Supplementary Materials

High-throughput Surface-enhanced Raman Scattering Sensors for Near-infrared Detecting Biochemical molecules

Yifan Wang, Zhiming Chen, Pan Zeng, An Cao, Tao Zhang, [a,c]* and Yue li [a,b]*

[a] Mr. Yifan Wang, Mr. Zhiming Chen, Ms. Pan Zeng, Mr. An Cao, Dr. Tao Zhang,[a,c]* Prof. Yue Li*
Key Laboratory of Materials Physics and Anhui Key Laboratory of Nanomaterials and Nanotechnology, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei 230031, P. R. China
E-mail: yueli@issp.ac.cn
[b] Mr. Yifan Wang, Mr. Zhiming Chen, Ms. Pan Zeng, Mr. An Cao, Prof. Yue Li
University of Science and Technology of China, Hefei, 230026, P.R. China
[c] Dr. Tao Zhang*
School of Physical and Mathematical Sciences, Nanyang Technological University, 21 Nanyang Link, Singapore 637371, Singapore
E-mail: tao.zhang@ntu.edu.sg

Figures

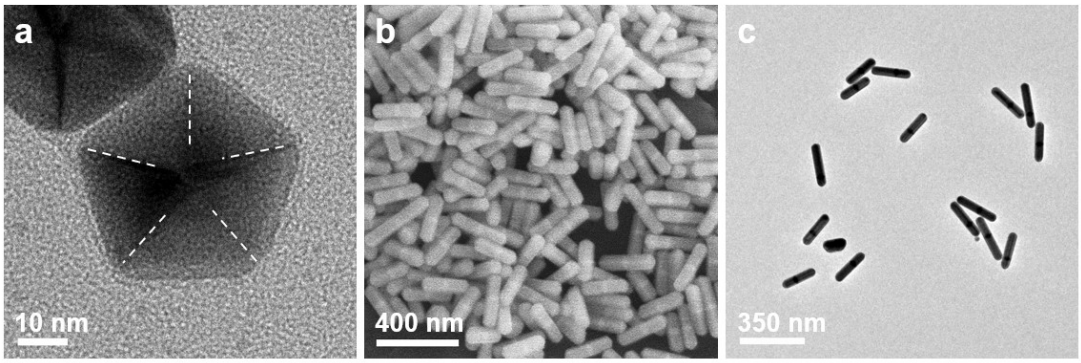

Fig S1 (a) TEM image of Au decahedron. (b) Lower magnification SEM image of Au@Ag NRs and (c) lower magnification TEM image of Au@Ag NRs.

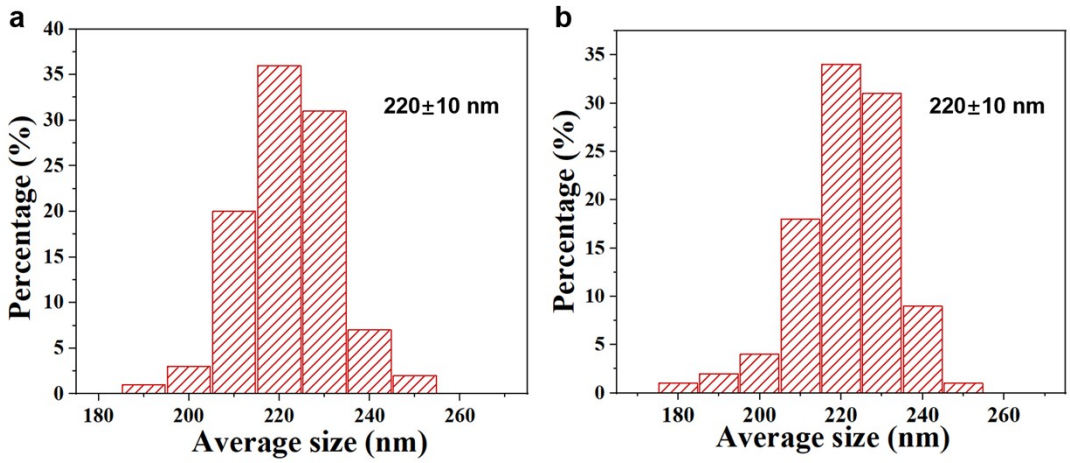

Fig. S2 Size distribution of (a) Au@Ag NRs and (b) porous Au@AuAg NRs.

