

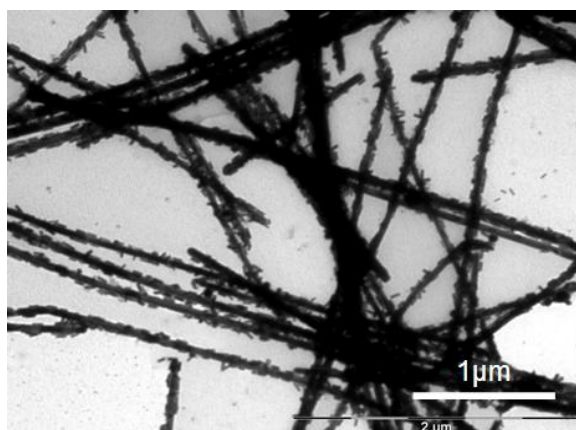
## Supplementary Information

# Co-Assembly of Au nanorods with Ag nanowires within polymer nanofiber matrix for enhanced SERS property by electrospinning

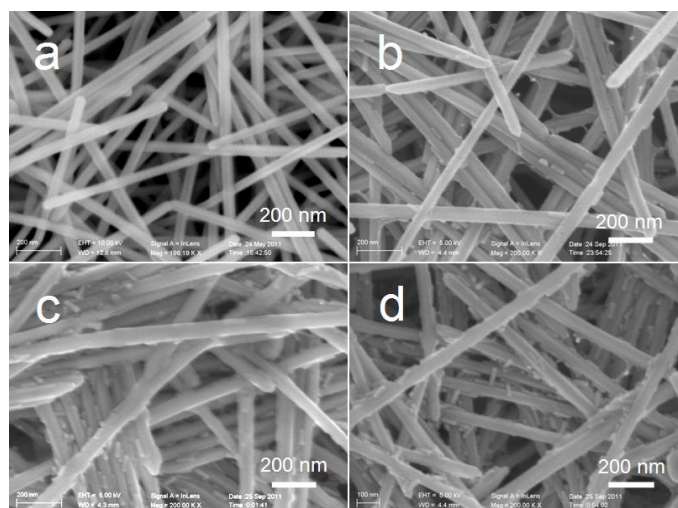
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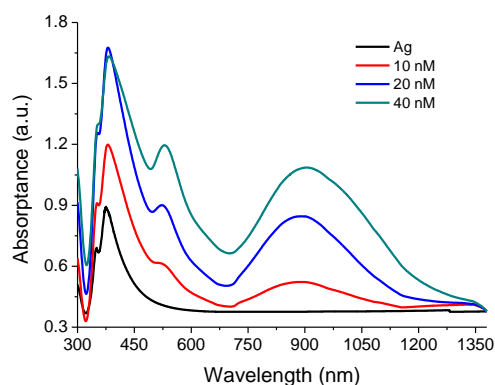
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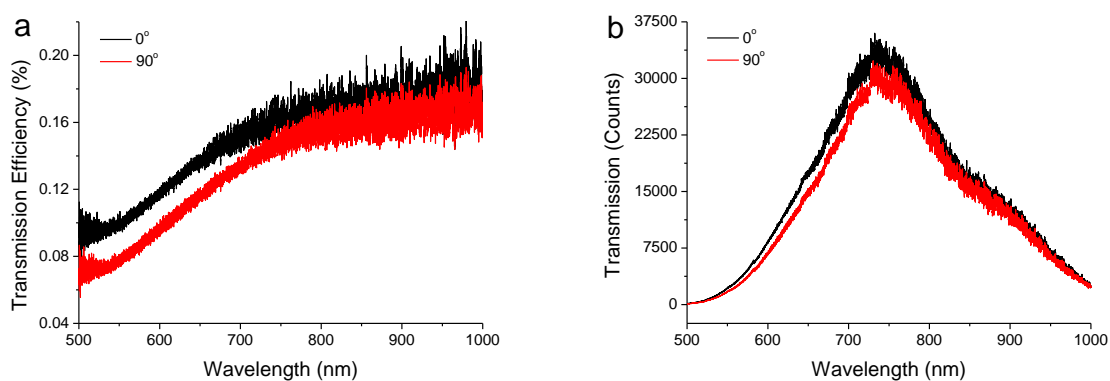
**Fig. S1** Low-magnification TEM image of AuNRs-AgNWs nanocomposites with AuNRs concentration of 40 nM.



