

Supporting Information

Fluorine-Free Superwetting Systems: Construction of Environmentally-Friendly Superhydrophilic, Superhydrophobic, and Slippery Surfaces on Various Substrates

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1. AFM results

For the surface roughness studies an AFM Nanoscope MultiMode 8 from Bruker operated in Contact and tapping mode was used. All measurements were performed in dry state and tapping mode was used when small regions were scanned (1-5 μm) while contact mode performed at best for larger areas (20-100 μm). AFM tips SNL-10 (Bruker) with a nominal tip radius of 2-12 nm were used. Scan rates of 0.5-0.15 Hz were used during mapping with 512 points per scan.

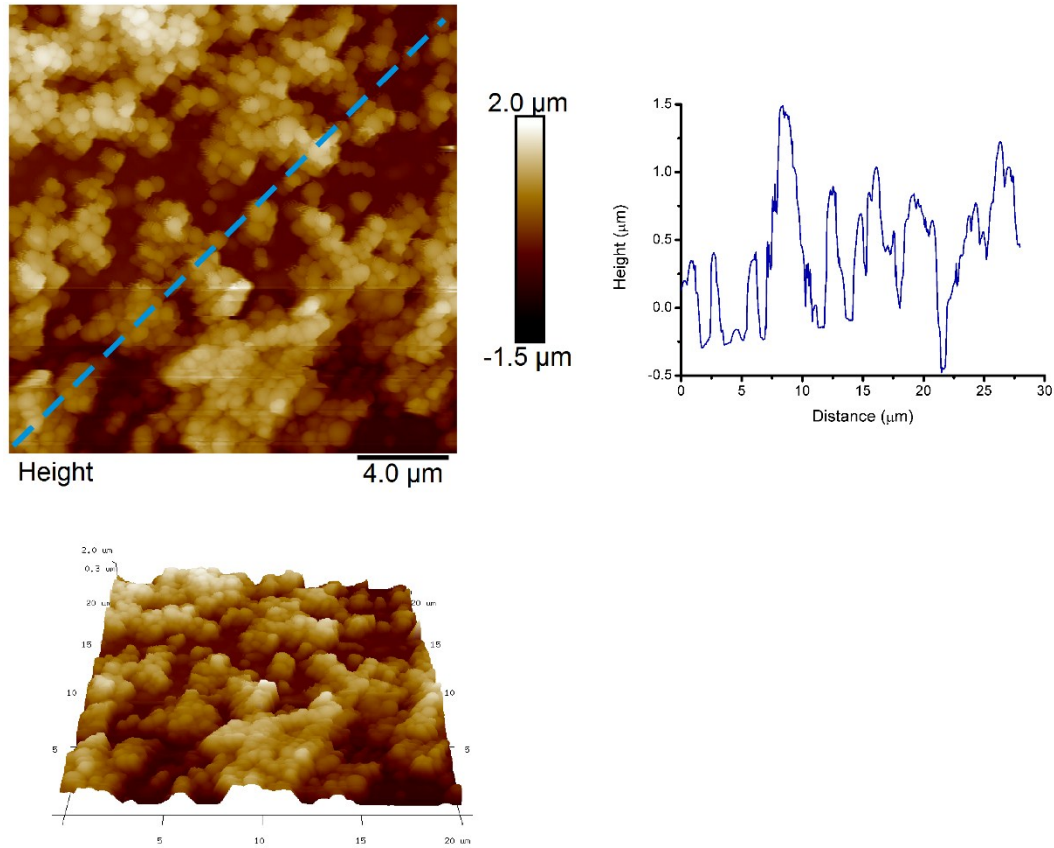
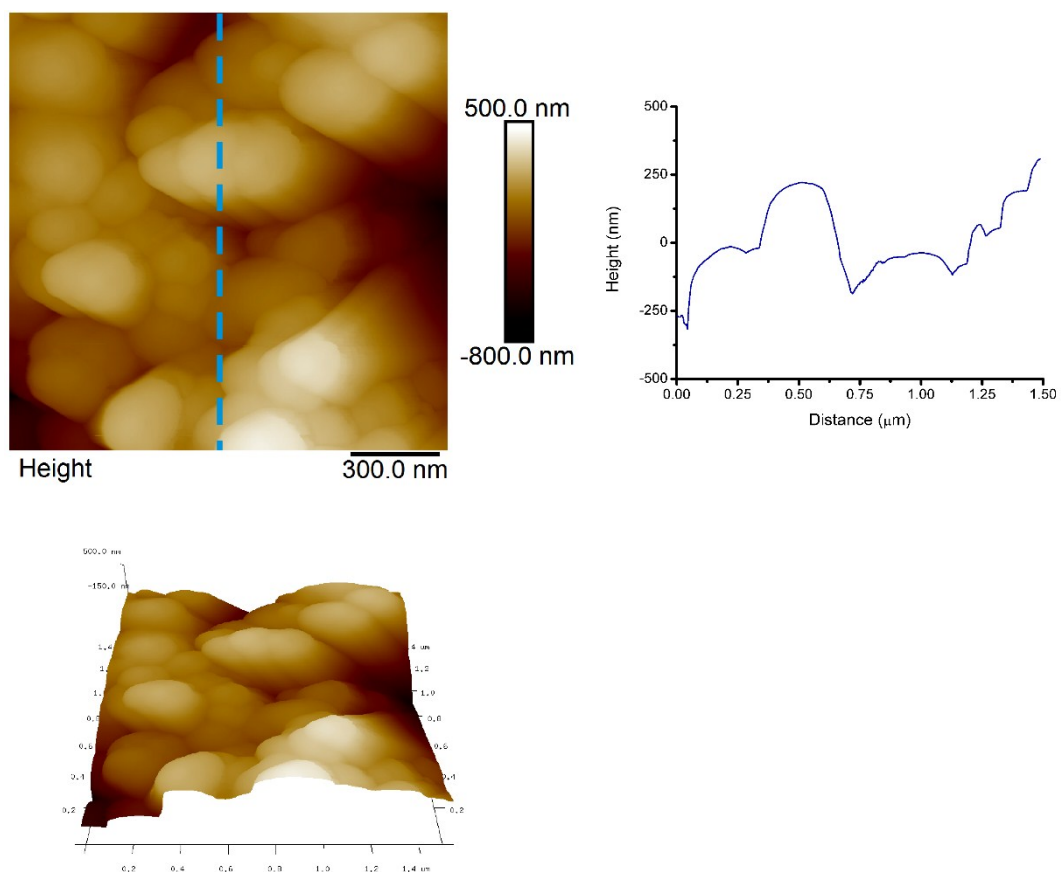


