Electronic Supplementary Material (ESI) for Nanoscale Advances.

Electronic supplementary information

Selectively enhanced Raman/fluorescence spectrum in photonic-plasmonic hybrid structures

Jisong Qian,[a] Zebing Zhu,[a] Jing Yuan,[a] Ying Liu,[a] Bing Liu,[b] Xiangwei Zhao,[b] and Liyong Jiang*[a]

[a]*Institute of Micro-nano Photonic & Beam Steering, School of Science, Nanjing University of Science and Technology, Nanjing 210094, China*

[b]*State Key Laboratory of Bioelectromocs, School of biological Science and Medical Engineering, Southeast University, Nanjing 210009, China*

**Corresponding author: jly@njust.edu.cn*

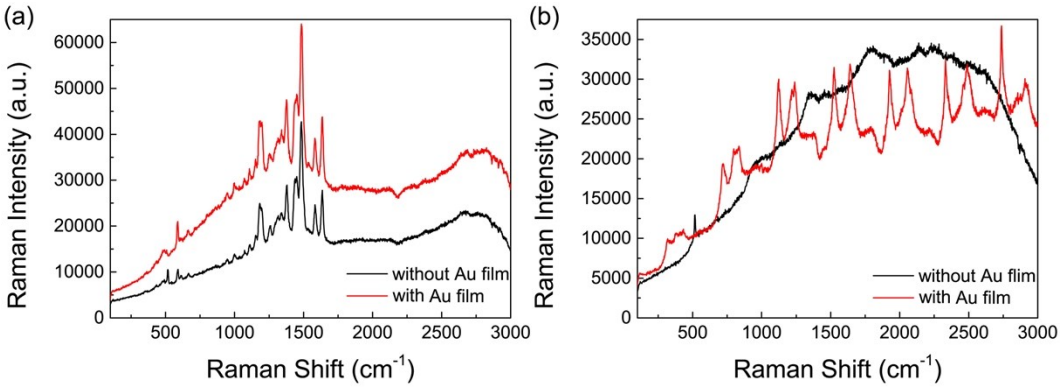

Fig. S1 Raman spectra of (a) NBA/Au NPs/PS MS and (b) PS MS/NBA/Au NPs on the pure SiO_2/Si substrate without Au film (black) and with 100 nm Au film (red).

