Supporting Information

Photoinduced Switchable Underwater Superoleophobicity-Superoleophilicity on Laser Modified Titanium Surfaces

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(Including Figure S1~S6 and Movie S1~S3 in the Supporting Information)

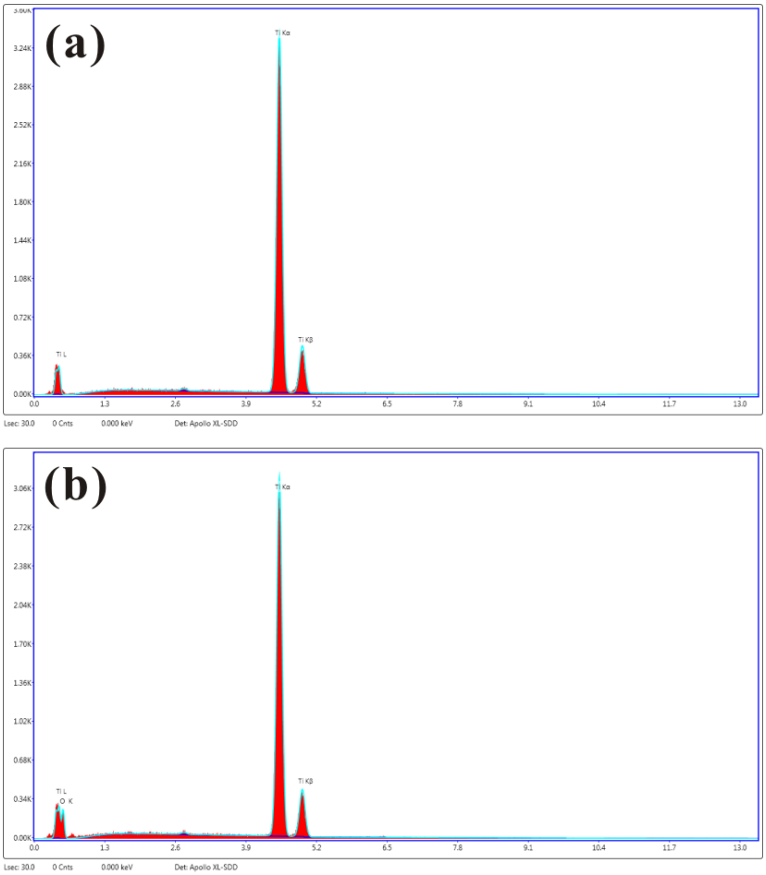

Figure S1. Complete EDXS results of the Ti surface before (a) and after (b) femtosecond laser ablation.

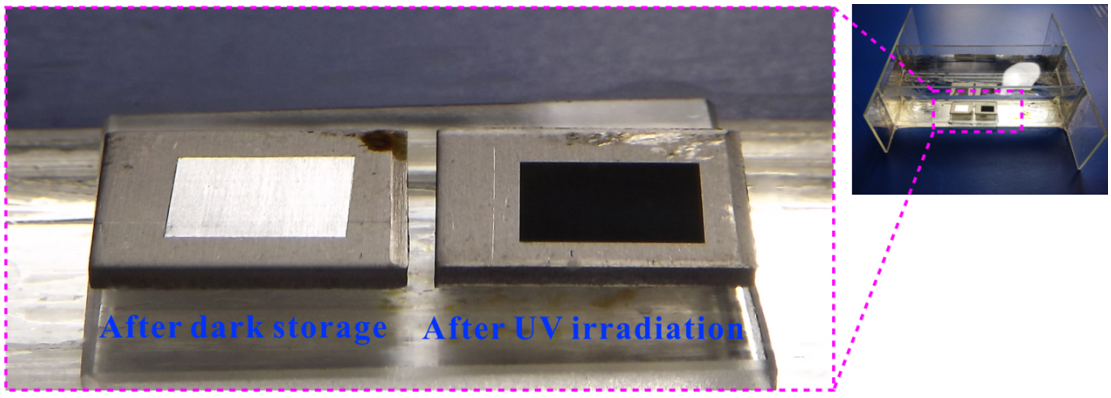

Figure S2. Femtosecond laser ablated Ti samples in water. A silver mirror can be seen for the laser-induced region after dark storage, but the mirror does not appear for the sample after UV irradiation.

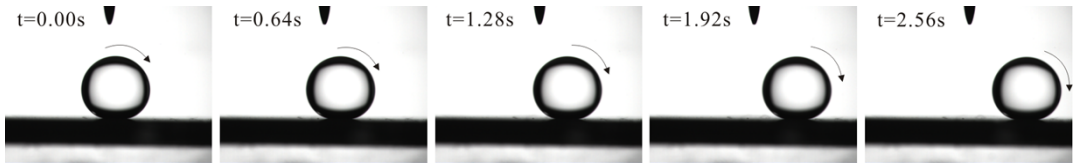

Figure S3. Images of an oil droplet rolling off on a UV-irradiated microstructured surface in water tilted at 1°.