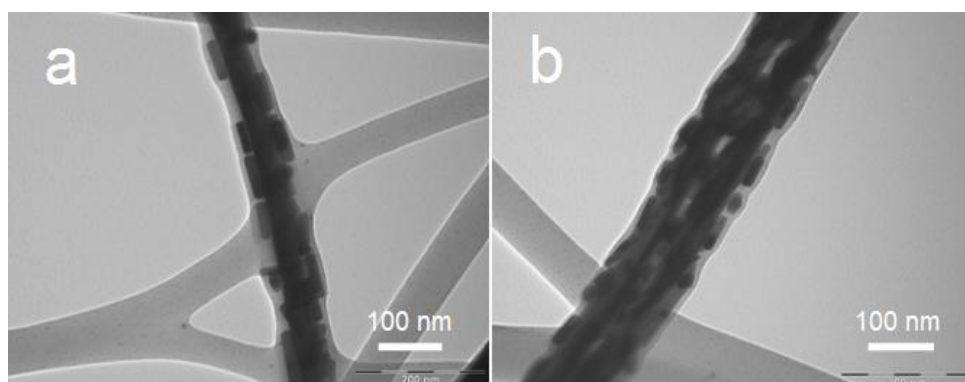
**Fig. S2** SEM images of the AuNRs-AgNWs nanocomposites with AuNRs concentration of (a) 0 nM, (b) 10 nM, (c) 20 nM, and (d) 40 nM, respectively.



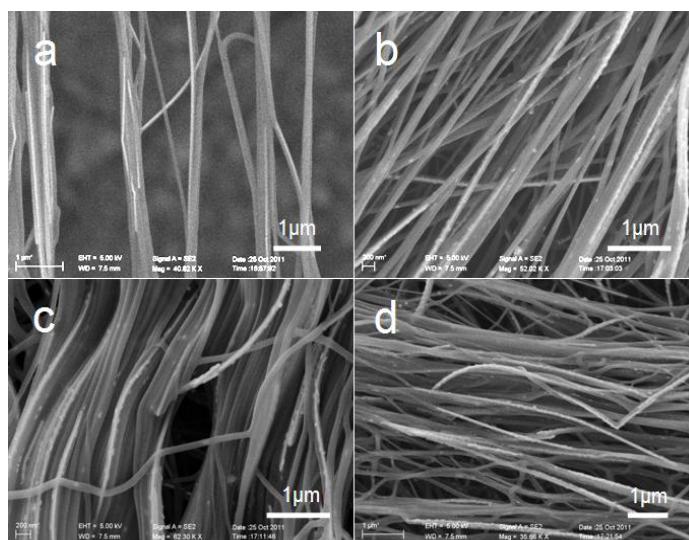
**Fig. S3** UV-Vis-NIR spectra of AuNR-AgNW nanocomposites aqueous solution with different AuNRs concentrations.



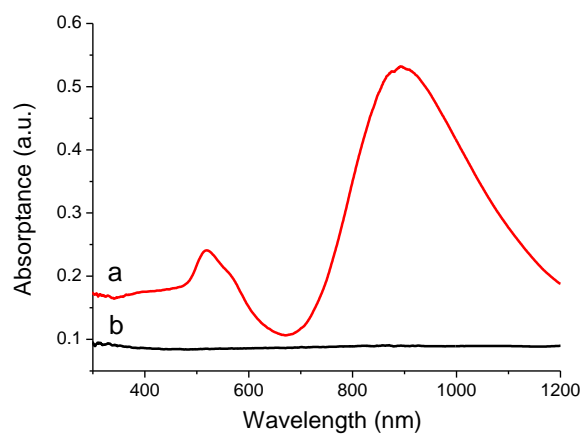
**Fig. S4** UV-vis transmittance spectra (a) and transmission spectra (b) of the electrospun film obtained at normal incidence with polarization angles of  $0^\circ$  and  $90^\circ$ , respectively.



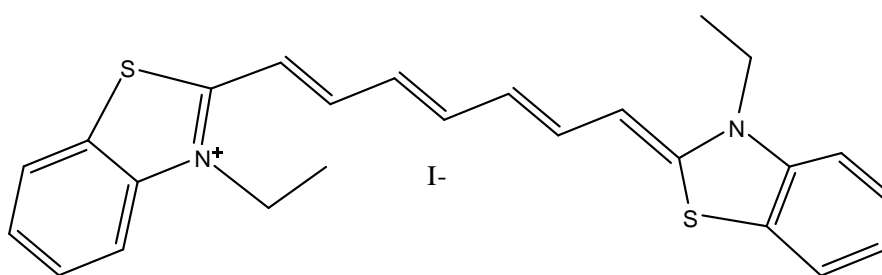
**Fig. S5** High magnification TEM images of AuNRs-AgNWs/PVA electrospun nanofibers with AuNRs concentration of 40 nM. (a) One single AuNRs-AgNWs assemblies were assembled within a polymer fiber. (b) Two AuNRs-AgNWs nanocomposites were assembled within a polymer fiber at the same time.



