

Supplementary Materials

# Surface Chelation Enabled by Polymer-Doping for Self-Healable Perovskite Solar Cells

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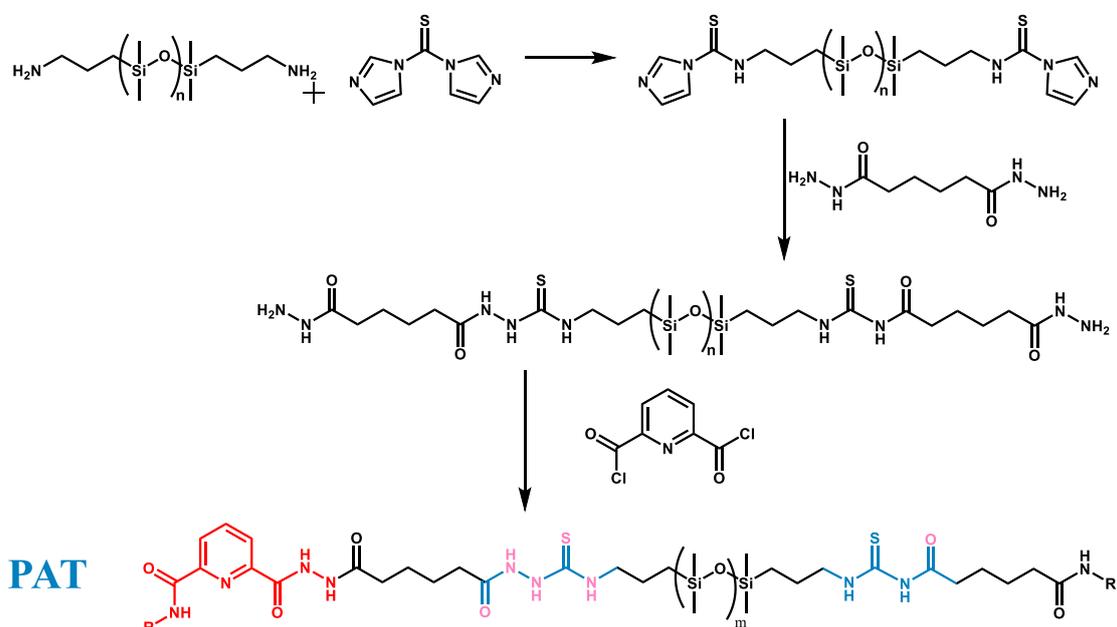


Figure S1. Synthetic routes of the PAT polymers.

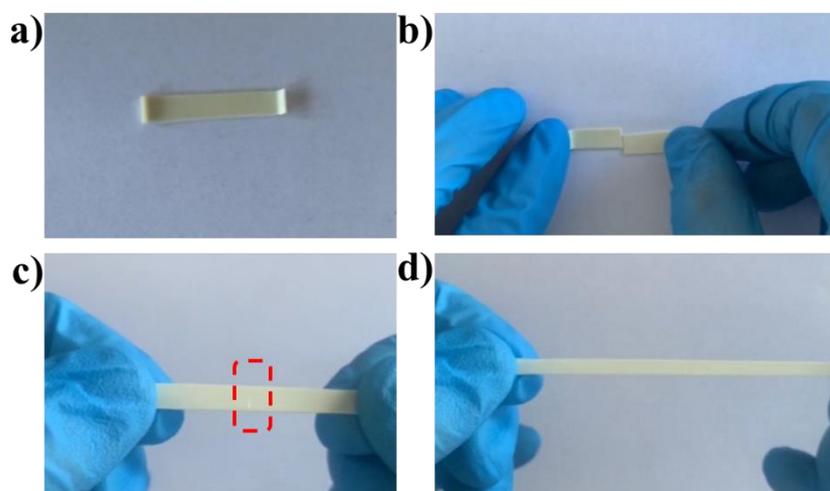


Figure S2. Digital photographs showing the healing of the fractured PAT elastomer. (a) Original. (b) Cut sample. (c) Healed sample. (d) Stretched sample.

