



Supporting Information

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Enhanced Triboelectric Charge Stability by Air-Stable Radicals

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Supporting Information

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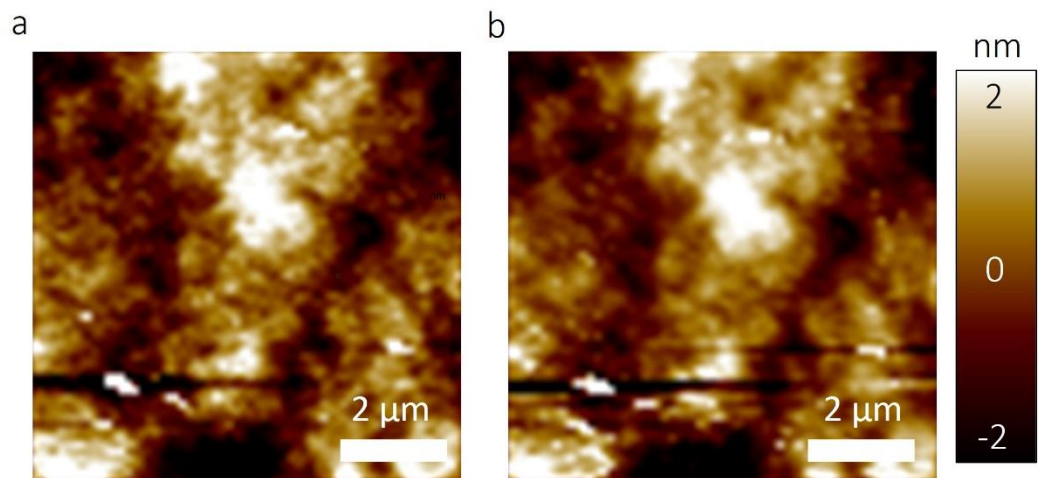


Figure S1. Surface topography (a) before and (b) after the contact with the AFM probe.

