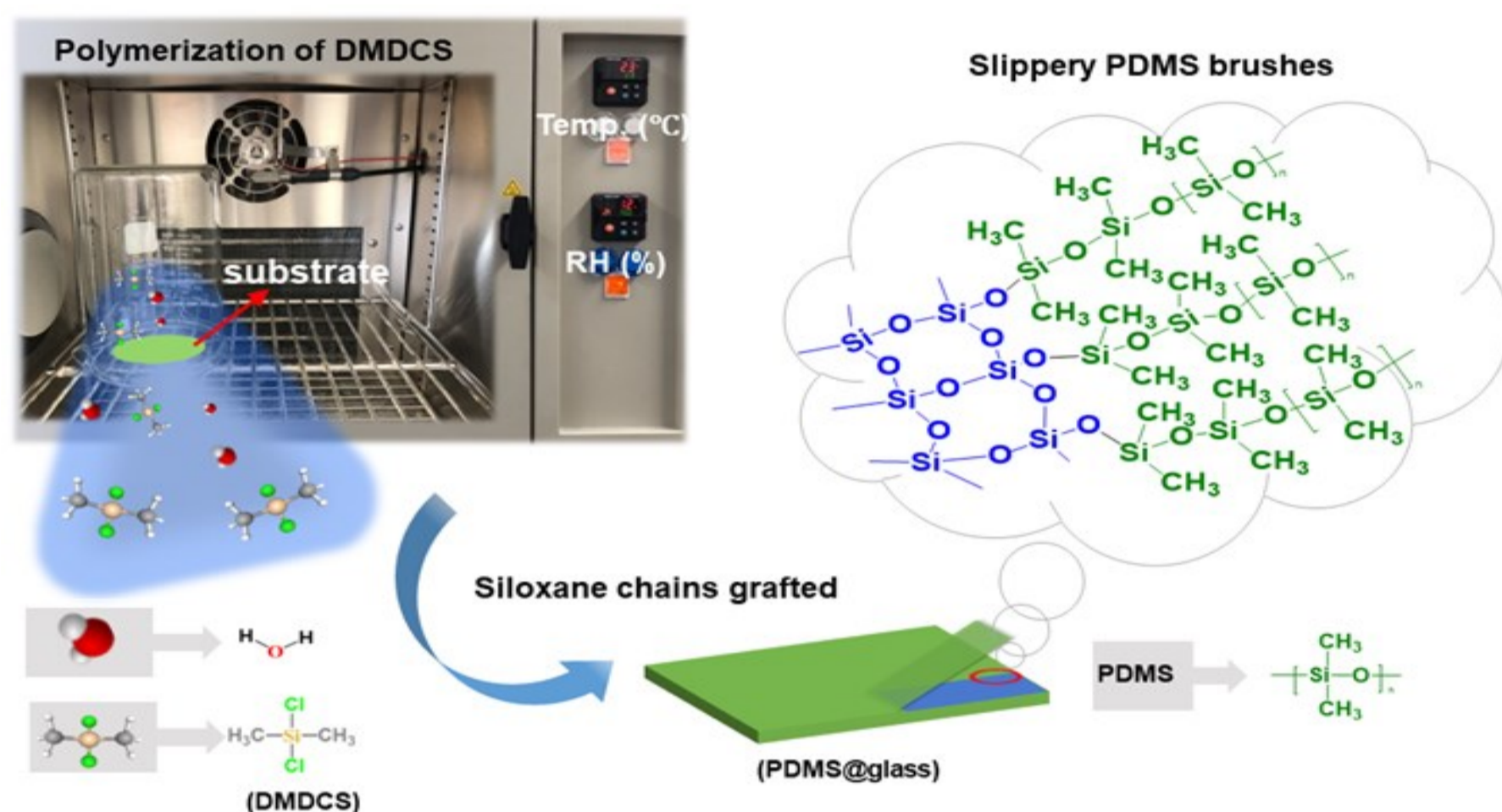


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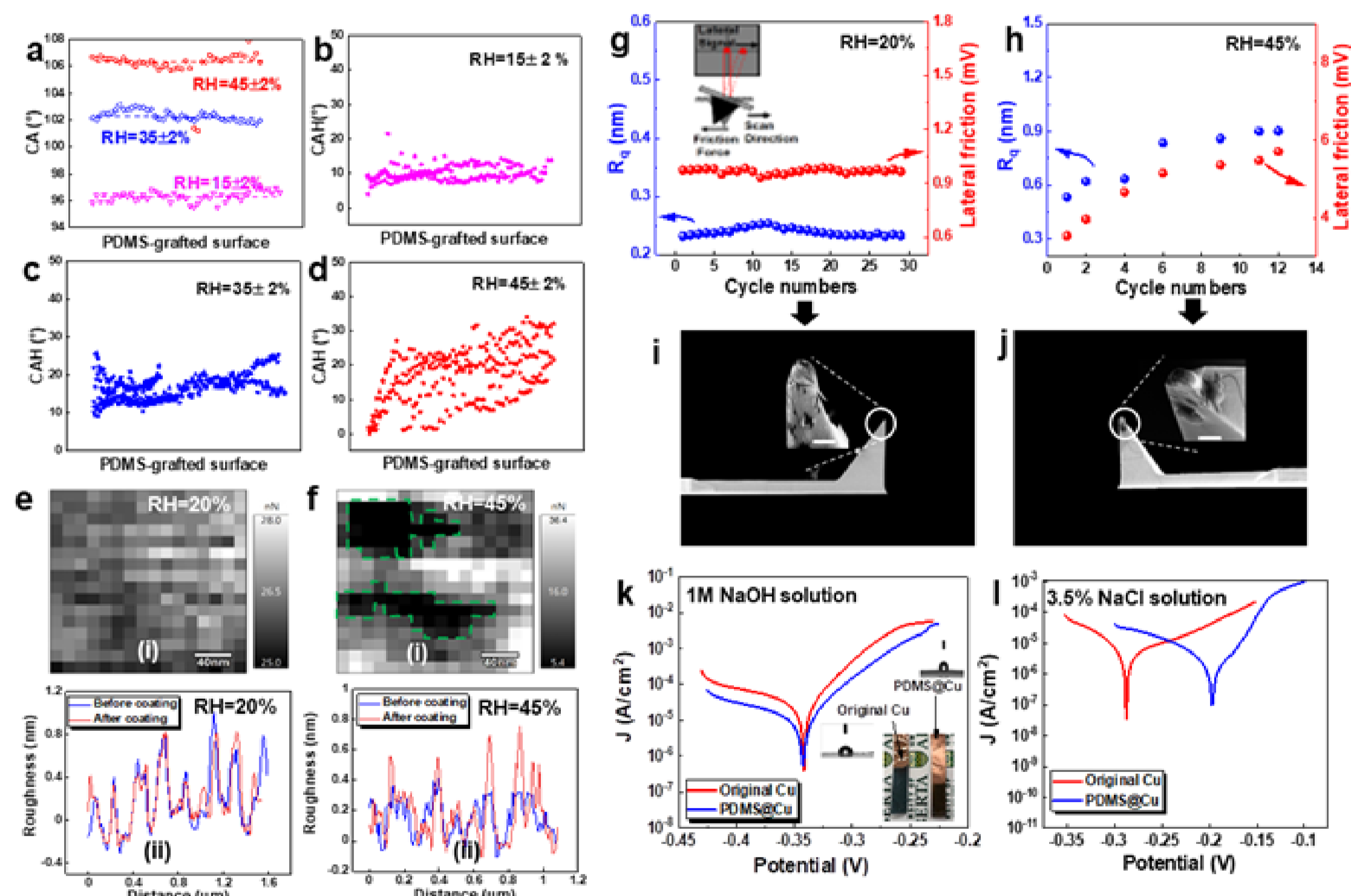
Synthesis of flexible, slippery, and transparent PDMS by spontaneous polymerization for integration of TENG and solar cell

