

## Janus particles at an oil-water interface

### Supplementary Information

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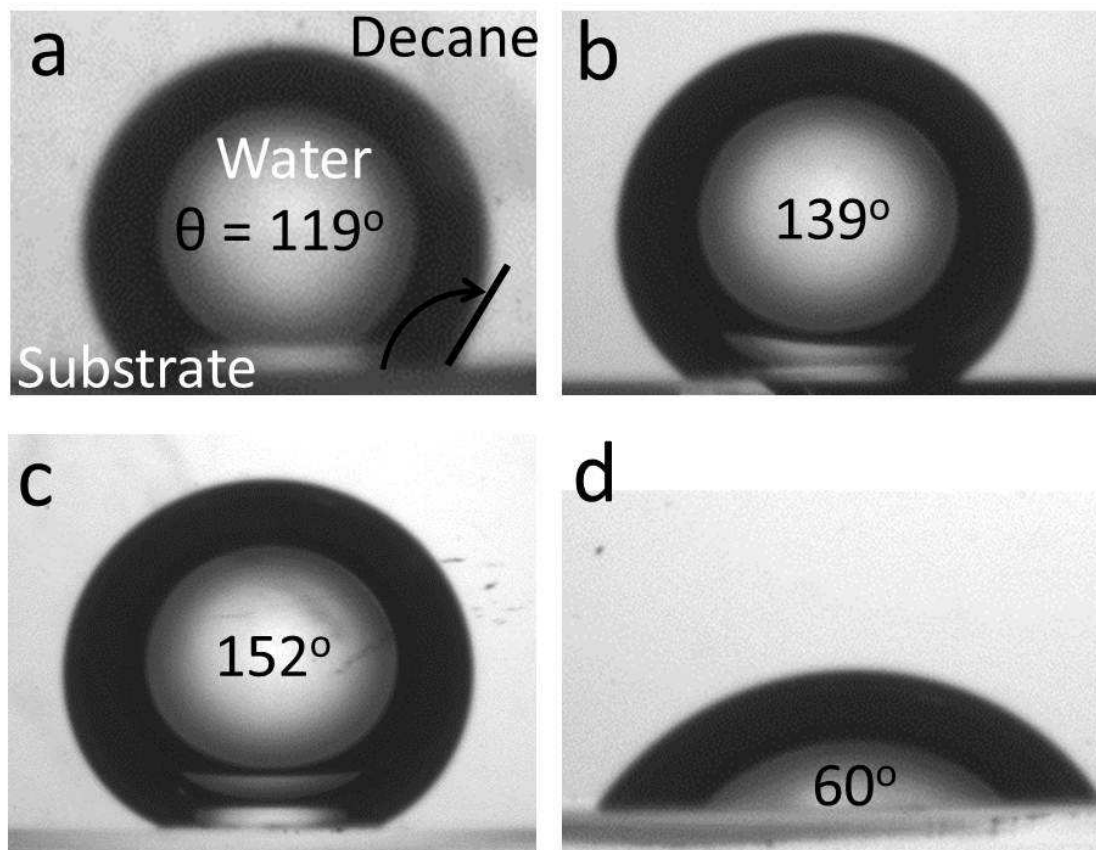


Figure S1. The contact angle of a water drop on (a) Au, (b) DDT modified-Au, (c) ODT modified-Au and (d) MPA modified-Au surfaces under decane.<sup>1,2</sup> Planar glass slides were used as substrates.

