chemosensors

MDPI

Article

Supplement Information

Rapid Fabrication of Homogeneous Submicron Silver Particles via Microfluidic Chip and Use as a SERS Detection Substrate

Junjie Chen [1,†], Suyang Li [2,†], Fuqi Yao [1], Wanbing Xu [2], Yunfeng Li [3] and Qiang Chen [1,*] , Pei Liang [2,*]

[1] College of Metrology and Measurement Engineering, China Jiliang University, Hangzhou 310018, China
[2] College of Optical and Electronic Technology, China Jiliang University, Hangzhou 310018, China
[3] College of information Engineering, China Jiliang University, Hangzhou 310018, China
* Correspondence: chenqiang_cjlu@cjlu.edu.cn (Q.C.); plianghust@cjlu.edu.cn (P.L.).
† These authors contributed equally to this work.

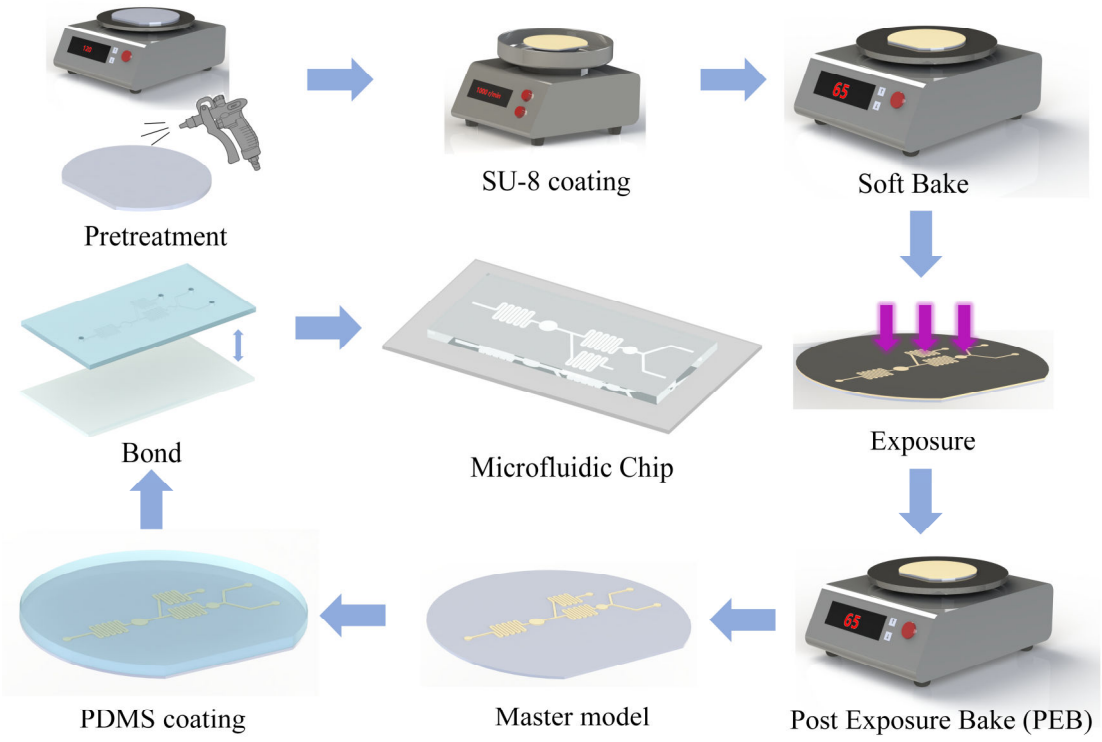

Figure S1. Method for manufacturing PDMS chip.

