

Supplementary Information

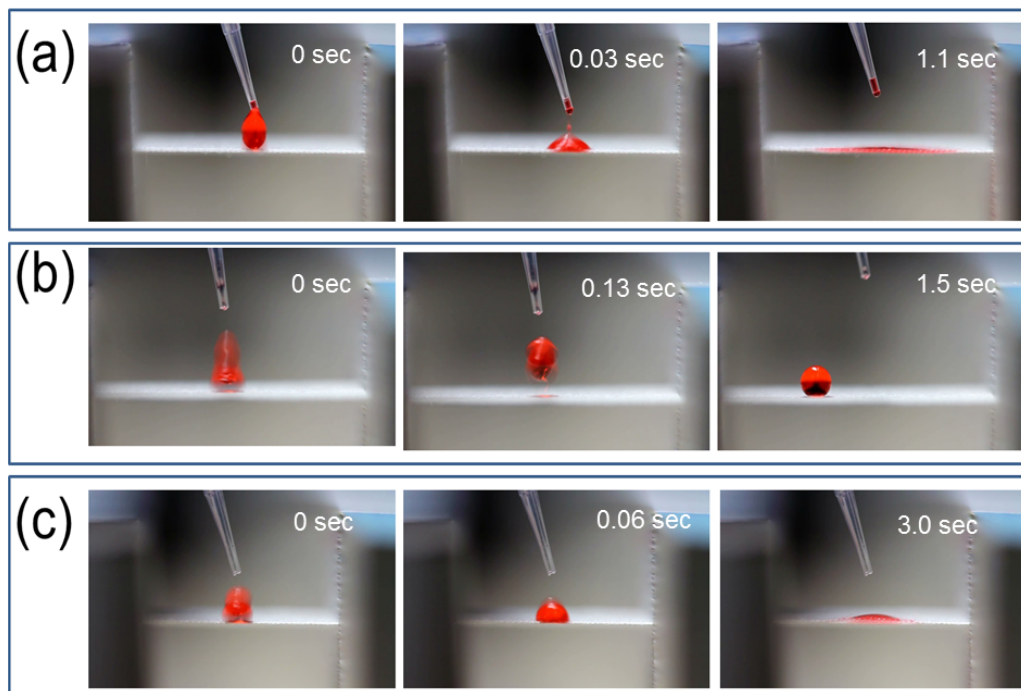
Nanostructured Self-cleaning Lyocell Fabrics with Asymmetric Wettability and Moisture Absorbency (Part I)

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Asymmetric wetting behavior of the plasma treated fabric

S.Figure 1 demonstrates the asymmetric wetting property of the plasma-processed lyocell fabric. The untreated lyocell absorbed water in 0.03 seconds showing a very low CA as in S.Figure 1(a). When a water droplet was placed on the plasma-processed surface, it showed bouncing effects and sat on the surface differently, as compared to the original place where it was dropped.

The water drop deposited on the backside of plasma-processed lyocell was also absorbed within a second, but the shape of the water drop was different from that shown in untreated lyocell exhibiting a higher CA. This is probably due to the effect of the superhydrophobic layer at the bottom surface; that is, unlike the untreated lyocell, where water penetrated into the bottom surface and spread outward, a water droplet deposited on the back surface of the plasma-processed fabric was not completely absorbed into the bottom surface.



S.Figure 1. Photo images showing asymmetric wetting behavior obtained by DSLR camera. A water droplet deposited on; (a) untreated (b) the plasma-processed surface (c) the backside of the plasma-processed surface.