Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

In situ monitor of plasmon-driven photocatalytic reaction at gas-liquid-solid three phase interfaces by surface enhanced Raman spectroscopy

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Key words: Plasmon-driven photocatalytic reaction, gas-liquid-solid interfaces, surface enhanced Raman spectroscopy, in situ detection.

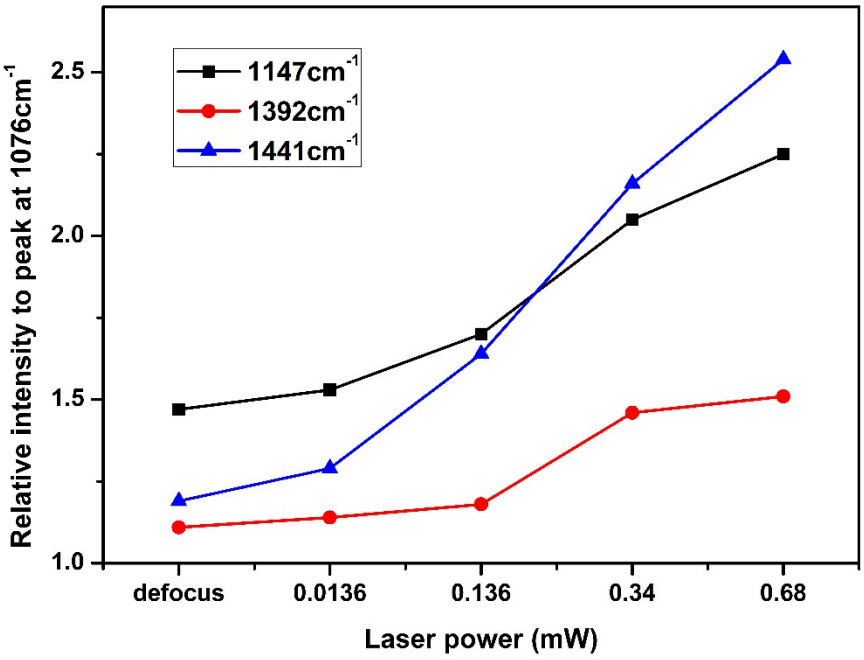

Figure S1. Plot line graph of laser dependent SERS relative intensities changing of peaks at 1147 cm^{-1}, 1392 cm^{-1} and 1441 cm^{-1}.

