Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information for

Nanoscale investigation of improved triboelectric properties of UV-irradiated ultrananocrystalline diamond films

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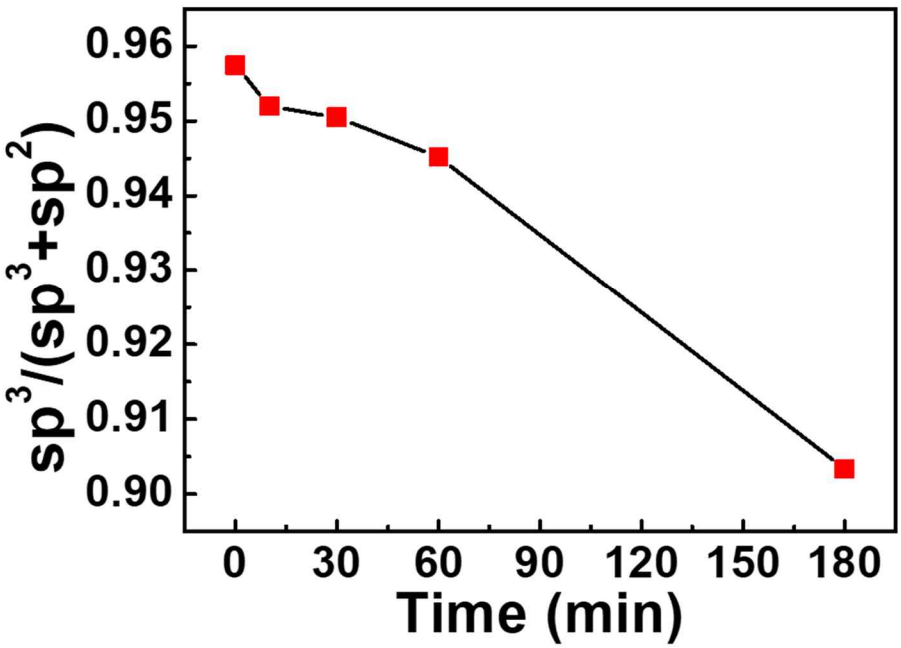

Fig. S1 Ratio of the diamond structure (sp3) to the diamond and graphitic (sp^2) structure from the C1s XPS spectrum.

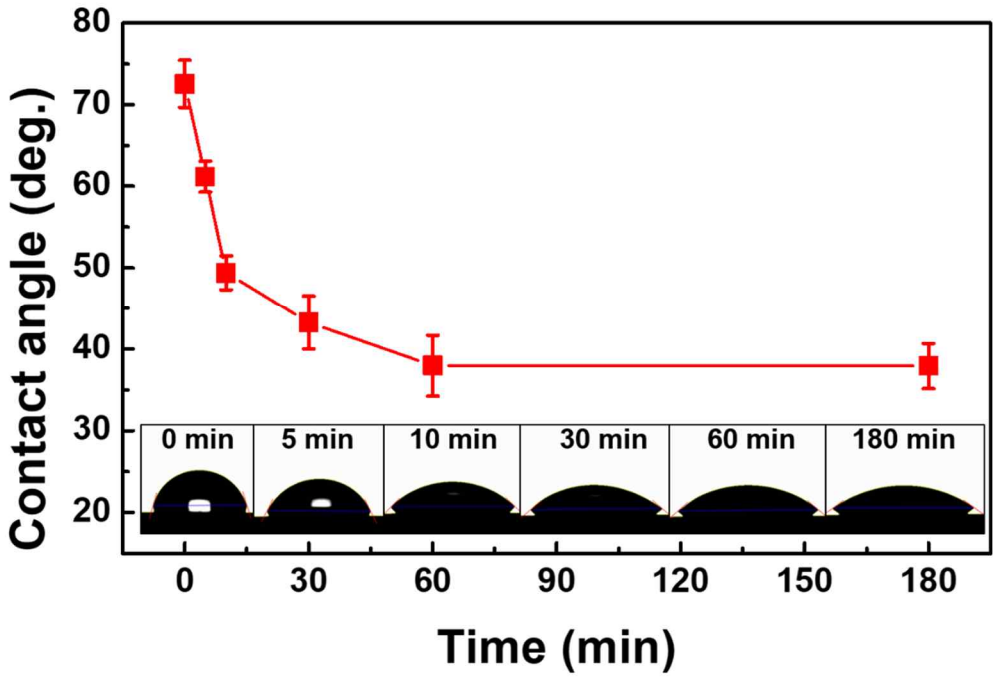

Fig. S2 Contact angle of the UNCD films as a function of UV-ozone treatment time. The contact angle decreased as exposure time increased.