1) Synthesis of PDMS brushes



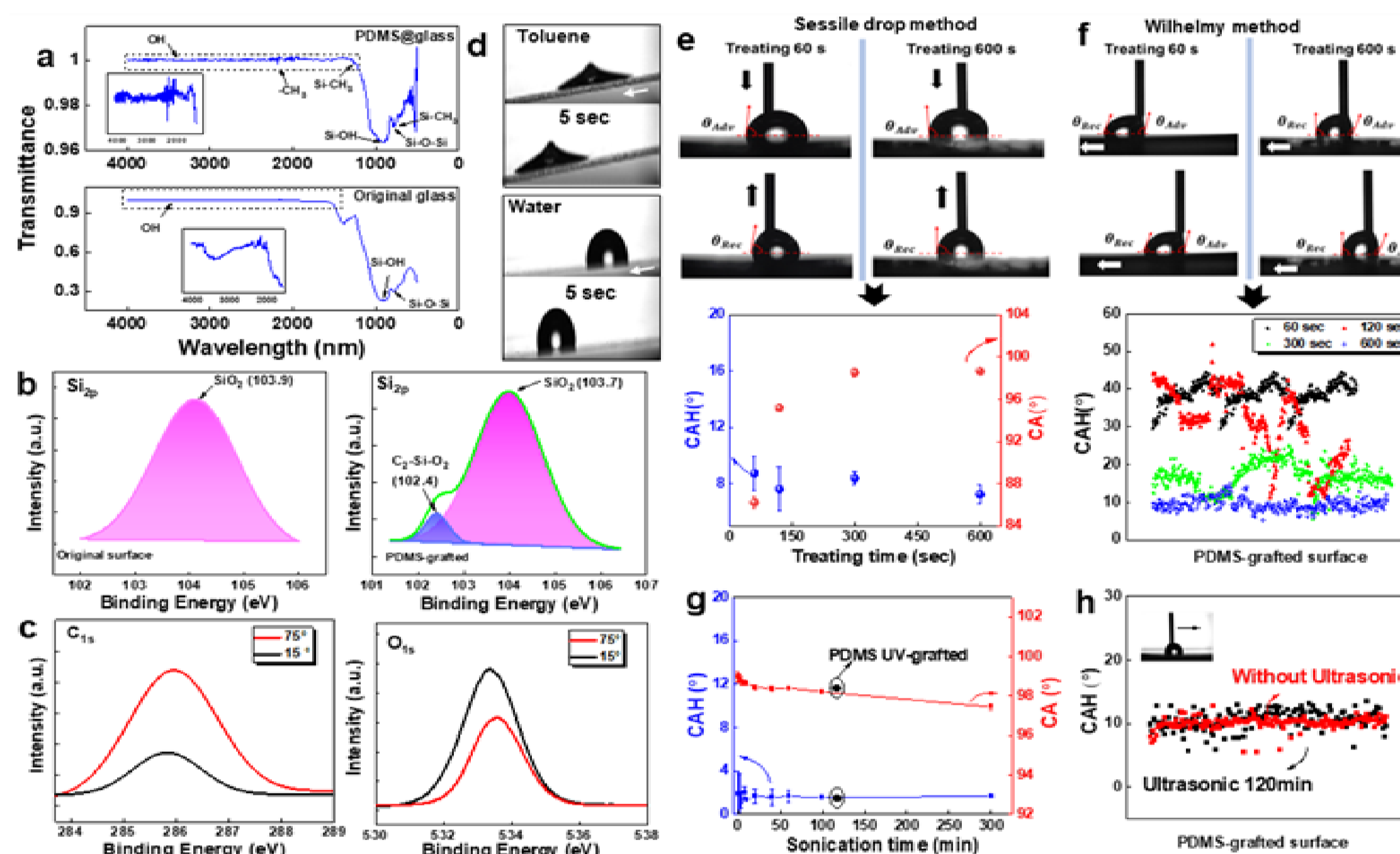
- Si-Cl group of DMDCS molecules is hydrolyzed to Si-OH;
- Hydrolyzed DMDCS molecules attached spontaneously to the surface via reaction of the Si-OH or Si-Cl group;
- Polycondensation reactions between Si-OH and Si-OH or Si-Cl at the surface will follow, finally forming PDMS brushes.