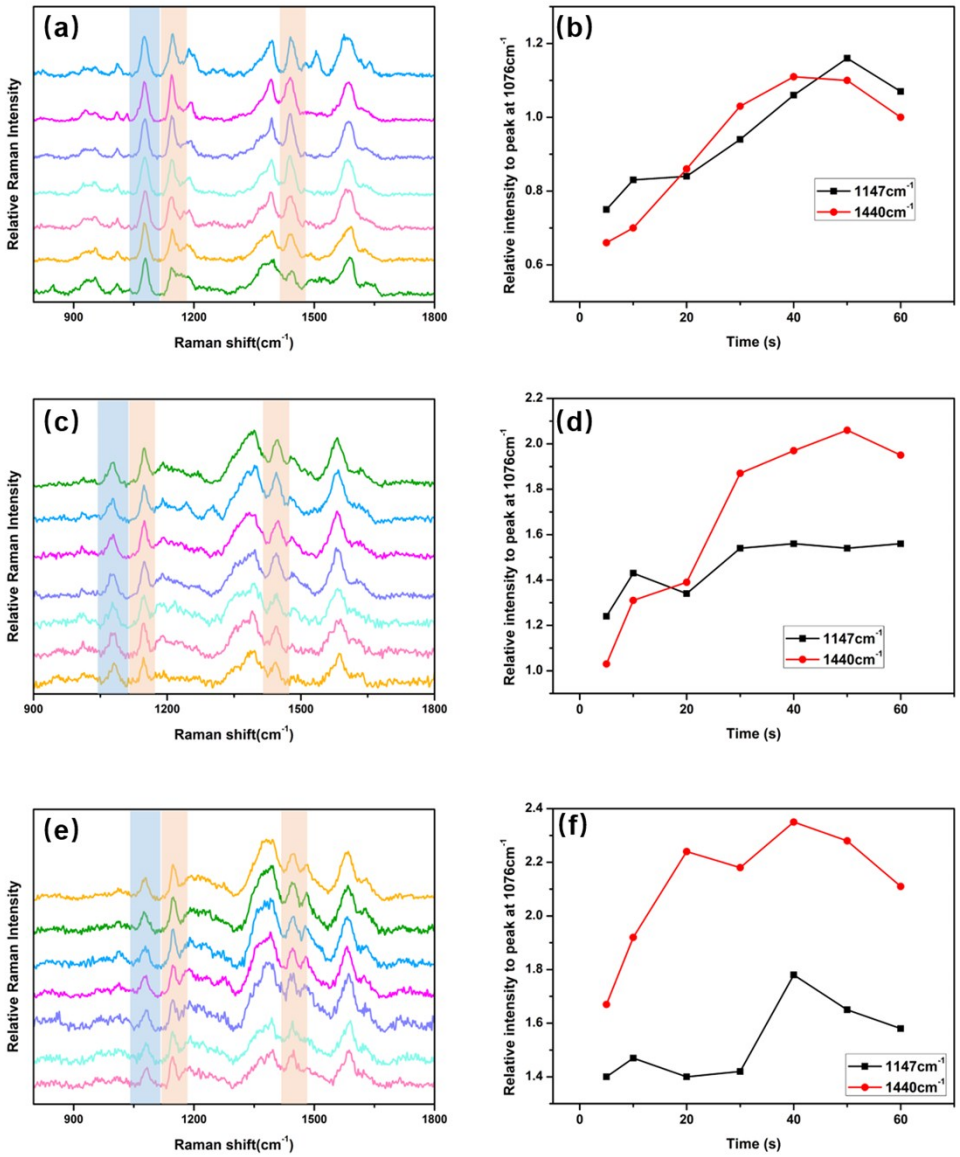

Figure S2. Time-dependent SERS spectra of Ag microwool/nanodendriltes structure substrates with superhydrophobic (a), hydrophobic (c) and hydrophilic surface wettability; (b)(d)(f) Line chart of relative intensity of peak at 1147 cm^{-1} and 1440 cm^{-1} to peak at 1076 cm^{-1} of the three substrates.

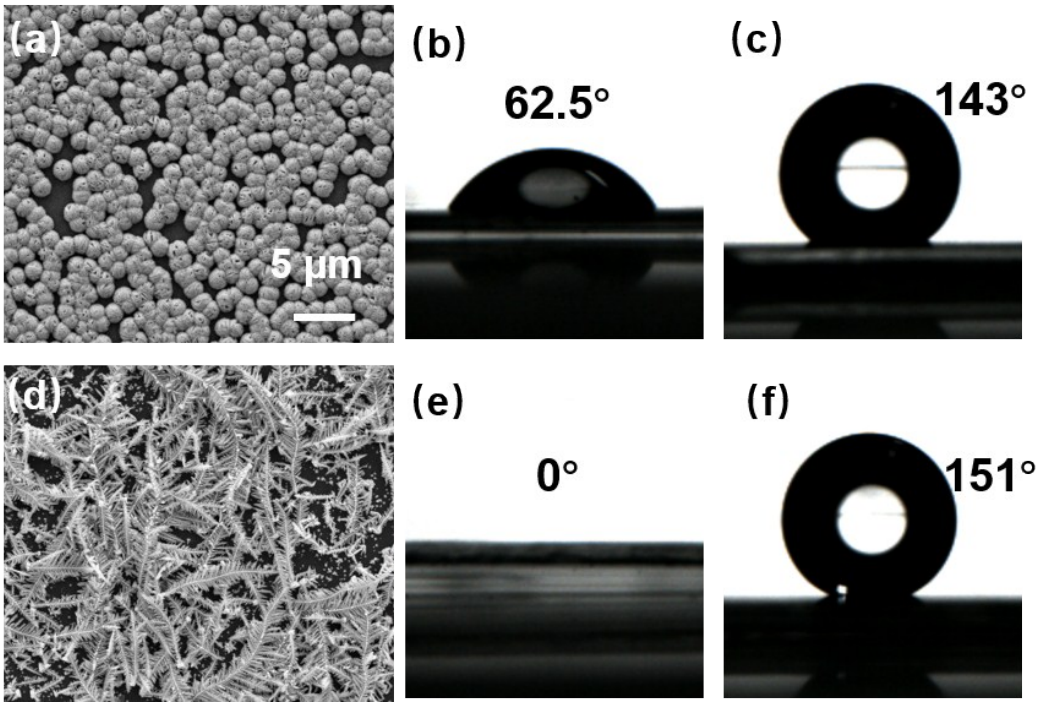

Figure S3. (a) (d) SEM pictures of the Ag micro-woo ball structure substrates and Ag nanodendrite structures with scale bar of 5μm; (b)(c) Contact angle photo of Ag micro-woo ball structure substrates before and after low surface energy modification; (e)(f) Contact angle photo of Ag nanodendrite structures before and after low surface energy modification.

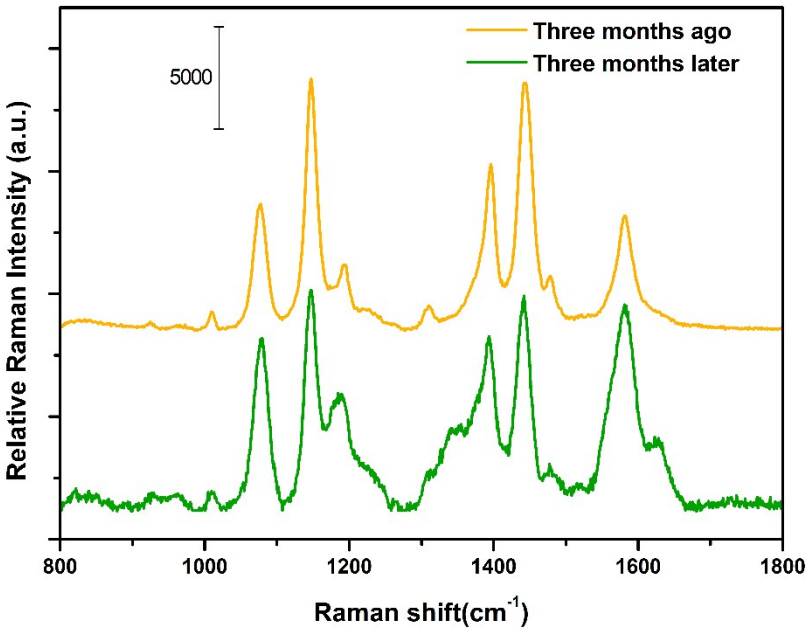

Figure S4. SERS spectra of the same superhydrophobic substrate detecting 10^{-5}M PATP with the same conditions before and after three months. (laser power about 0.34 mW, exposure time is 3s)