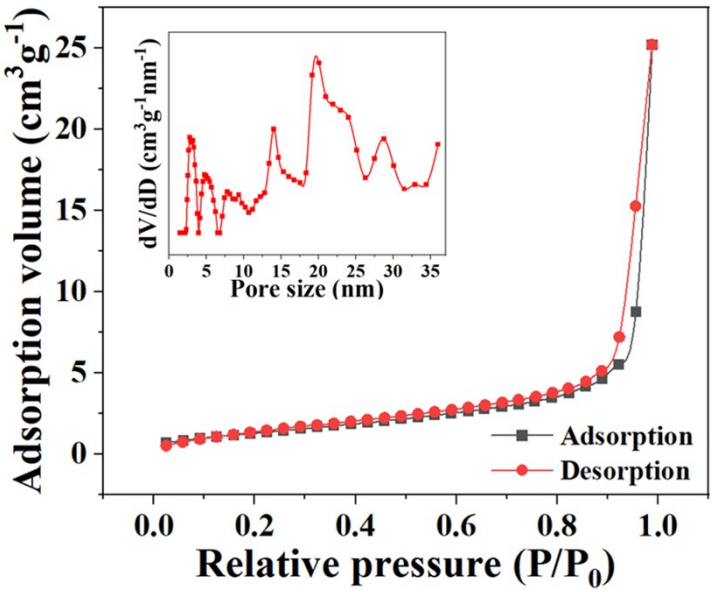

Fig. S3 N_2 sorption isotherms and pore size distribution of porous Au@AuAg NRs.

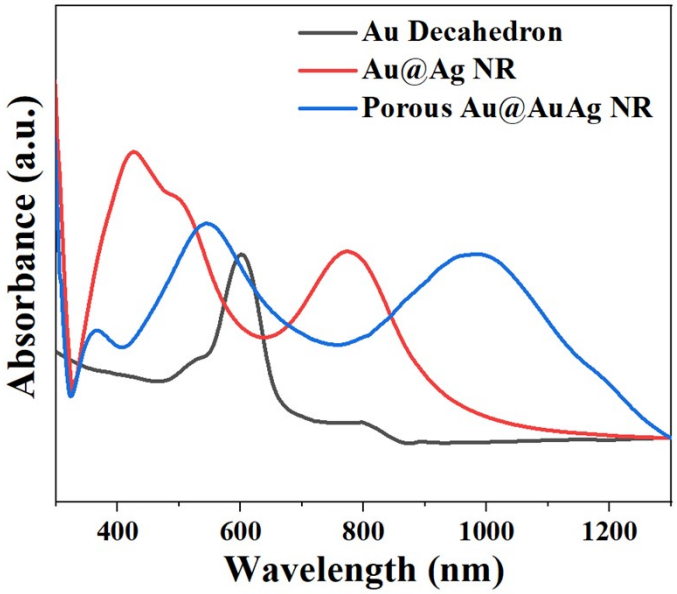

Fig. S4 Absorption spectra of Au decahedron, Au@Ag NR and porous Au@AuAg NR.

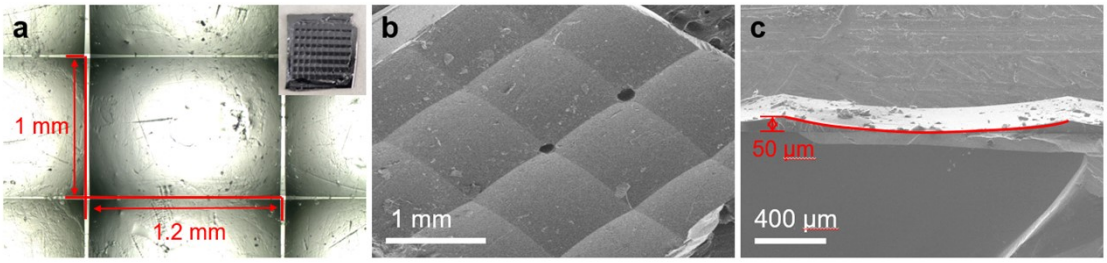

Fig. S5 Images of gridded substrate for (a) optical microscope and (b,c) SEM.

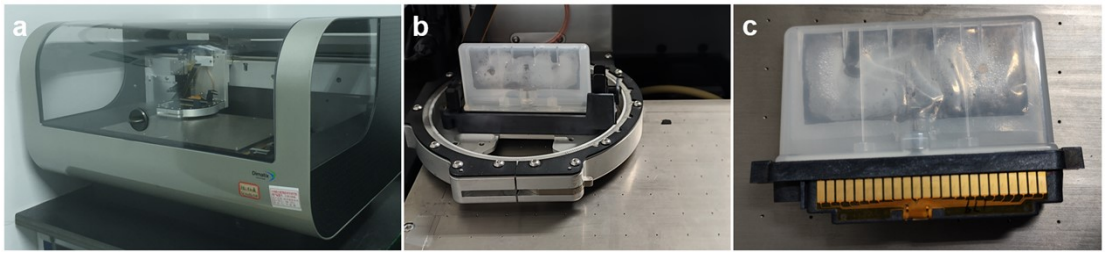

Fig. S6 Images of (a) inkjet printer, (b) inkjet printer nozzle and (c) inkjet printer cartridge filled with porous Au@AuAg NRs.

