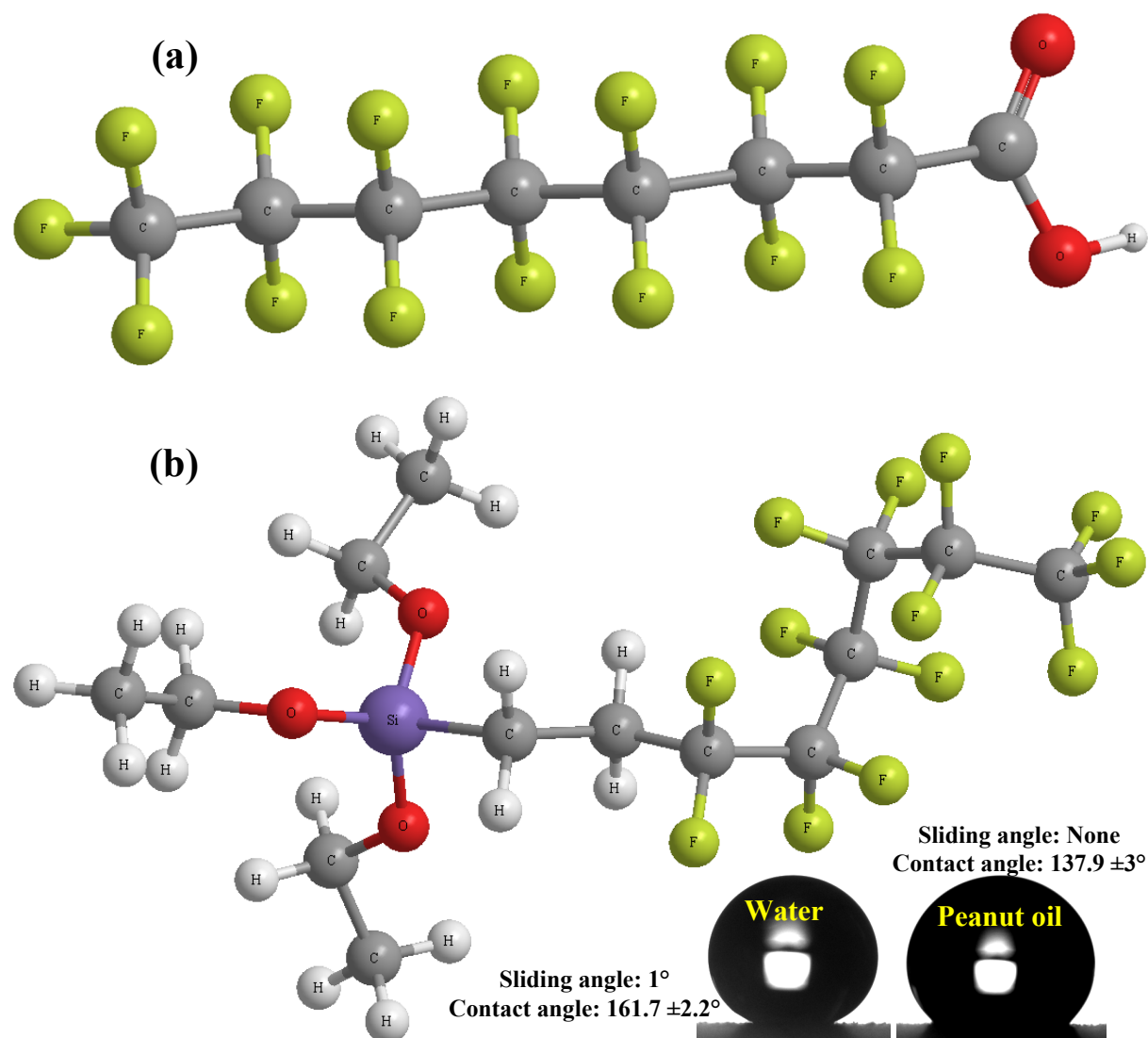
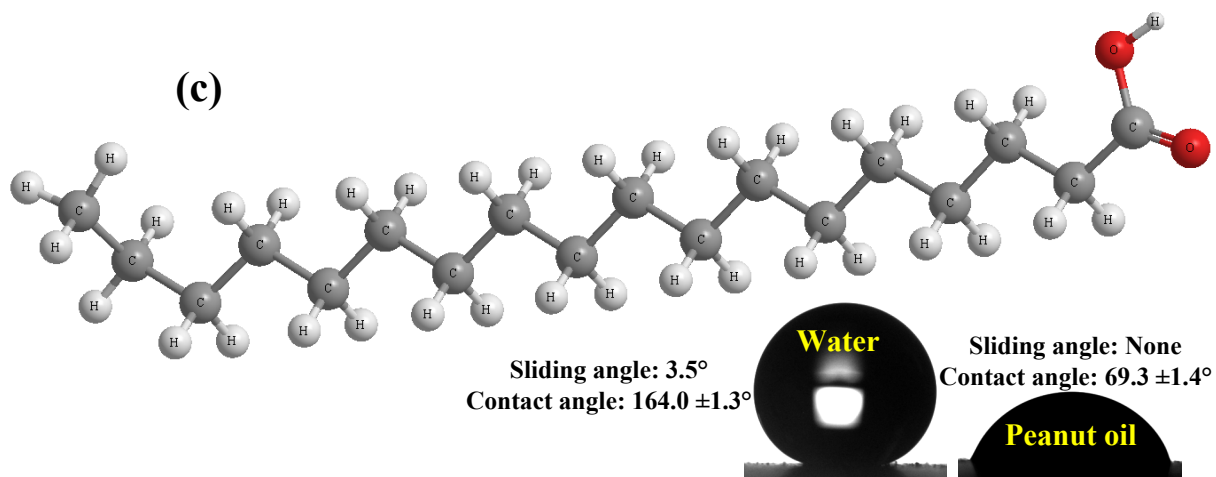


