

Supporting Information

Facile preparation of ordered arrays of polystyrene spheres dissymmetrically decorated with gold nanoparticles at air/liquid interface and their SERS properties

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Table S1. Synthesis conditions of PS/Au, PS/Pd and PS/Au-Pd composite particles

dielectric-metal composites	SnSO ₄ [24 mM]	PdCl ₂ [2 mM]	HAuCl ₄ [2.4 mM]	HCl [2 M]	Pd/Au mol ratio ^a	Heating time ^b
PS/Au	4 ml	/	4 ml	4 ml	/	10 to 40 min
PS/Pd	4 ml	4 ml	/	4 ml	/	5 h
PS/Au-Pd(a1)	4 ml	1 ml	3 ml	4 ml	1/3.6	1.5 h
PS/Au-Pd(a2)	4 ml	2 ml	2 ml	4 ml	1/1.2	3 h

^a In precursor solutions, ^b at 60 °C.



Fig. S1 An optical photograph of Au colloid after heating at 60°C for 40 min under protection of N₂ gas.

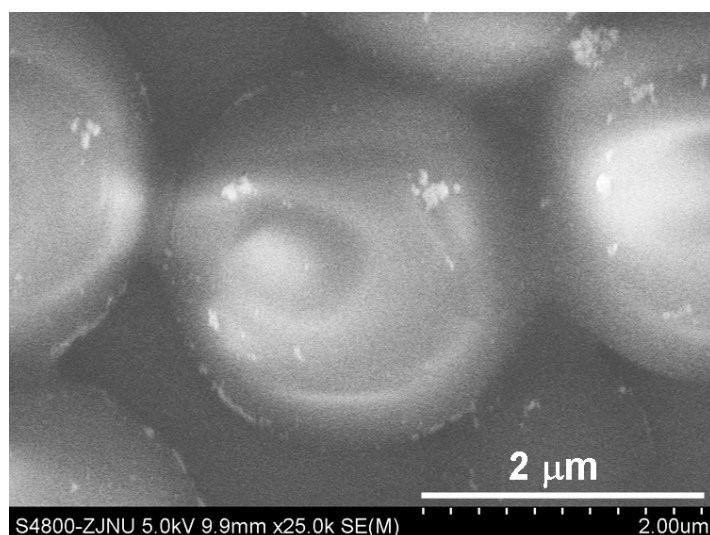


Fig. S2 A SEM image of PS spheres floating on the surface of citrate-reduced Au colloid under formic acid vapor for 6 h at room temperature ($\sim 20^\circ\text{C}$).

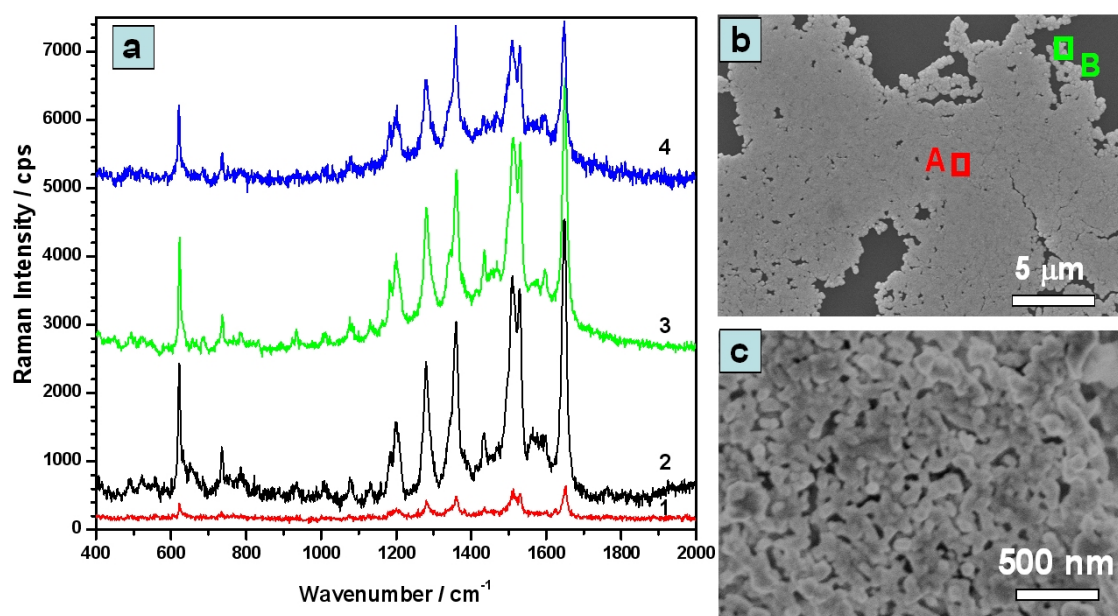


Fig. S3 (a) SERS spectra of RdB on the aggregated Au NPs on a flat Si substrate (spectra (1) and (3)), on the PS/Au (12 h) composite particle array (spectrum (2), which was extracted from Fig. 7c), and on a rough Au electrode prepared by electrochemical ORC method (spectrum (4)). SEM images of (b) aggregated Au NPs on Si substrate and (c) Au electrode roughened by electrochemical ORC method. Region A corresponds to spectrum (1) and Region B corresponds to spectrum (3).