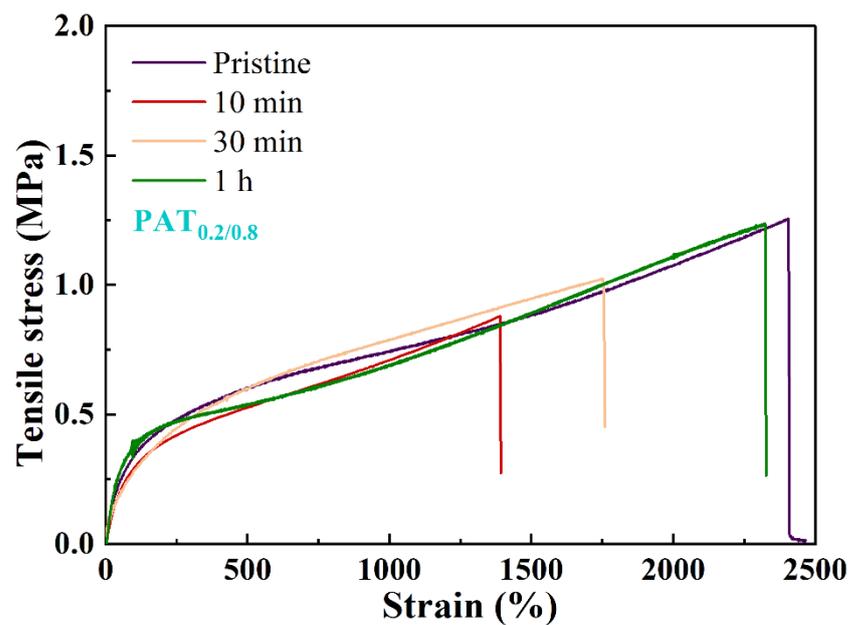


Figure S3. Typical stress-strain curves of the intact, 10 min, 30 min and 1 h heated PAT elastomers at 25 °C.

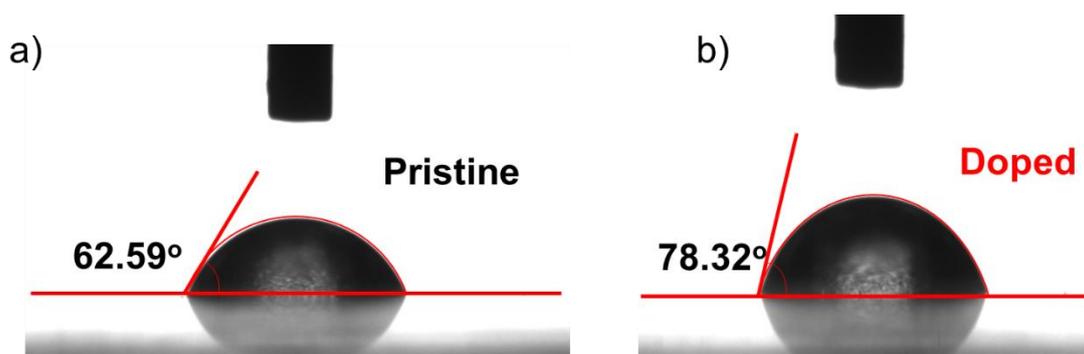


Figure S4. The contact angle measurements. (a) Contact angle of Pristine perovskite films. (b) Contact angle of Doped perovskite films.

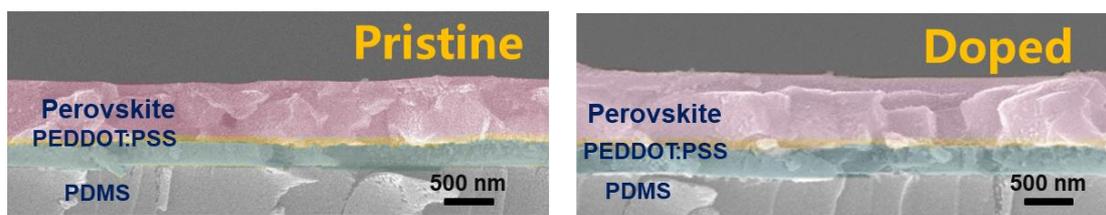


Figure S5. Cross-section view of pristine and doped perovskite films.