Figure S1. 20x20 μm AFM images of the micro-roughened MI-dPG surfaces and corresponding cross section profile (dry condition). Roughness parameters: $R_q = 489 \text{ nm}$, $R_a = 411 \text{ nm}$, and $R_{\text{max}} = 2.71 \mu\text{m}$.



Figure

Figure S2. 1.5x1.5 μm AFM images of the micro-roughened MI-dPG surfaces and corresponding cross section profile (dry condition). Roughness parameters: $R_q = 159$ nm, $R_a = 103$ nm, and $R_{\text{max}} = 601$ nm.

2. SEM Pictures

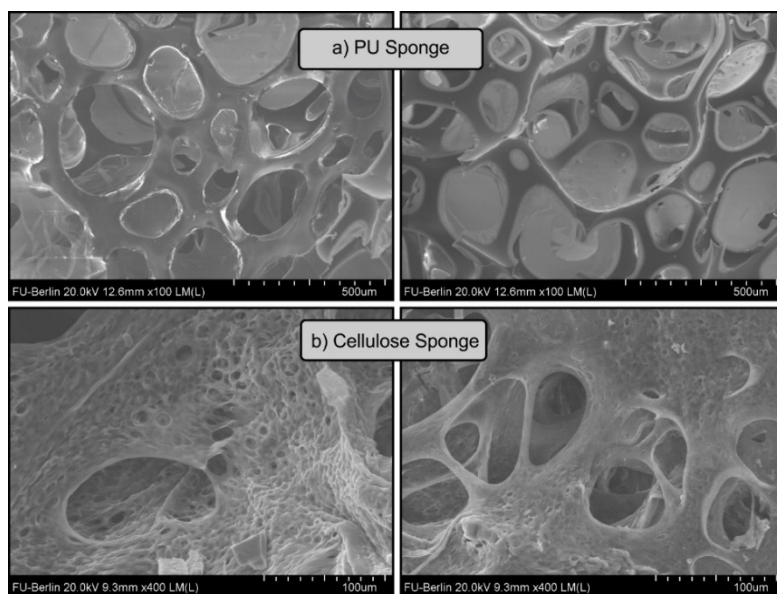


Figure S3. SEM images of (a) a PU sponge and (b) a cellulose sponge before (left) and after (right) coating with the SHP hMI-dPG layer.

3. pH stability test

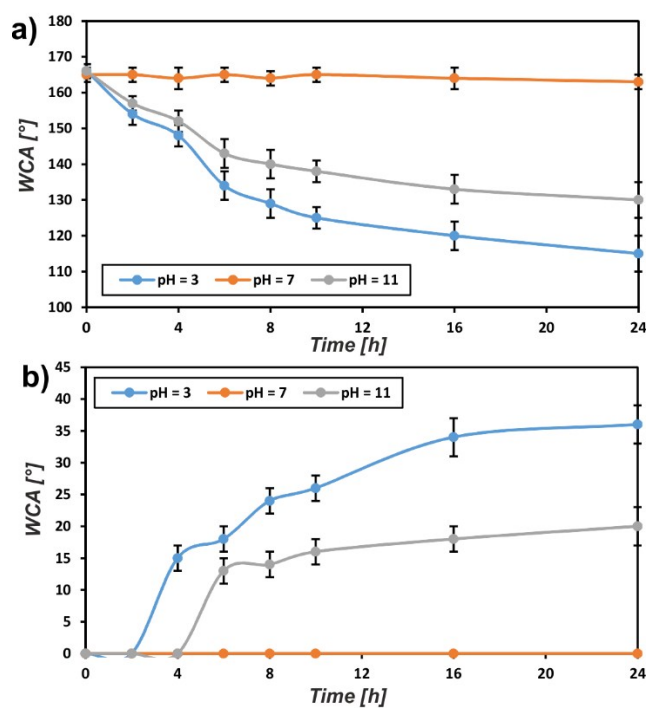


Figure S4. Water contact angle (WCA) and changes on the top of the (a) SHP hMI-dPG and (b) SHL hMI-dPG after different hours in acidic (pH = 3), neutral (pH = 7) and alkaline (pH = 11) water.

4. Transparency of the eSLIPS

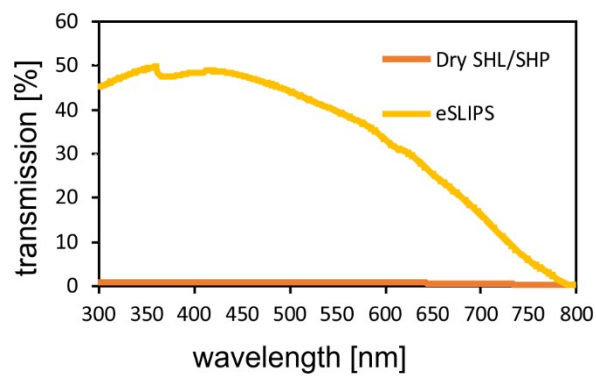


Figure S5. Optical transmission measurements for eSLIPS (yellow line) and superhydrophobic surface (orange line).