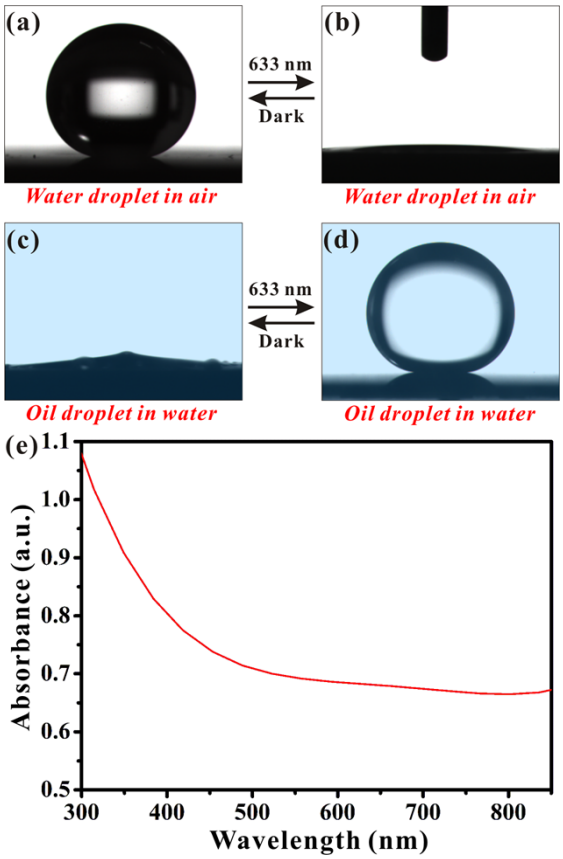

Figure S4. Reversible switching between underwater superoleophilicity and underwater superoleophobicity through He-Ne laser (wavelength of 633 nm) irradiation and dark storage, respectively. (a,b) Images of a water droplet on the femtosecond laser ablated Ti surface after dark storage (a) and light irradiation (b) in air. (c,d) Images of an oil droplet on the femtosecond laser ablated Ti surface after dark storage (c) and light irradiation (d) in water. (e) Spectral absorbance of the femtosecond laser induced TiO_2 surface.

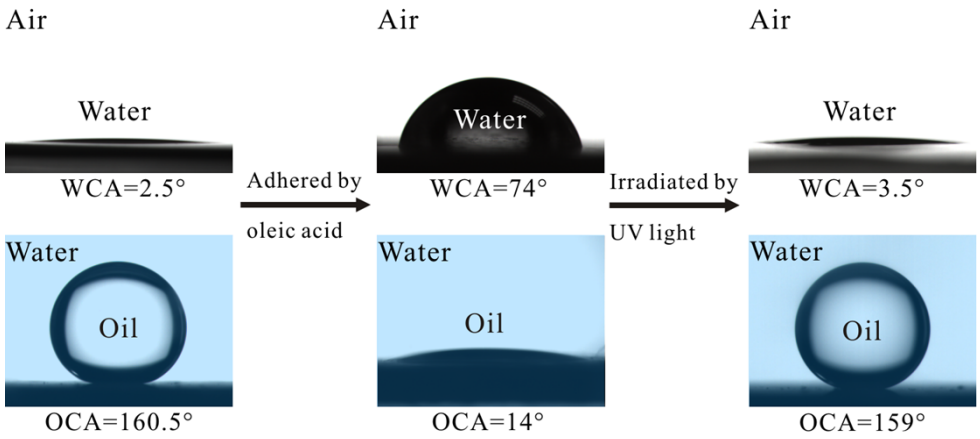

Figure S5. WCAs and underwater OCAs of the sample after being adhered by oleic acid and subsequently irradiated by UV light, indicating good antifouling property of the femtosecond laser-induced TiO_2 surface under UV light irradiation.

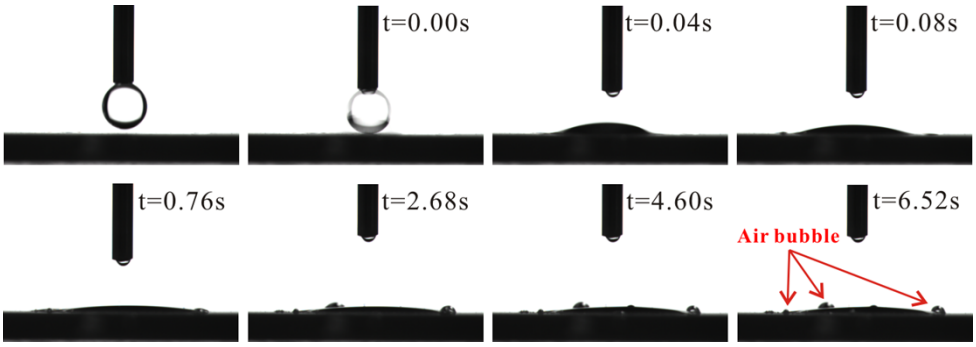

Figure S6. Time sequence of an oil droplet contacting the laser-induced surface in water after dark storage. The oil droplet spreads out quickly once it contacts the substrate, showing underwater superoleophilicity. In addition, some air bubbles appear on the oil liquid surface as the oil droplet spreads.