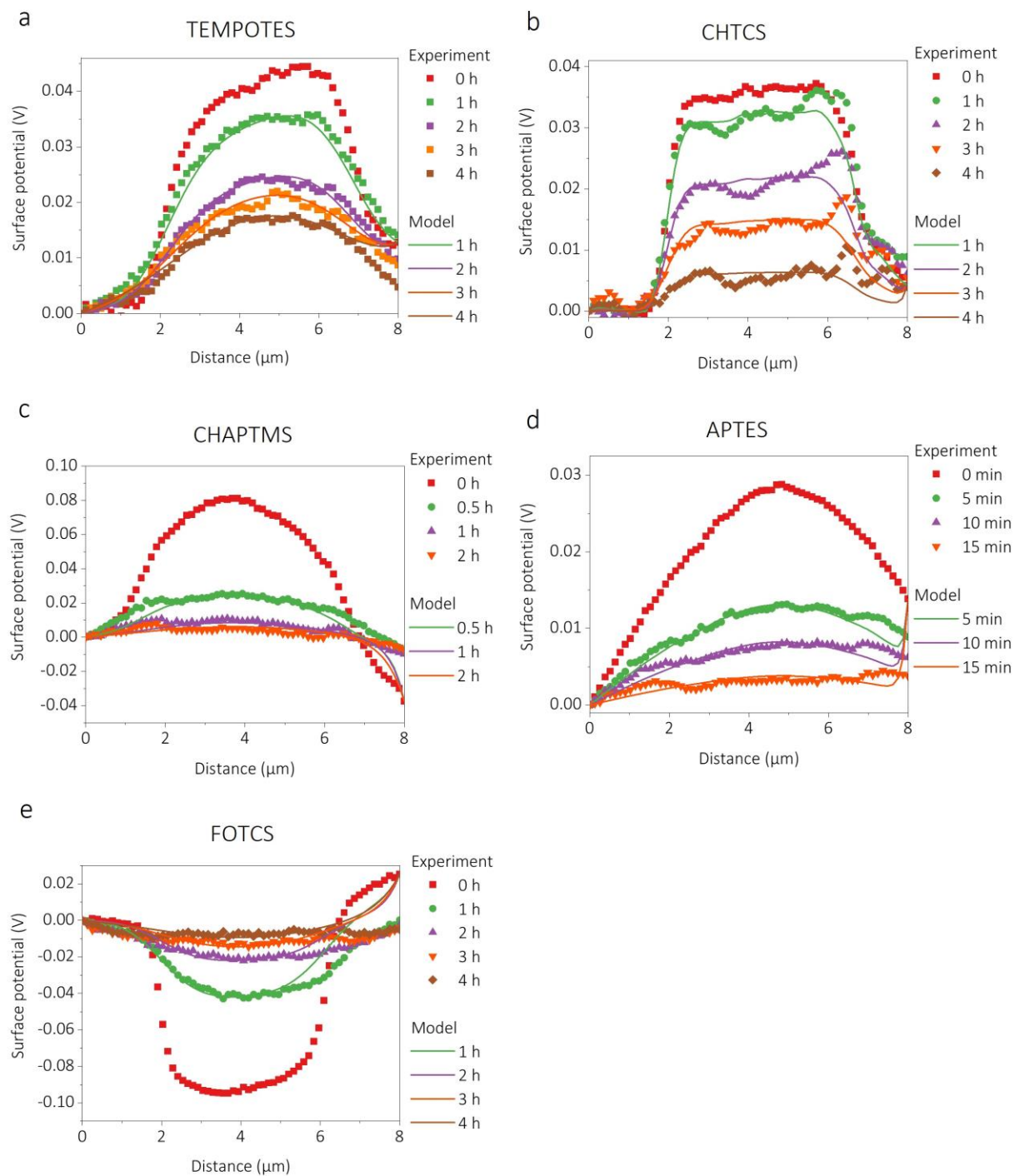


Figure S2. Surface potential profiles on the surface of (a) TEMPOTES, (b) CHTCS, (c) CHAPTMS, (d) APTES, and (e) FOTCS. The dotted lines are experimental data, and the solid lines are calculated using equation (1).

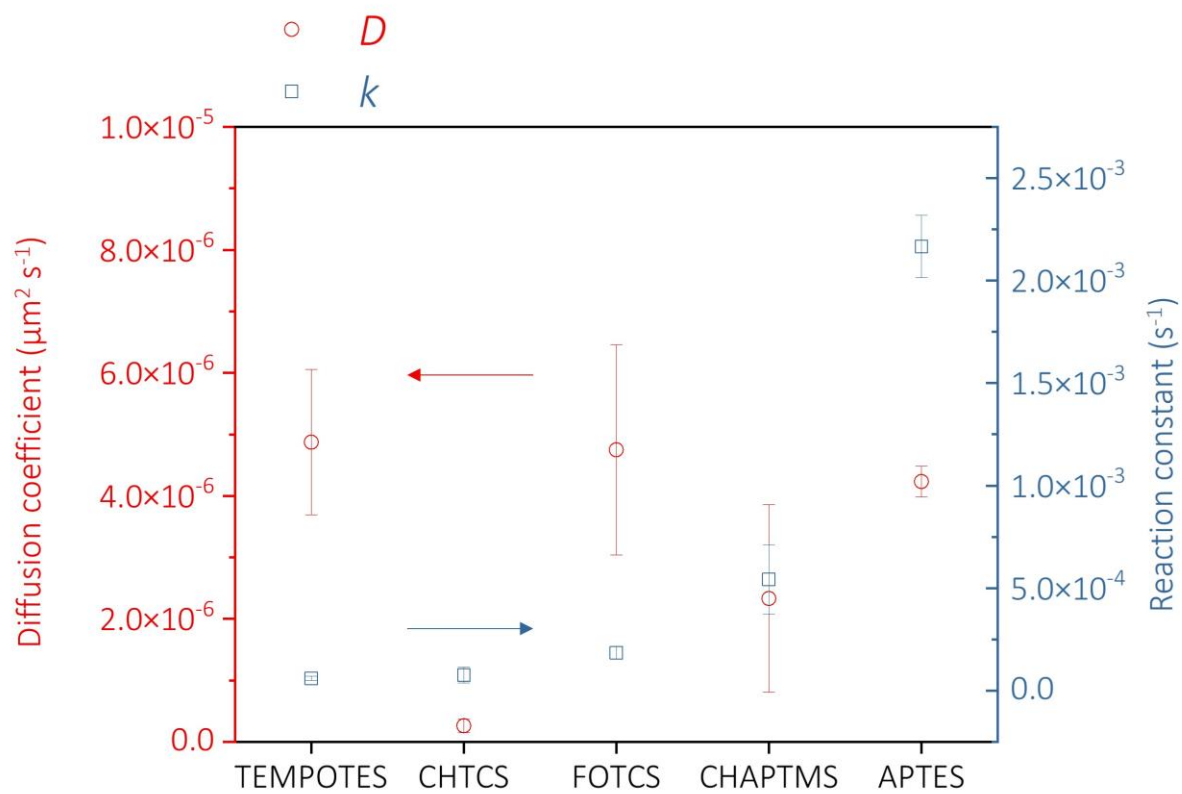


Figure S3. The estimated diffusion coefficients and reaction constants from the curves of surface potential profiles in Figure S2.