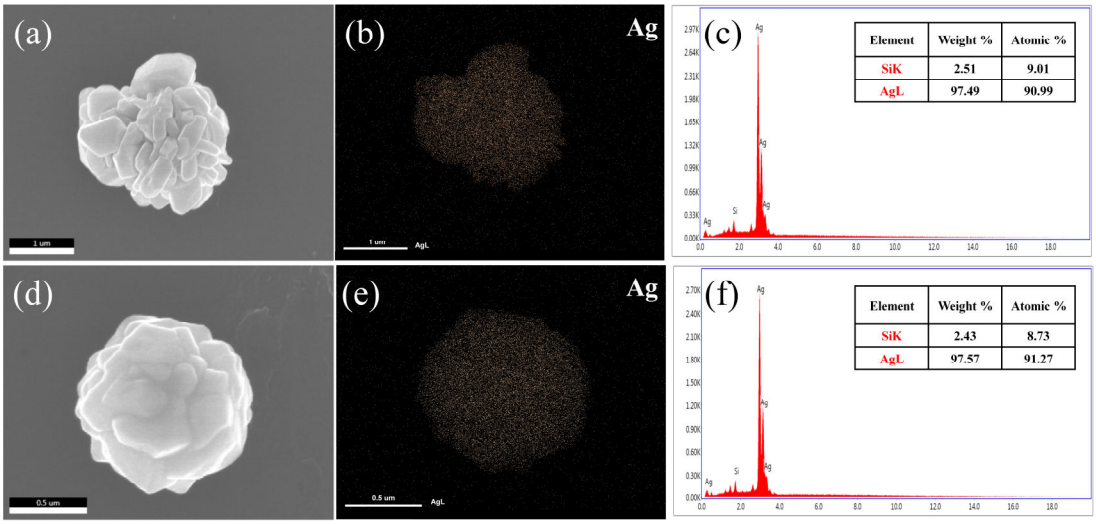

Figure S2. Typical EDS spectrum of flower-like silver particles (**a**–**c**) and quasi-spherical silver particles (**d**–**f**).

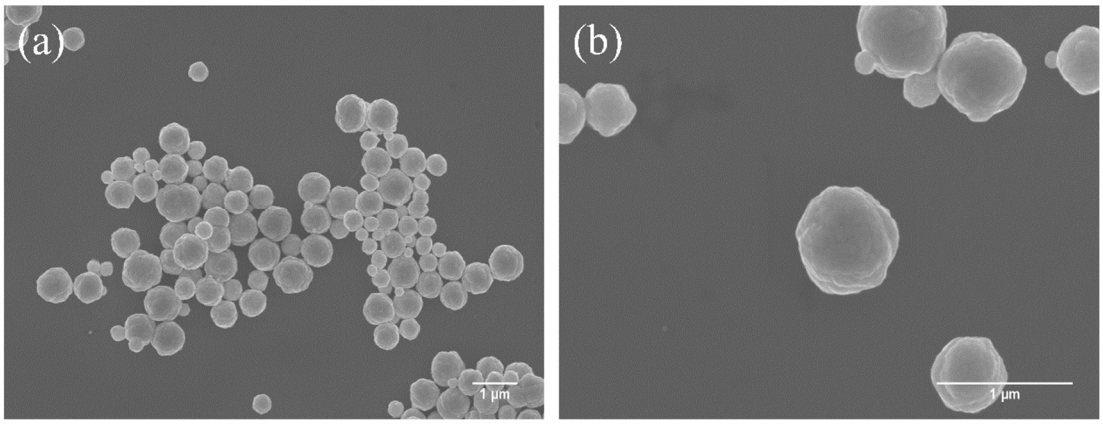

Figure S3. Silver particles synthesized in conventional equipment.