3) Durability of PDMS brushes



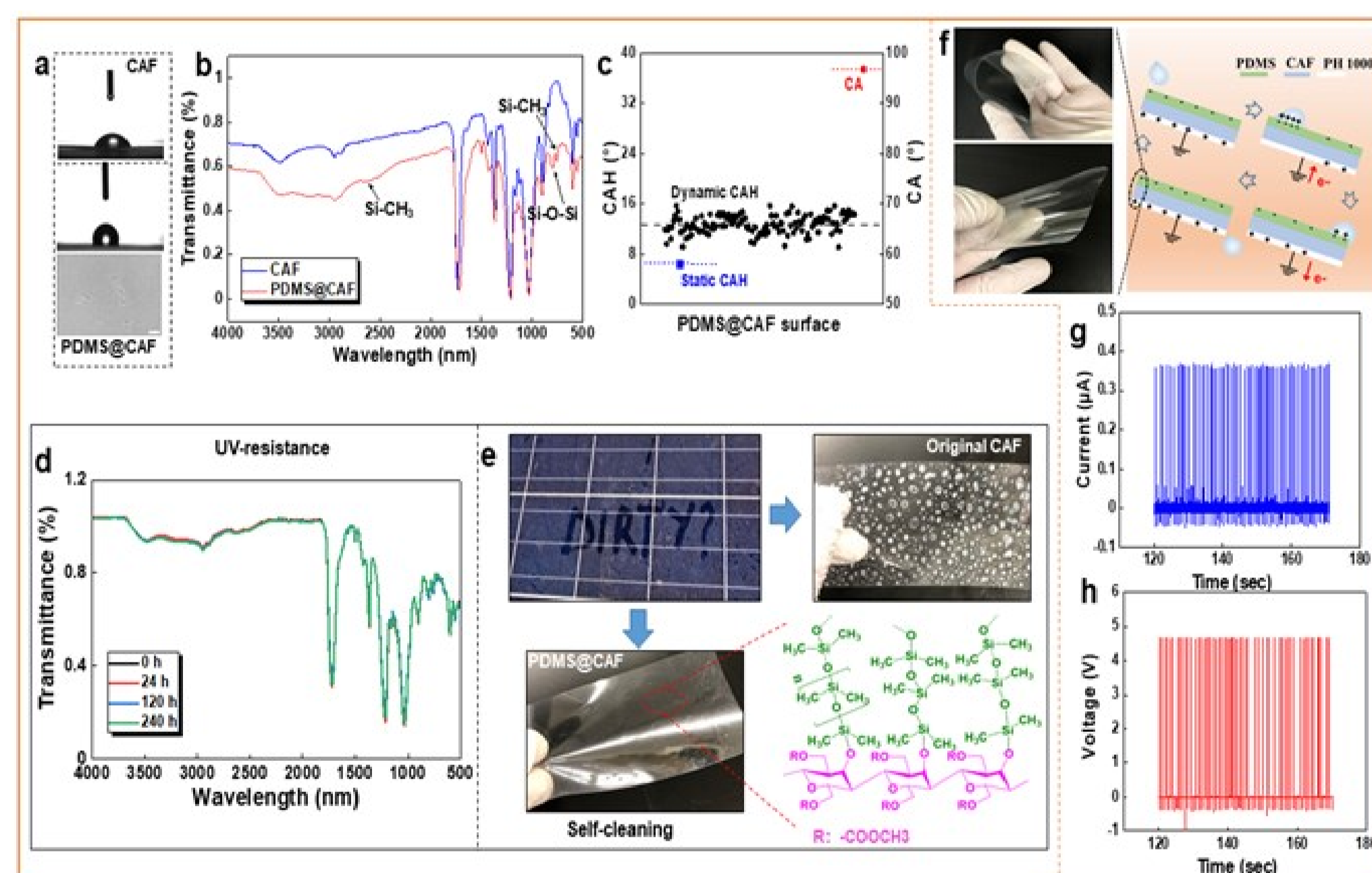
- A suitable ambient relative humidity is an important parameter for the grafting of ideal PDMS brushes;
- hydrophobic PDMS coating can protect metallic substrates against corrosive media;