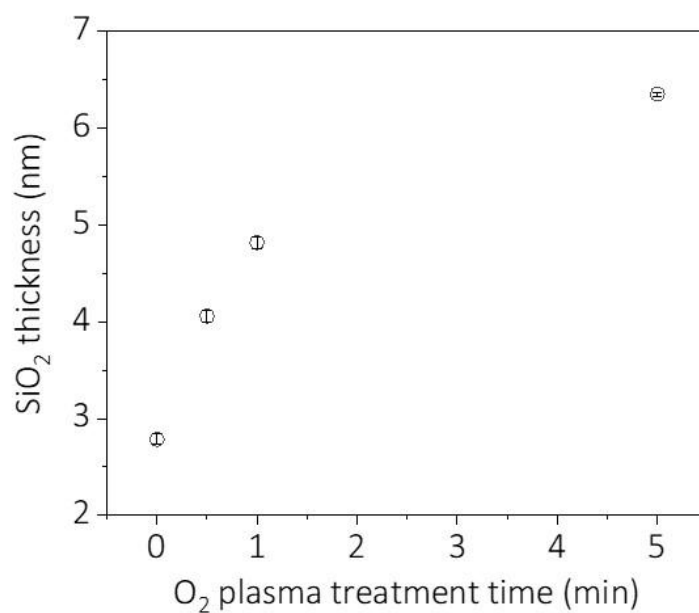


Figure S4. SiO₂ thickness with different O₂ plasma treatment times. The thickness was measured by variable angle spectroscopic ellipsometry (VASE). All experiments for silane treatments were done on Si wafers after O₂ plasma treatment for 1 min.

