

Supporting information for:

LSPR Properties of Metal Nanoparticles Adsorbed at a Liquid-Liquid Interface

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With commercial Lumerical FDTD solutions software, we also investigated the SERS electromagnetic enhancement distribution on the yz -plane when the incident plane wave propagates along the z -axis direction with the polarization along the y direction. The calculation model is shown in Fig. S1. Other conditions are the same as in the paper. When the excitation wavelength is 749 nm (LSPR peak position under coupling mode), the SERS enhancement factor at the water-oil interface is more than 9 orders (Fig. S2(a)). For 633 nm laser, which was not the LSPR peak position but widely used in many laboratories, the SERS enhancement factor can be as high as 8 orders (Fig. S2(b)).

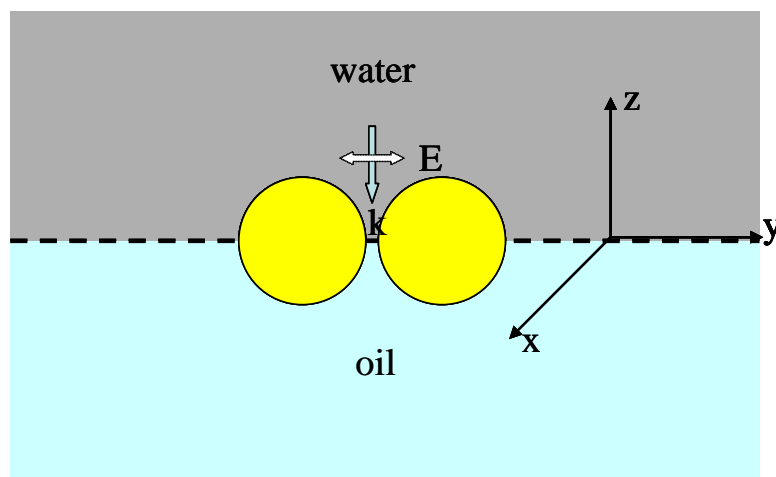


Fig. S1 Schematic of Au nanoparticle dimers at water-oil interface with diameter $d=20$ nm. The incidence direction and polarization are shown in the figure as k and E respectively.

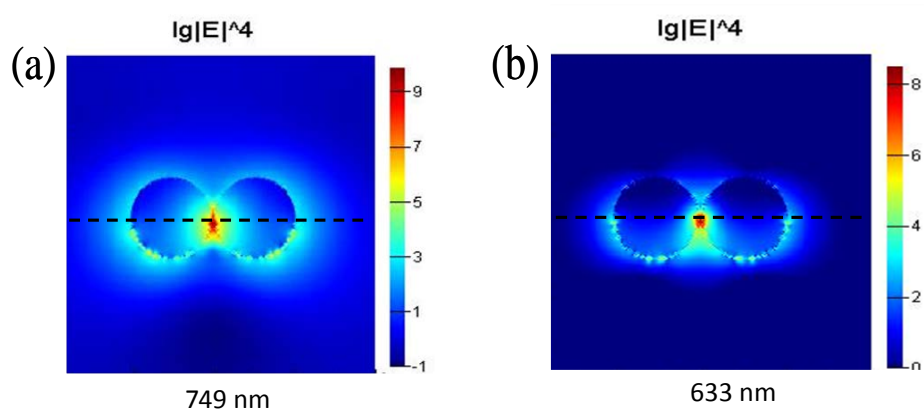


Fig.S2 FDTD calculated SERS electromagnetic enhancement distribution (near field) in the yz-plane under the excitation wavelength at 749 nm (a) and 633 nm (b). Dashed line represents the water-oil interface.