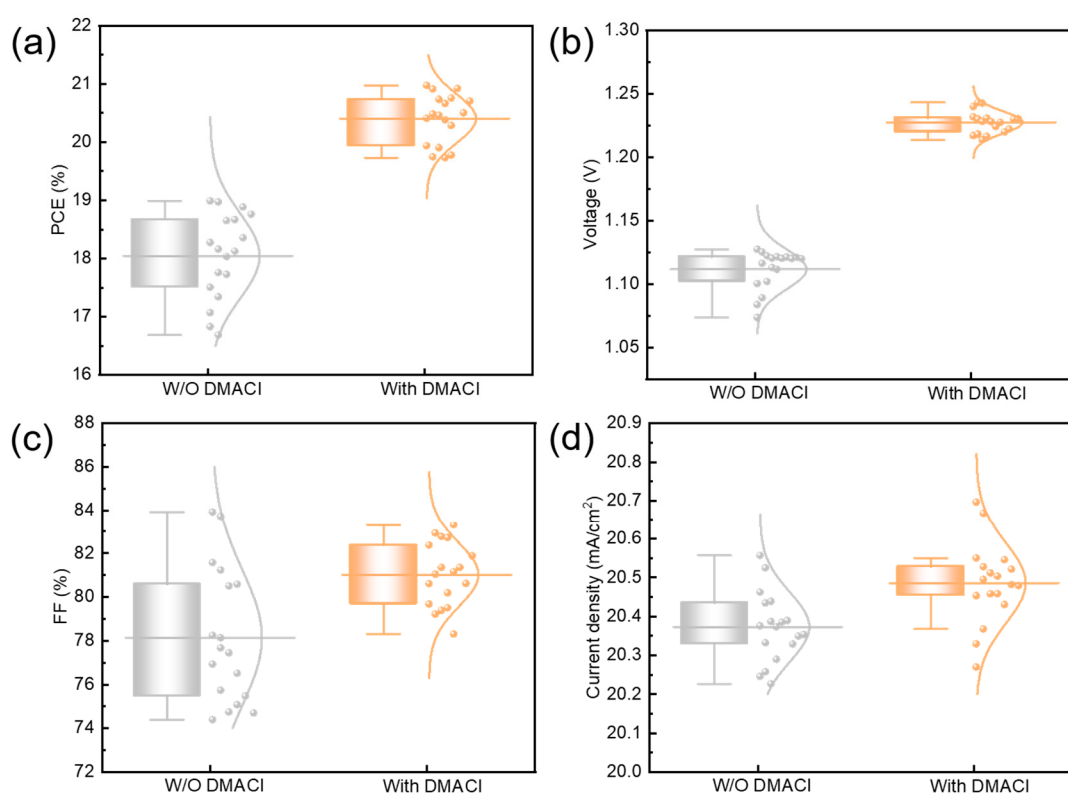


Figure S6. Statistical distributions of the photovoltaic parameters of CsPbI₃ PSCs without and with DMACI treatment based on 18 individual devices: (a) PCE, (b) V_{oc} , (c) FF, and (d) J_{sc} .

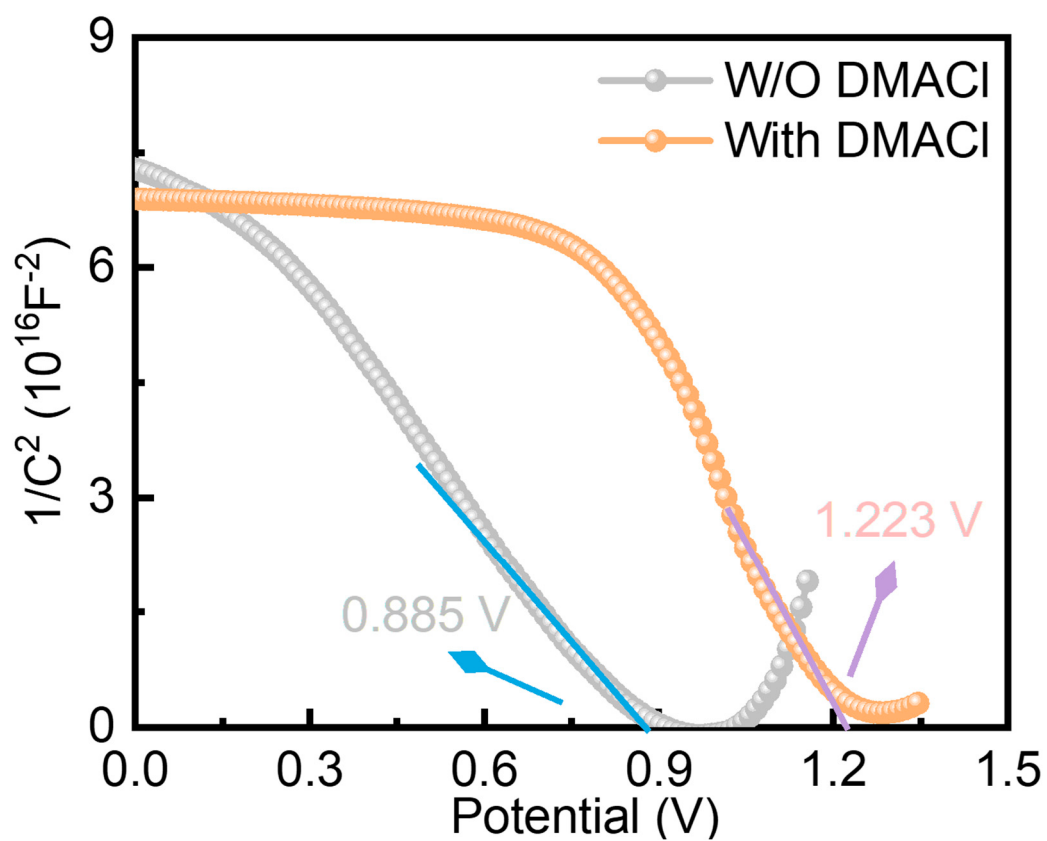


Figure S7. Mott-Schottky plots of the CsPbI₃ films without and with DMACI treatment, revealing built-in potentials (V_{bi}) of 0.885 and 1.223 V, respectively.