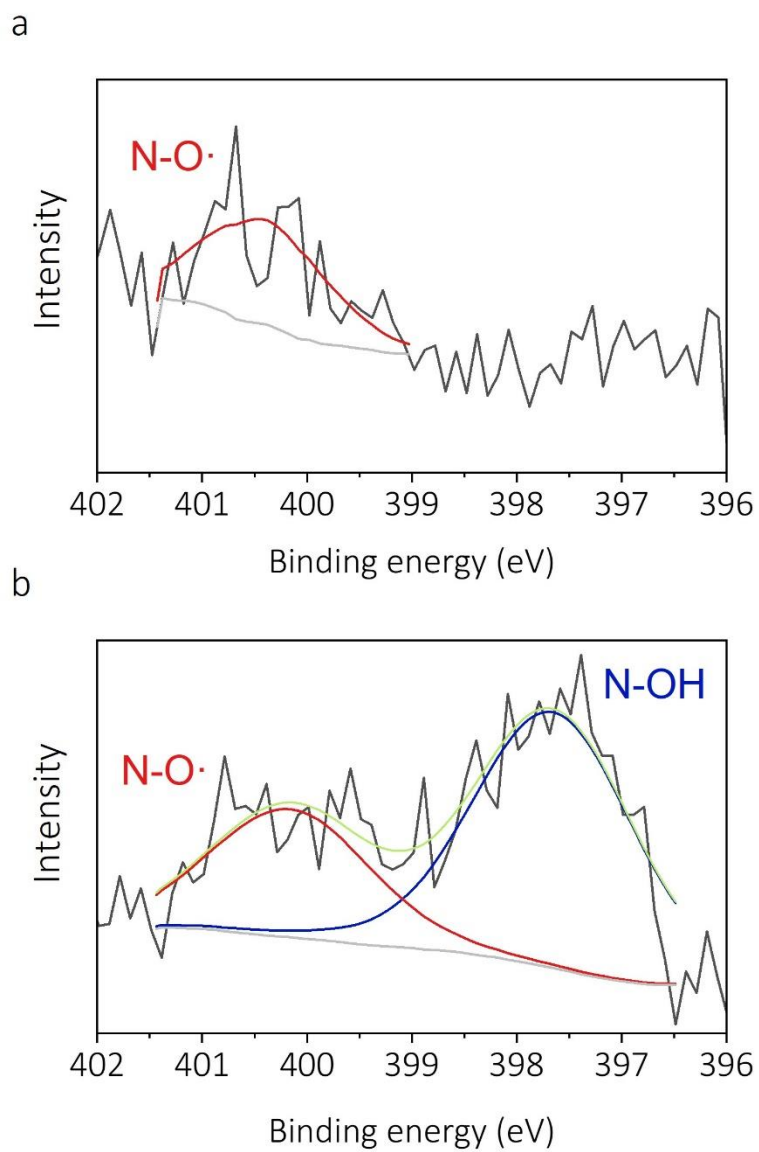


Figure S5. High-resolution XPS N1s spectra of (a) before and (b) after ascorbic acid treatment on TEMPOTES.

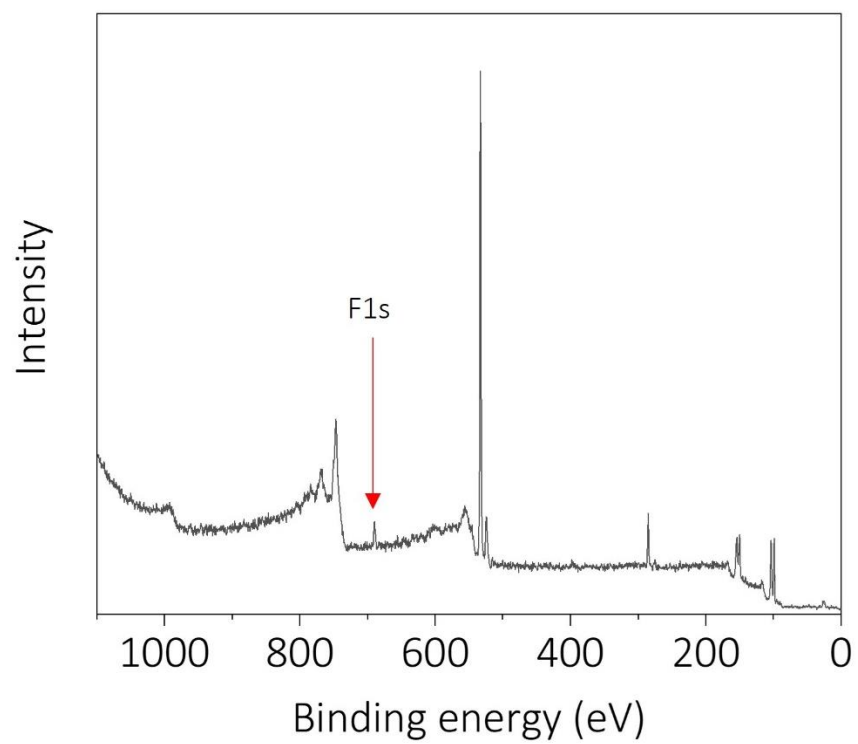


Figure S6. XPS survey of TBAF-CHTCS 10 min, showing F1s peak.

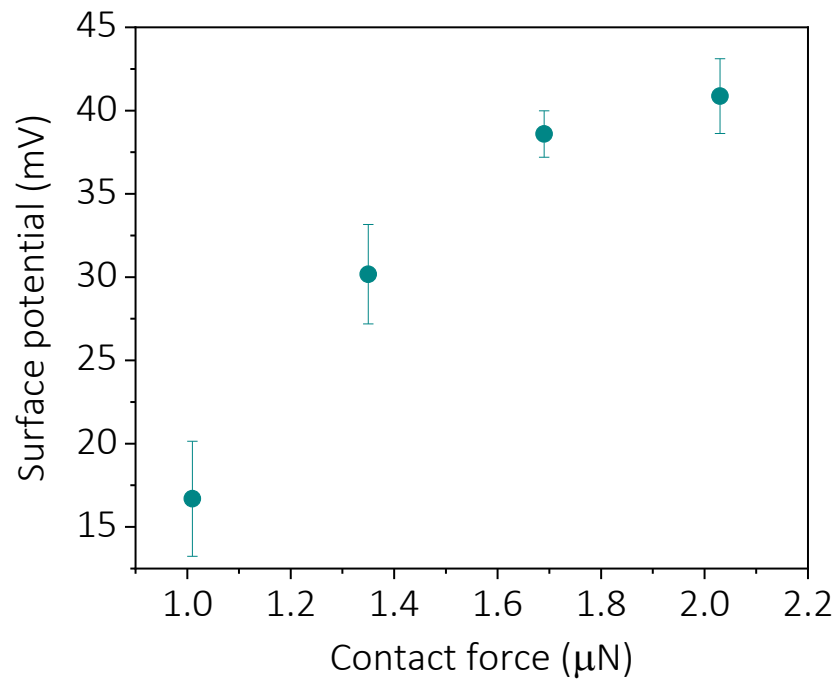


Figure S7. Surface potentials of TEMPOTES surface with different contact forces.