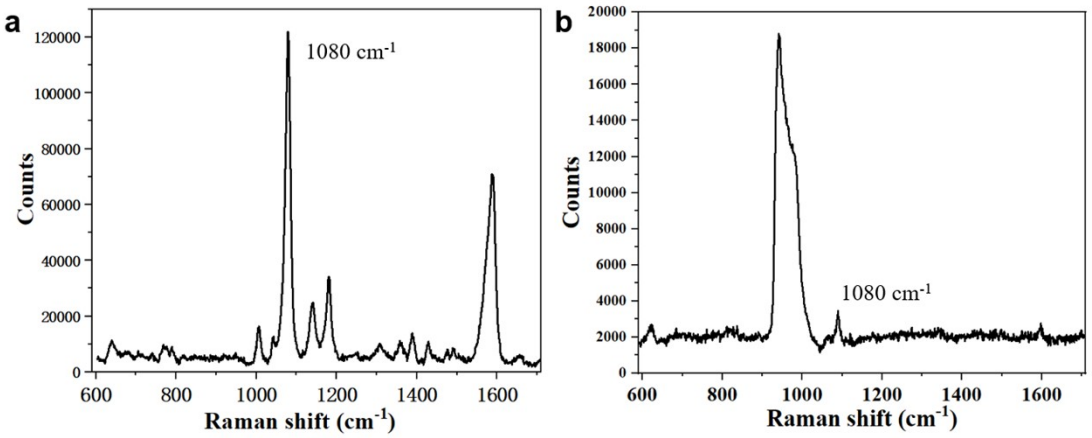

Fig. S7 Images of (a) Raman signal obtained by dropping 1 μl 4-ATP ethanol solution (10^{-6} M) on porous Au@AuAg NRs substrate. (b) Normal Raman signal of 1 μl of 10^{-2} M 4-ATP ethanol solution dropped on the Si substrate.

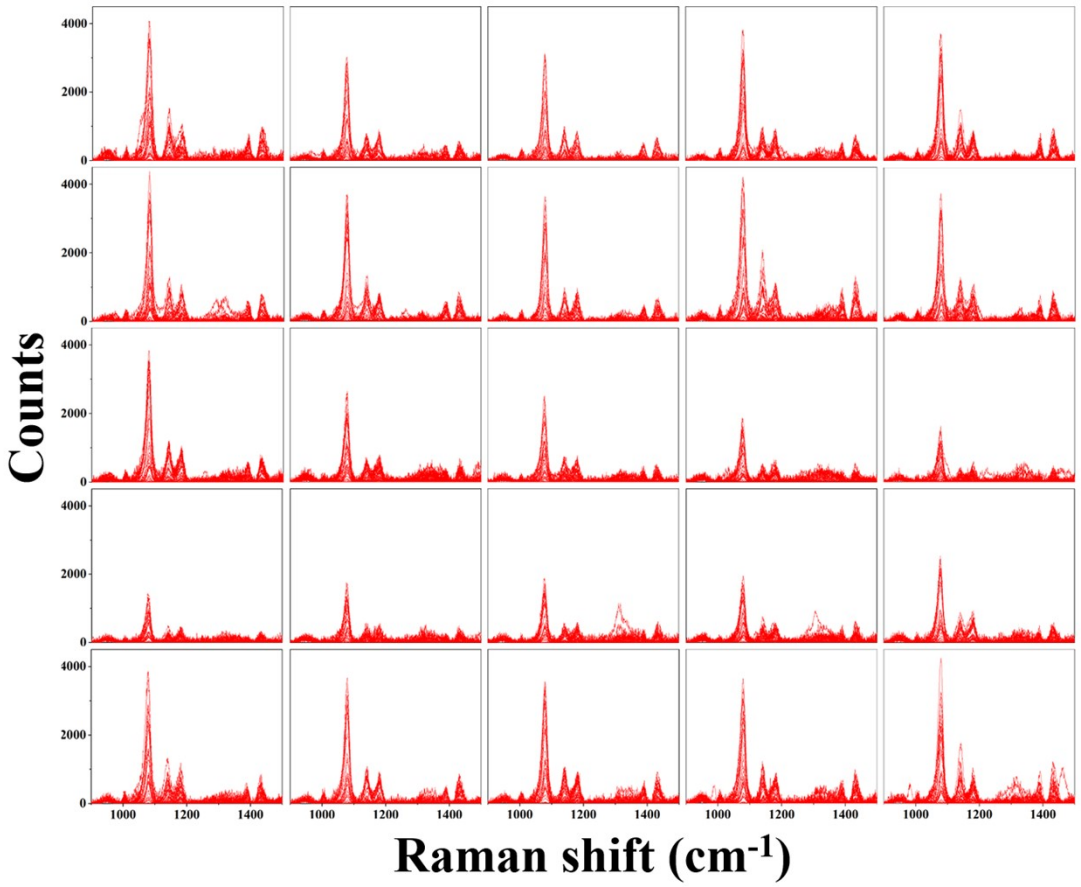

Fig. S8 SERS spectra on the 25 array units with porous Au@AuAg NRs, each array unit has tested SERS signals on 7*7 spots.