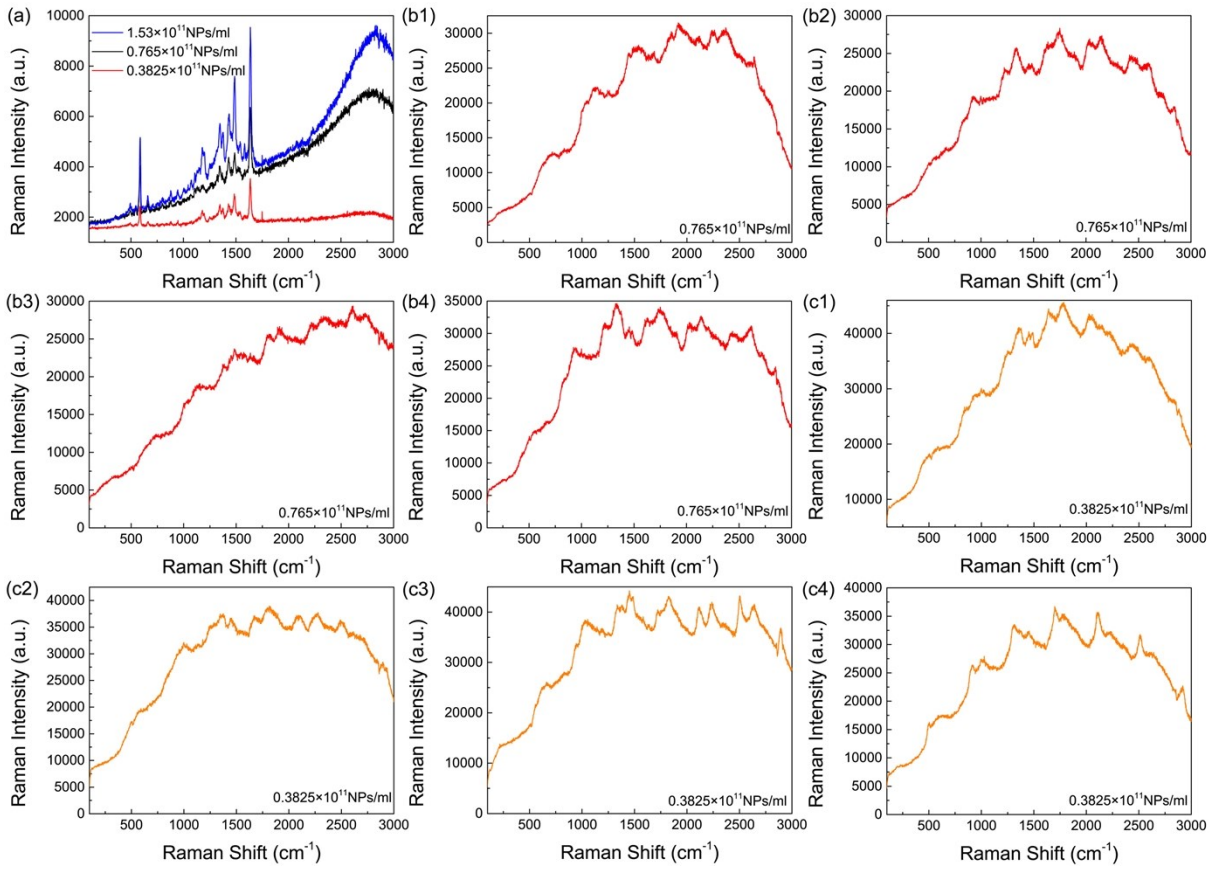

Fig. S2 (a) Raman spectra of NBA on Au NPs with different concentrations of Au NPs. (b1)-(b4) Raman spectra of NBA on Au NPs/PS MS with the Au NPs concentrations at 0.765×10^{11} NPs/ml. (c1)-(c4) Raman spectra of NBA on Au NPs/PS MS with the Au NPs concentrations at 0.3825×10^{11} NPs/ml. For the case of NBA on Au NPs, the Raman signal of NBA almost linearly decreases with the concentration of Au NPs. As a comparison, for the case of NBA on Au NPs/PS MS, even when the concentration of Au NPs is decreased down to half of the original value, the hybrid structure no longer work for the selectively enhancement of NBA's Raman signal.

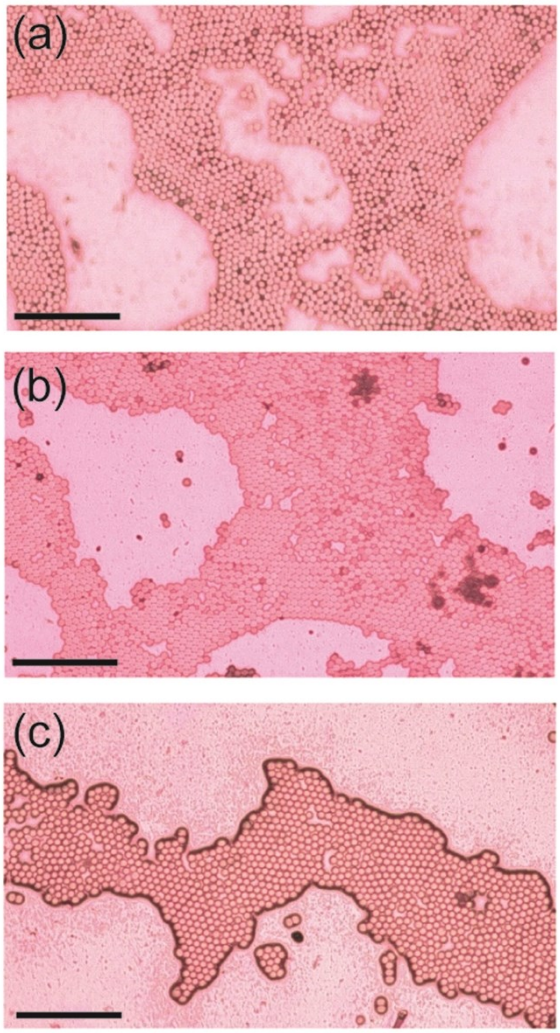

Fig. S3 Microscopical images of (a) PS MS/NBA/Au NPs, (b) Au NPs/PS MS/NBA, and (c) NBA/Au NPs/PS MS. The scale bar in each sub figure is 10 μm.