## Supporting Information

### 1. Supporting information 1

Figure 1 shows molecule models of PFOA, FAS, and STA. PFOA are mainly composed of the  $-\text{CF}_3$  groups and  $-\text{CF}_2-$  groups. FAS are mainly composed of the  $-\text{CF}_3$  groups,  $-\text{CF}_2-$  groups, and  $-\text{CH}_2-$  groups. In addition, STA are mainly composed of the  $-\text{CH}_3$  groups and  $-\text{CH}_2-$  groups. Compared with the  $-\text{CH}_3$  and  $-\text{CH}_2-$  groups, the  $-\text{CF}_3$  and  $-\text{CF}_2-$  groups have more small surface energy and can more effectively reduce surface energy of solid surfaces. The FAS-modified electrochemically etched and Ag-coated Al surfaces show superhydrophobicity and oleophobicity. The STA modified electrochemically etched and Ag-coated Al surfaces show superhydrophobicity and oleophilicity.

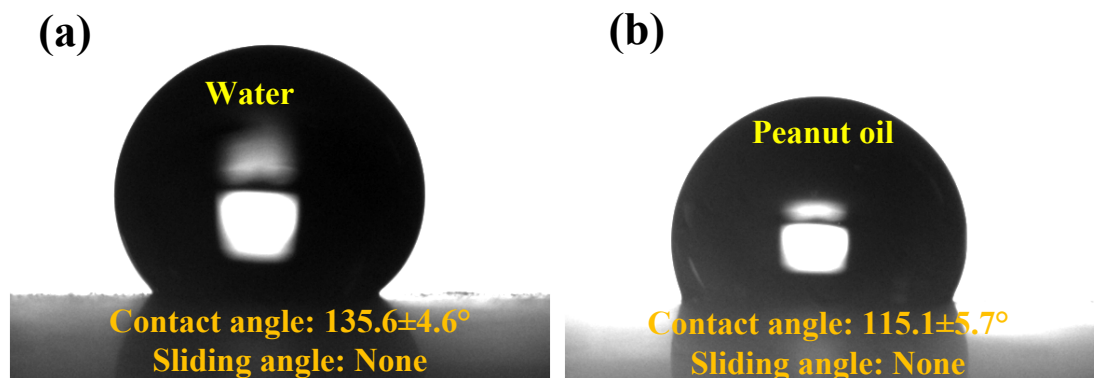




**Figure 1.** Molecule models of (a) PFOA, (b) FAS, and (c) STA

## 2. Supporting information 2

Figure 2 shows the images of water droplet and peanut oil droplet on the PFOA-modified Ag-coated Al surfaces obtained only via immersion in the  $0.1 \text{ mol/L } [\text{Ag}(\text{NH}_3)_2]^+$  solution for 120 s without any electrochemical etching. The contact angles of water and peanut oil are  $135.6 \pm 4.6^\circ$  and  $115.1 \pm 5.7^\circ$ .



**Figure 2.** Images of water droplet and peanut oil droplet on the PFOA-modified Ag-coated Al surfaces