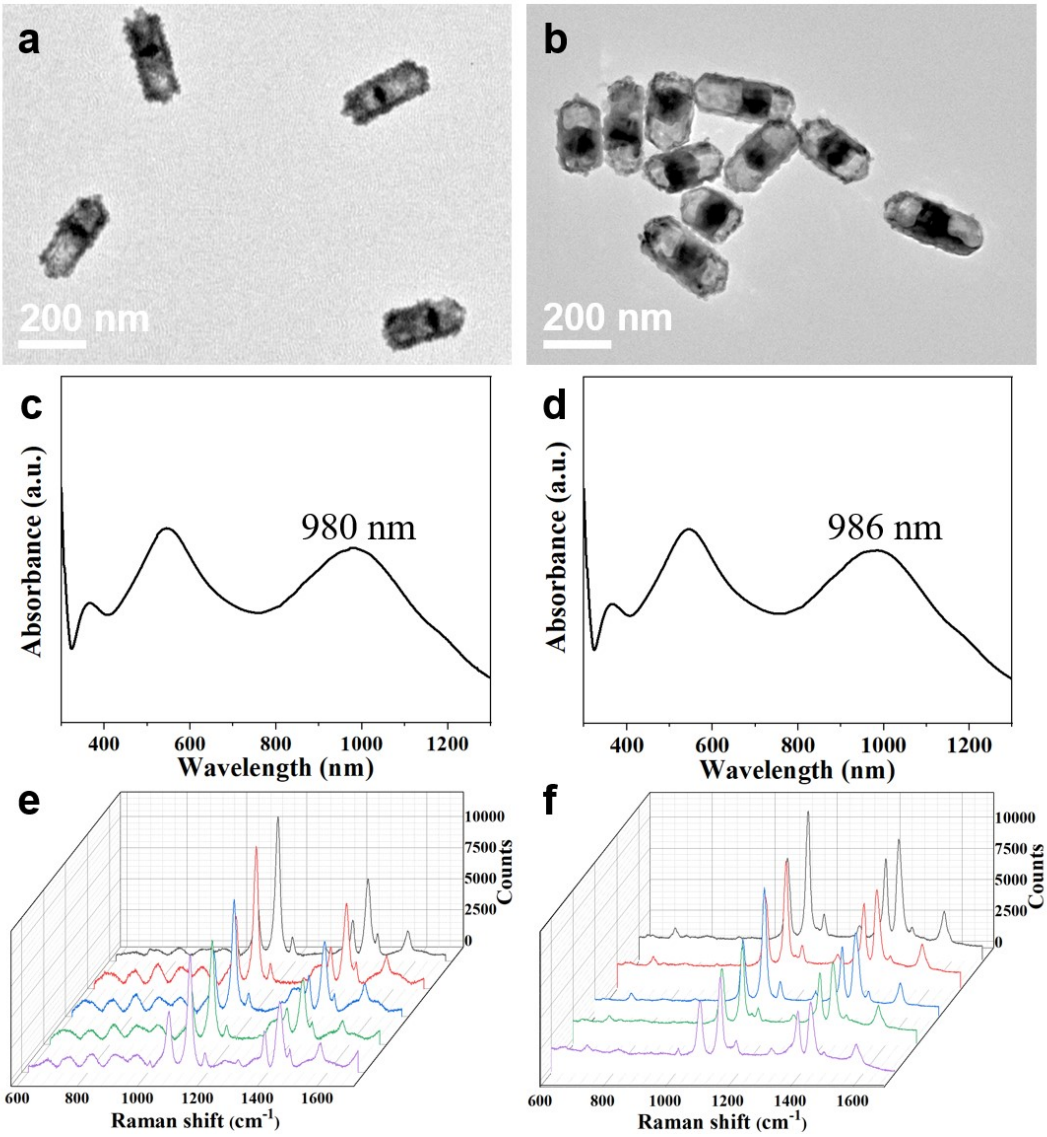

Fig. S9 Comparation of two kinds of Au@AuAg NRs. (a) and (b) are TEM images of porous Au@AuAg NRs produced in different batches (treated by different amounts of HNO_3, sample a: 8.3 mL while sample b: 16.6 mL). (c) and (d) are the corresponding absorption spectra of porous Au@AuAg NRs produced in different batches. (e) and (f) are SERS spectra of porous Au@AuAg NRs produced in different batches with 10^{-7} M of 4-ATP.