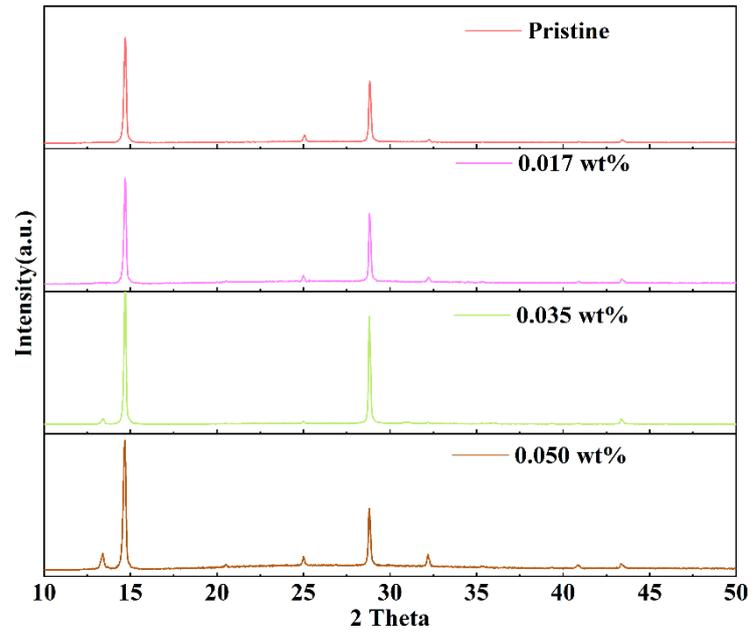


Figure S6. XRD spectrum of pristine and doped perovskite films.

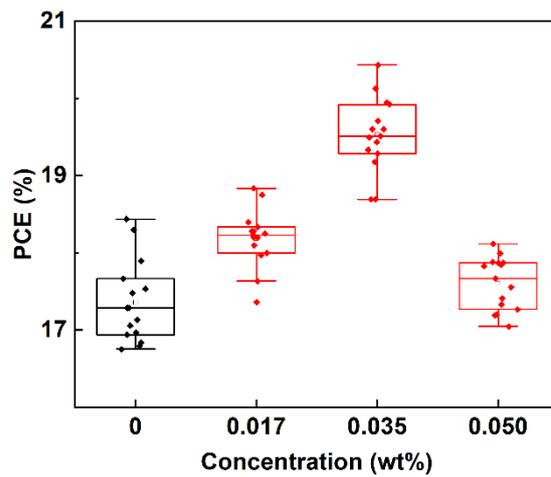


Figure S7. PCE tests of SPSCs with different PAT concentration.

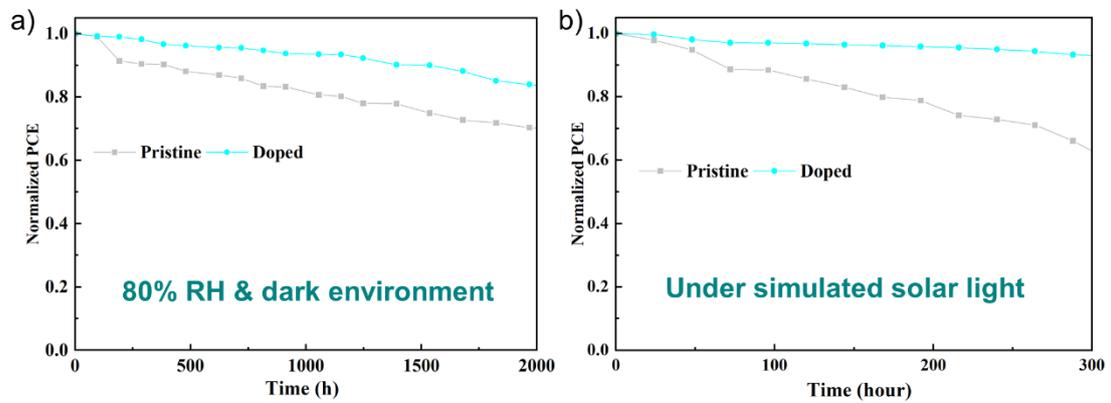


Figure S8. Stability tests of sealed cells. (a) Un-encapsulated cells with and without PAT with a RH level of approximately 80% and dark environment. (b) Under simulated solar light (AM 1.5; 100 mW/cm<sup>2</sup>).