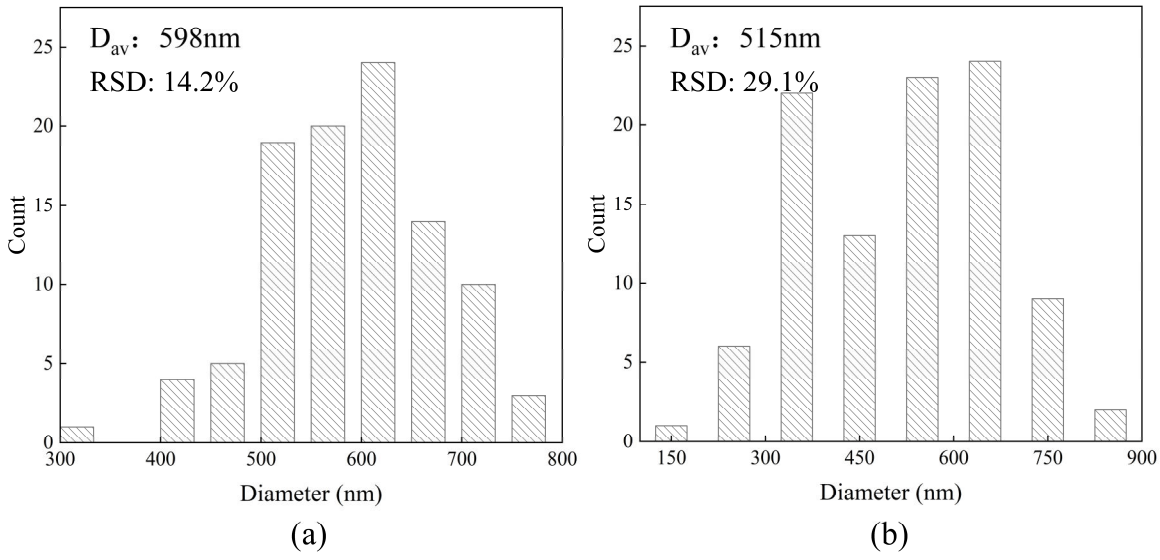

Figure S4. Particle size distribution histograms of particles prepared by microfluidic chips and conventional methods. (**a**) Particle size distribution histogram of the particles prepared by the microfluidic chip; (**b**) Particle size distribution histogram of particles prepared by traditional method.

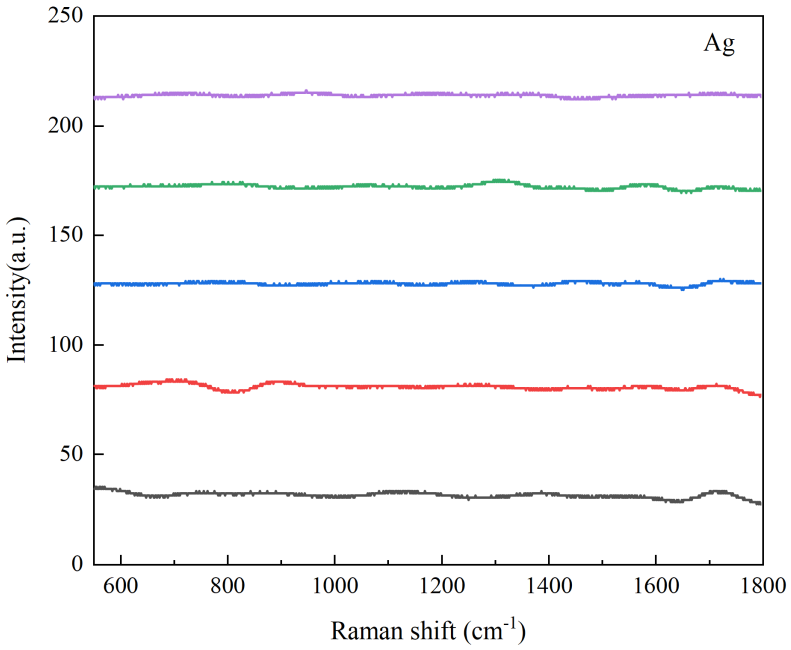

Figure S5. SERS blank control signals detected at five different positions when quasi-spherical silver particles were used as the SERS substrate.