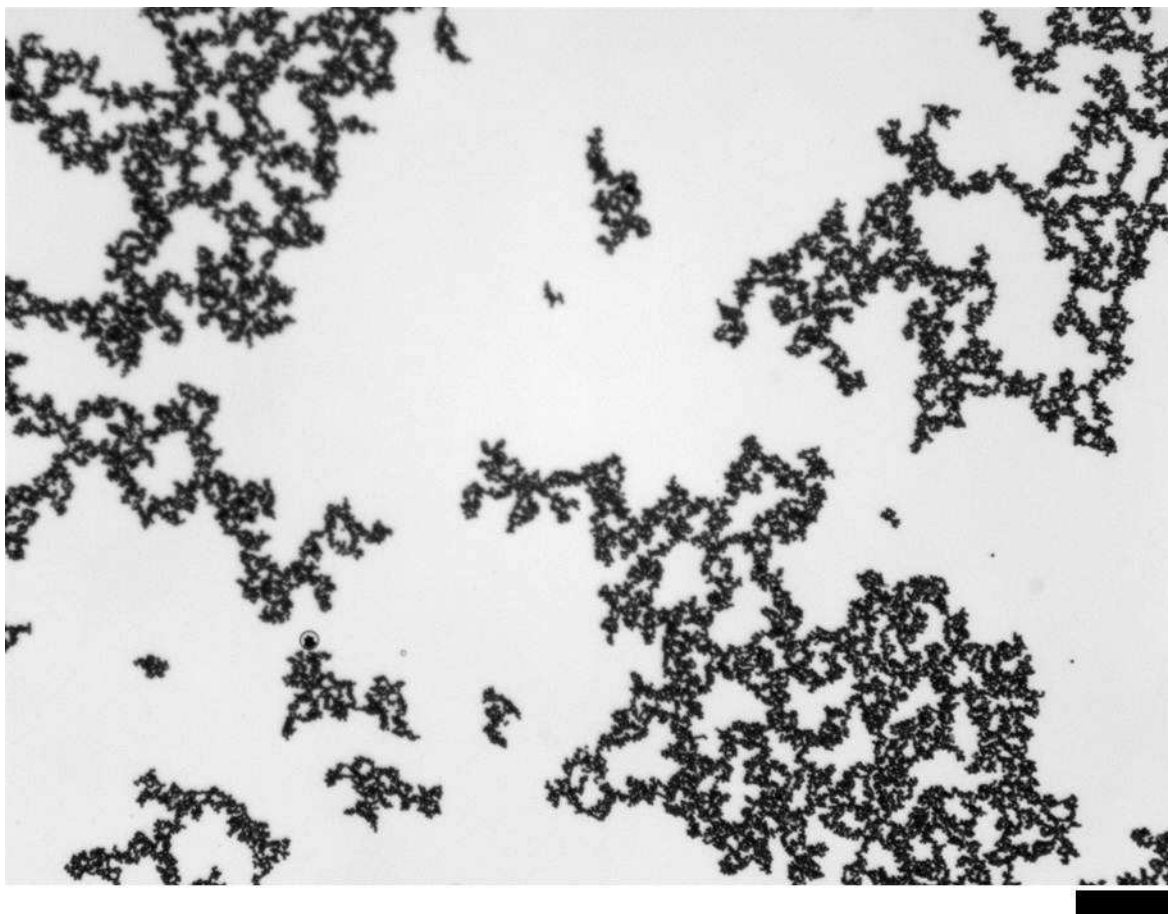


Figure S2. Microstructure formed by ODT-Au-PS particles at a decane-water interface. The scale bar is 100  $\mu\text{m}$ .

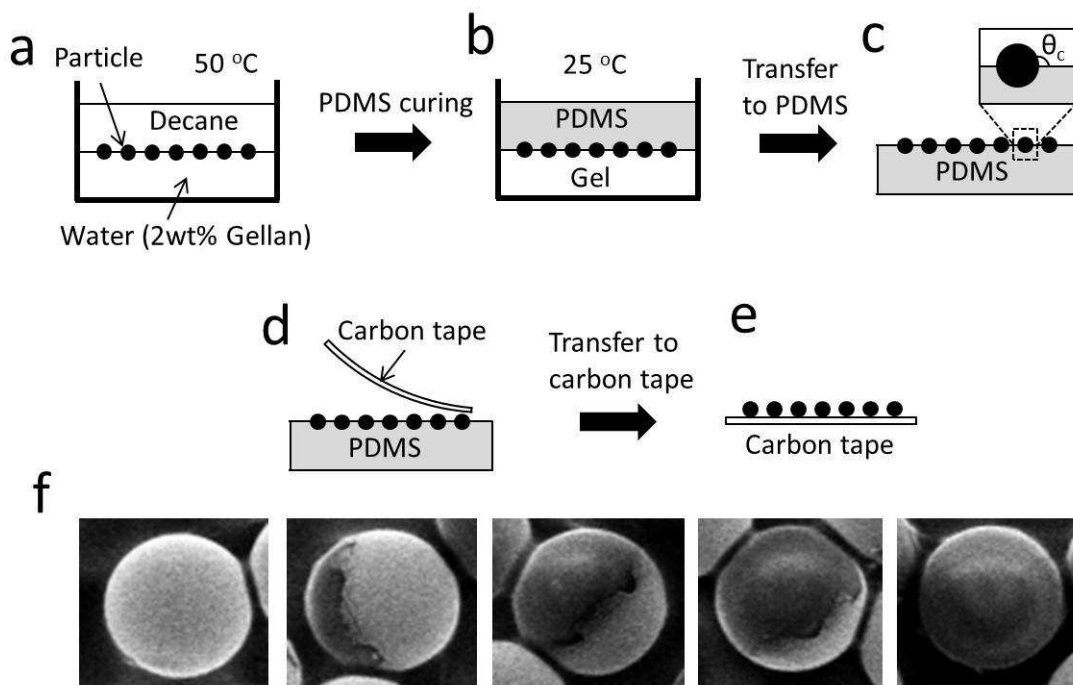


Figure S3. Schematic of the gel trapping technique<sup>3</sup> (a-c) and double transfer method (d-e). Some SEM images showing the orientation of Janus particles and the rugged Janus boundary are presented in (f). Bright and dark regions are gold-treated and un-modified (PS) surfaces, respectively. The gel trapping method is used for the determination of three-phase contact angle ( $\theta_c$ ). Using the B-spline snake method,<sup>4</sup> the average values of three-phase contact angle (over tens of the Janus particles in each case) are determined to be  $93 \pm 5^\circ$  for Au-PS,  $103 \pm 6^\circ$  for DDT-Au-PS, and  $100 \pm 4^\circ$  for ODT-Au-PS. The contact angle of the untreated-PS particle is reported as  $\theta_c = 90 \pm 20^\circ$ .<sup>5</sup> To visualize the orientation of Janus particle at the fluid-fluid interface, Janus particles embedded in a PDMS slab are transferred to a piece of double-sided carbon tape (i.e., double transfer) (see the text for detailed explanation).

## References

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5. K. Masschaele, B. J. Park, E. M. Furst, J. Fransaer and J. Vermant, *Phys. Rev. Lett.*, 2010, **105**, 048303.