Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting materials

Interfacial Gas Nanobubbles or Oil Nanodroplets?

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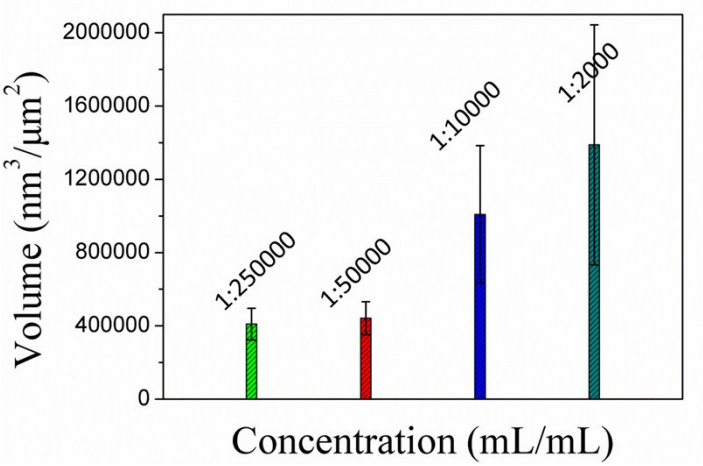
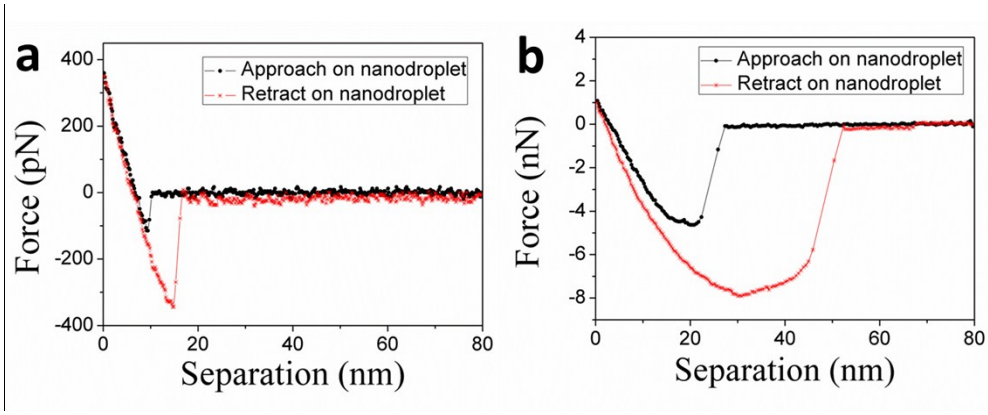
Figure S1. Volume of PDMS nanodroplets per square micrometer as a function of

PDMS concentration.



The volumes of the PDMS nanodroplets per square micrometer were calculated from AFM images. It was found that higher PDMS-chloroform ratio leads to larger total volume of the PDMS nanodroplets.

Figure S2. Force curves on nanodroplets with lateral size of 230nm obtained by a plasma tip (a) and a non-plasma tip (b).



It is known that the tip after plasma treatment is more hydrophilic than the one without. To further address this question, we measured the force curves on a nanodroplet using a tip after plasma treatment (plasma tip) and one without (non-plasma tip) as shown in the figure S2. It is clear that the magnitude of the "jump-in" and "jump-off" in the force curve using non-plasma tip increased significantly with larger positions for both "jump-in" and "jump-off" as well as a larger distance in-between these two positions. Thus, the

hydrophobicity of the AFM tip mainly affects the magnitude of the attractive force and the adhesion force between the tip and the droplet.