2) Characterization of PDMS brushes

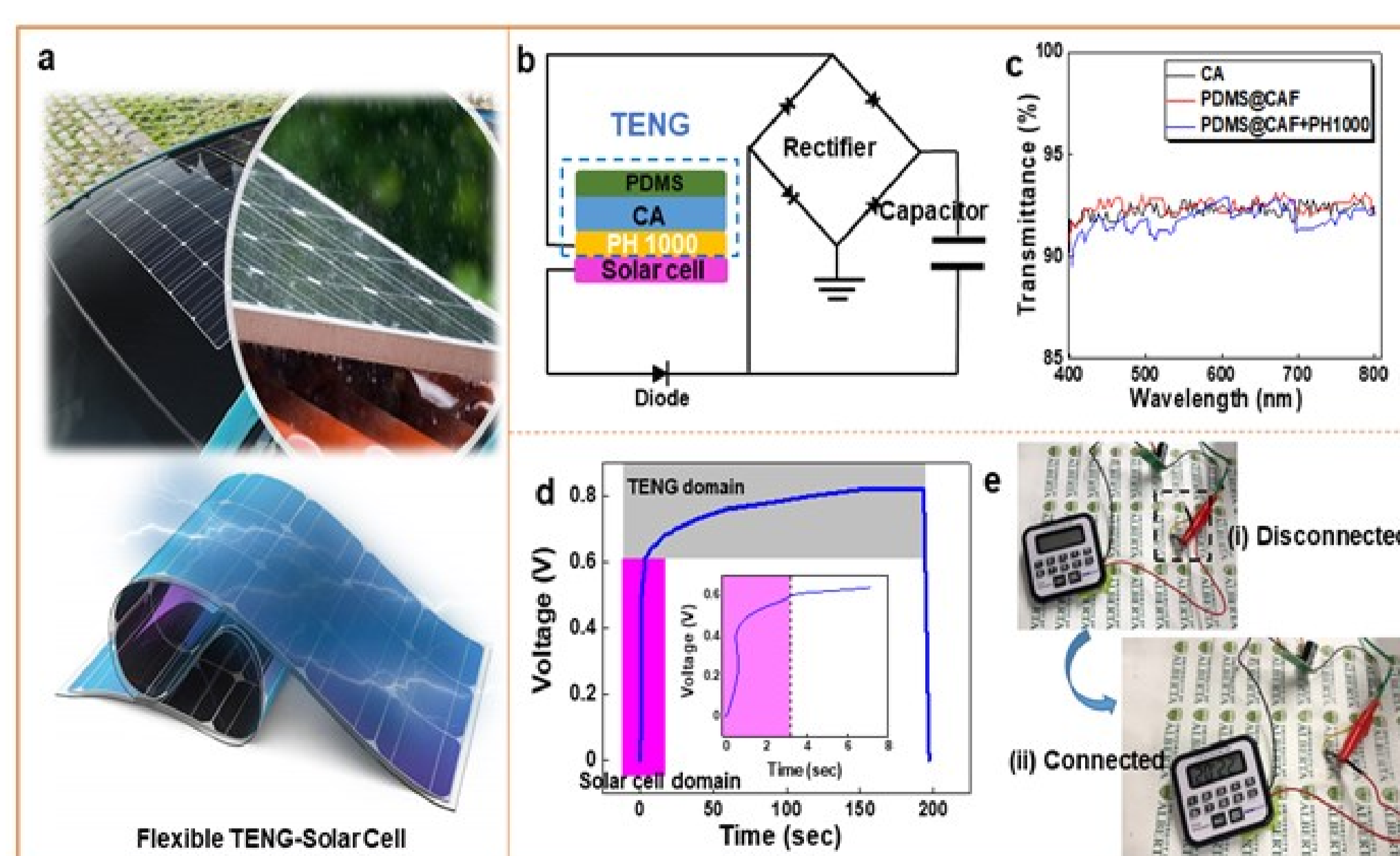


- FTIR and XPS confirm the spontaneous polymerization of DMDCS to form PDMS brushes;
- Extra low SA and CAH endow the slippery property on the PDMS brushes.

4) Integration of TENG and solar cell



- Fabricated a transparent, flexible, self-cleaning, UV resistant and low cost TENG.



- The voltage of the capacitor is near-linearly increasing from 0.61 V to 0.82 V while it is charged continuously by TENG for about 194 s.