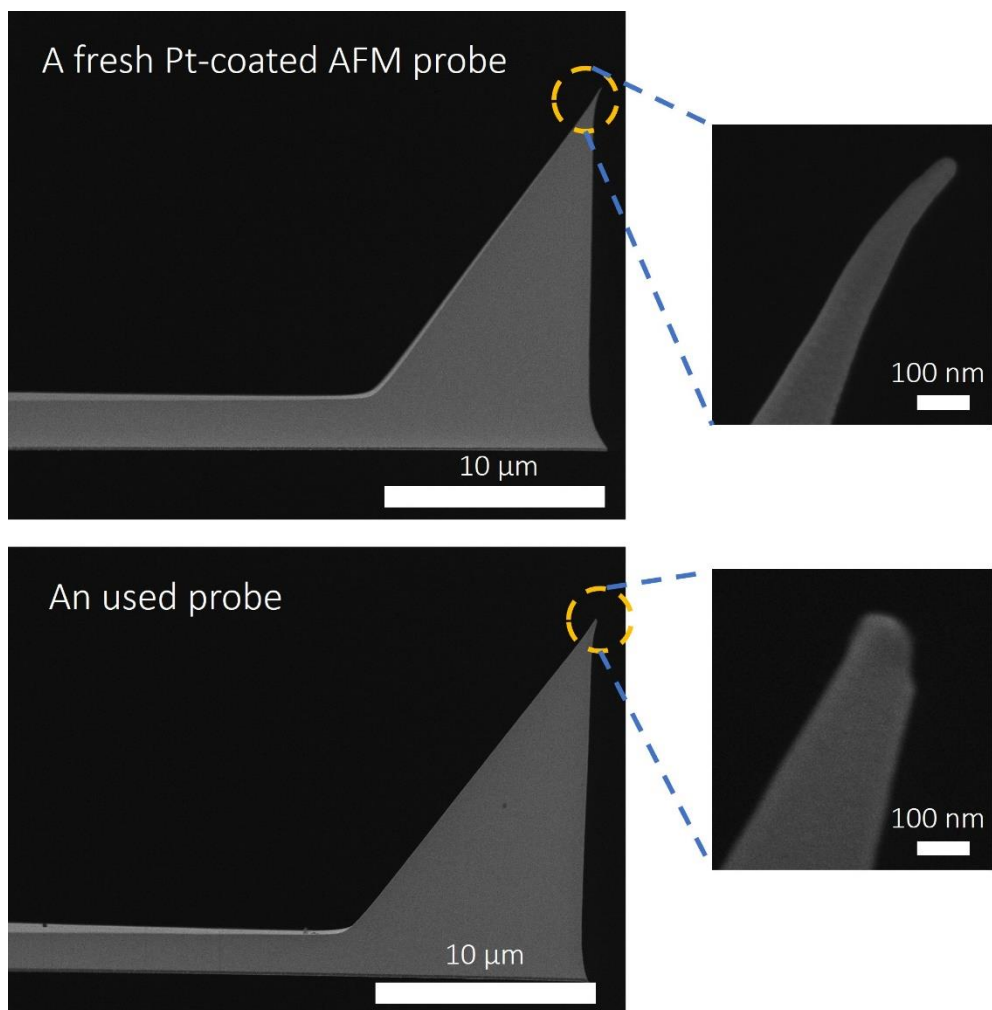


Figure S8. SEM images of (a) a fresh and (b) a used AFM probe. The probe was used for three different contact modes and ~30 h of non-contact tapping mode.

	C-C [%]	C-N [%]
TEMPOS	65	35
Ascorbic acid	75.16	24.84
TBAF 2 min	87.44	12.56
TBAF 10 min	96.14	3.86
TBAF 30 min	98.86	1.14
CHTCS	100	0

Table S1. Intensities of C-C and C-N components from high-resolution C1s XPS survey in Figure 3b.