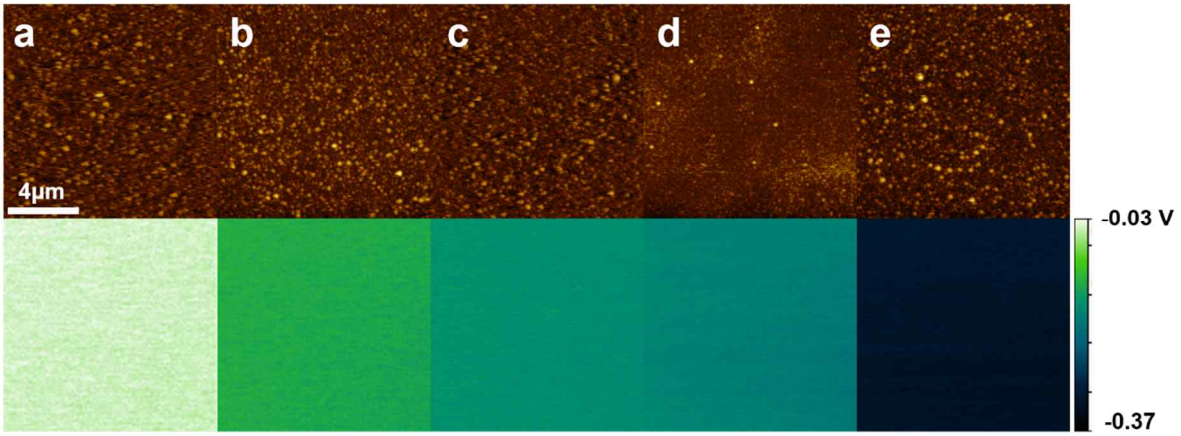

Fig. S3 (top) Topography and (bottom) CPD of the UNCD films after UV exposure for (a) 0, (b) 10, (c) 30, (d) 60, and (e) 180 min measured simultaneously with KPFM.

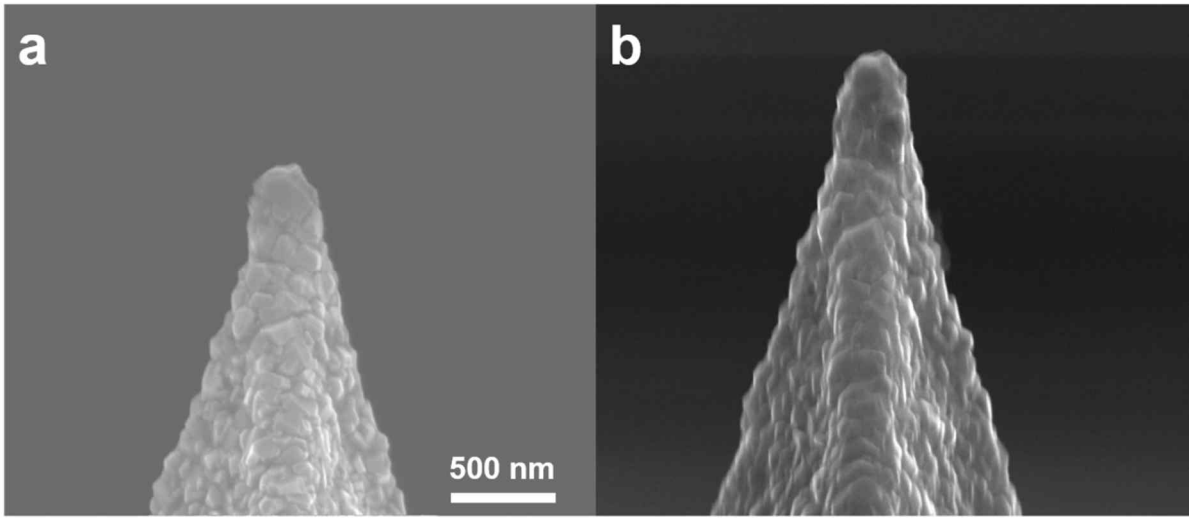

Fig. S4 FE-SEM images of the conductive diamond-coated tip (a) before and (b) after writing tribocharges on the surface of the UNCD films.

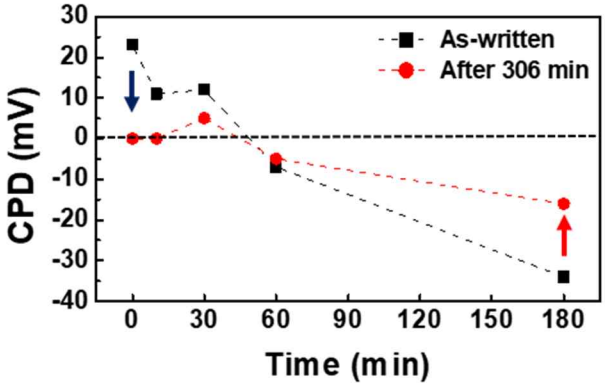

Fig. S5 Charge retention on the UNCD samples immediately following the generation of the tribocharges and after 306 min.

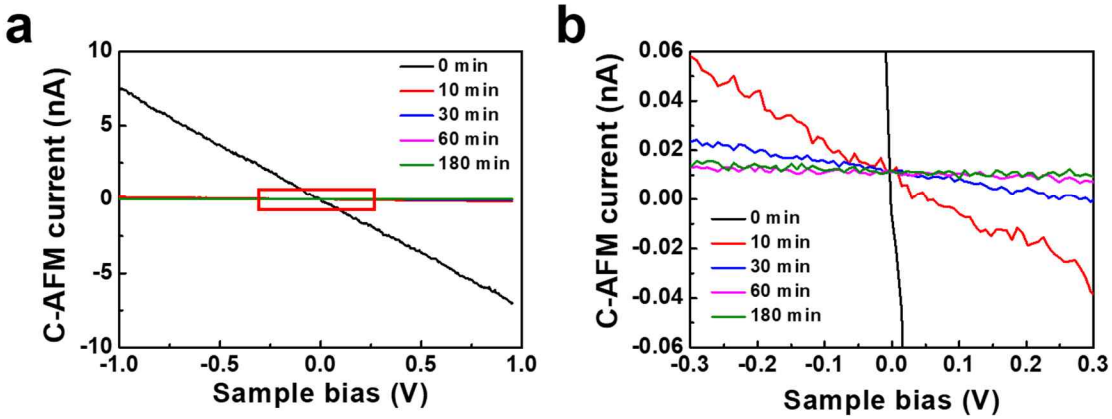

Fig. S6 (a) I–V characteristics of the UV-exposed UNCD films when applying a sample bias using C-AFM. (b) Enlargement of the area within the red rectangle in (a).