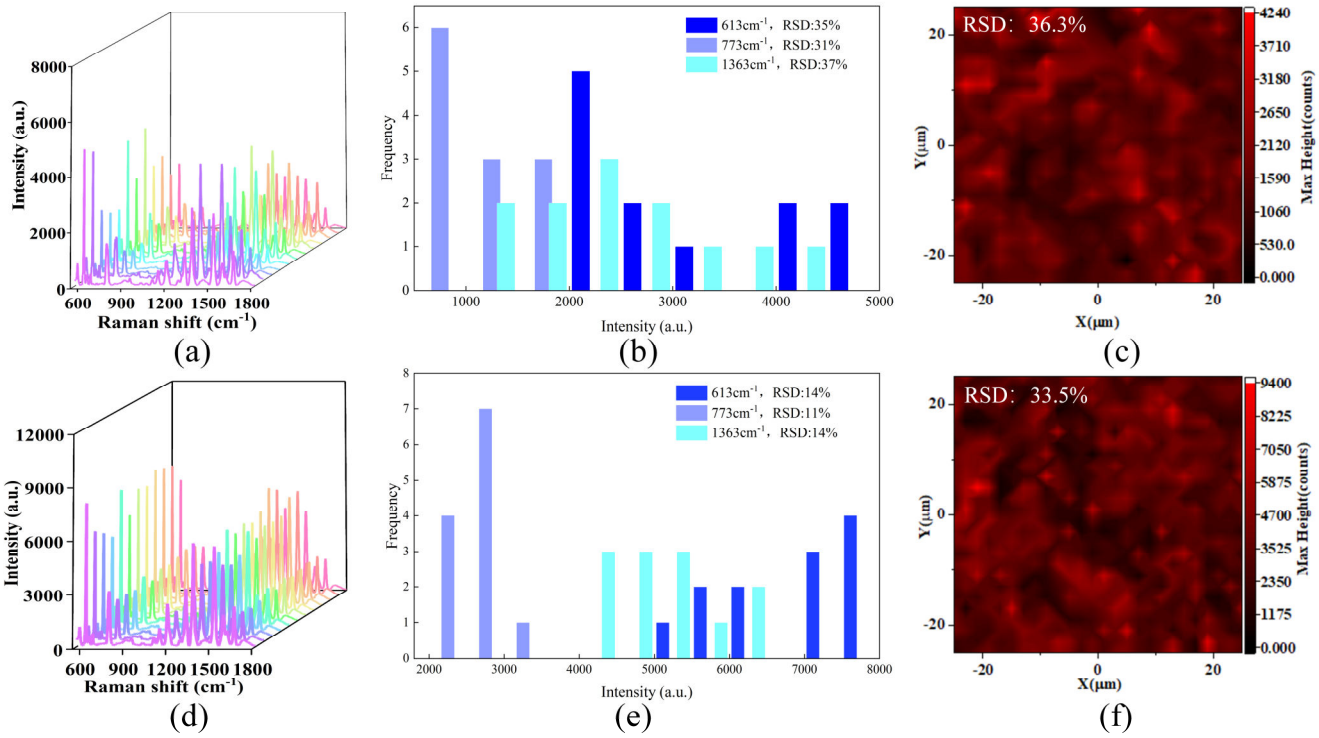

Figure S6. Reproducibility of flower-like silver particles (**a**–**c**) and quasi-spherical silver particles (**d**–**f**). (**a**) and (**d**): Silver particles with two morphologies were used as Raman substrates for signal intensities of SERS measurements at 12 different locations; (**b**) and (**e**): Relative standard deviation of SERS intensities for characteristic peaks at 613 cm^{-1}, 773 cm^{-1}, 1363 cm^{-1}; (**c**) and (**f**): Raman mapping image of R6G (10^{-6} M) with all peak intensities at 613 cm^{-1}.

Table S1. Assignments of Raman bands of R6G in SERS and normal Raman conditions.

Raman	SERS	Assignment
1649	1651	xanthene ring stretch; C-H in-plane bending
1502	1511	xanthene ring stretch; C-N stretch; C-H bend; N-H bend
1362	1363	xanthene ring stretch; C-H in-plane bending
773	773	C-H out of plane bend; xanthene ring in-plane deformations
613	613	xanthene ring in-plane deformations; xanthene ring out-of-plane deformations