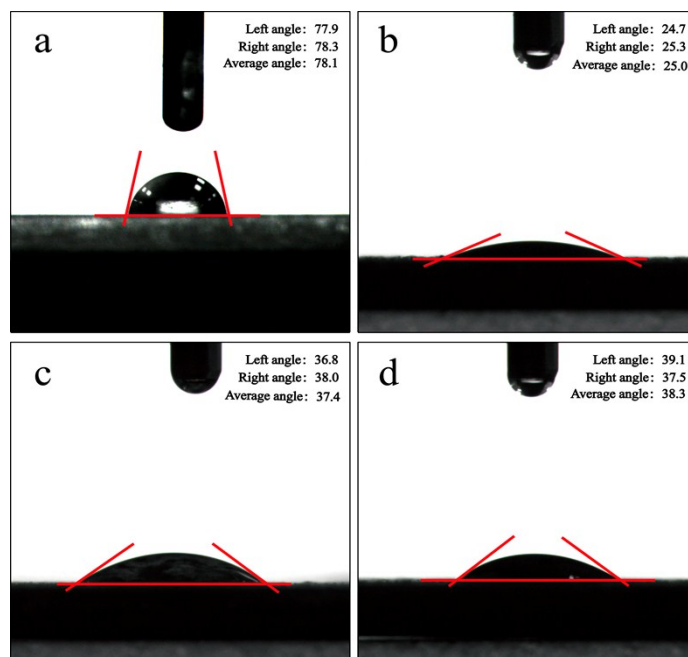


Supplemental Information 1:



Supplemental Information 1: Contact angle measurement of water droplet on the surface of different samples: (a) Ti-6Al-4V, (b) AgNP-SHAC, (c) AgNP-RHAC and (d) AgNP-PHAC.

Supplemental Information 2:

Kelvin equation can be expressed according to the following equation (Eq. S1):

$$L_n = \frac{4V_M\sigma}{\nu RT \ln S} \quad (S1)$$

where L_n is the critical size of the nucleus, V_M is the molar volume of the crystal, σ is the interfacial tension between the solid and liquid, ν is the number of ions per molecule of solute, and S is the absolute super-saturation ratio. The change in critical free energy (ΔG_{cr}) is given by the following equation:

$$\Delta G_{cr} = \frac{16\pi\sigma^3 V_M^2}{3(kT \ln S)^2} \quad (S2)$$

where ΔG_{cr} is the change in critical free energy and k is the Boltzmann constant.