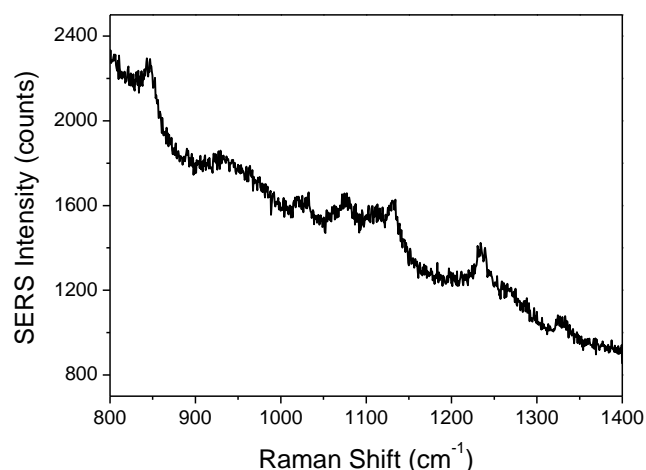
**Fig. S6** Backscattering SEM images of the arranged AuNRs-AgNWs/PVA electrospun nanofibers with different AuNRs concentrations of (a) 0 nM, (b) 10 nM, (c) 20 nM, and (d) 40 nM, respectively.



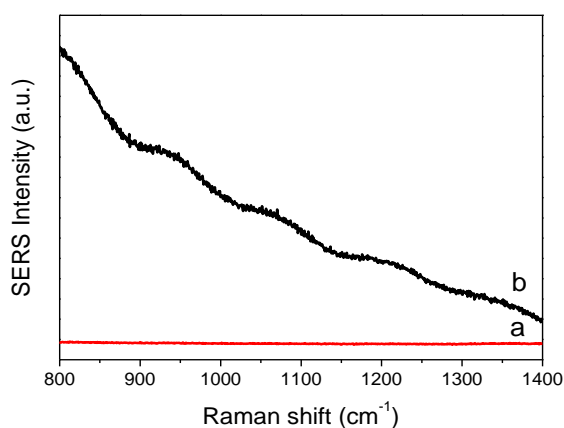
**Fig. S7** UV-Vis-NIR spectra of (a) AuNRs/PVA electrospun mat with AuNRs concentration of 40 nM, and (b) PVA electrospun mat.



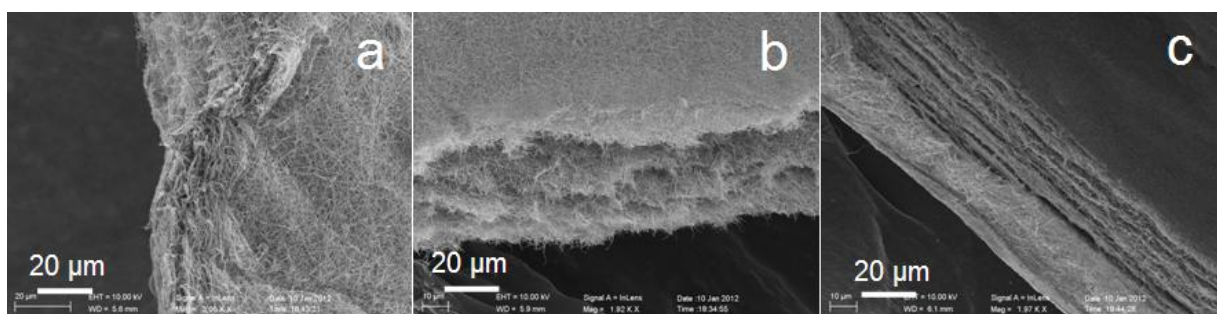
**Fig. S8** Chemical structure of DTTCl.



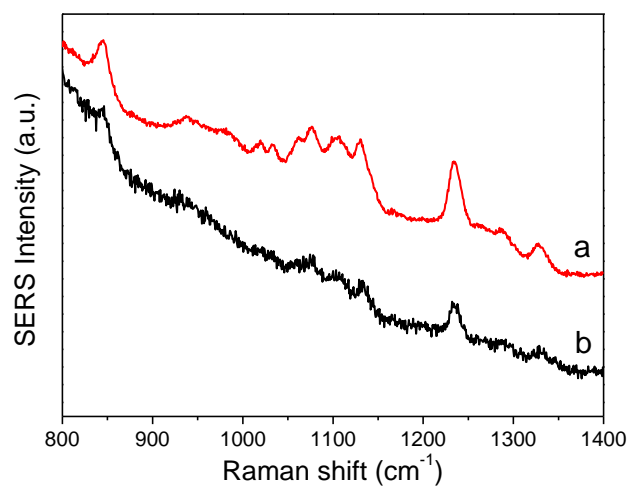
**Fig. S9** SERS spectra of  $10^{-7}$  M DTTCI molecules adsorbed on electrospun fibers containing AuNR-AgNW nanocomposites with AuNRs concentration of 40 nM. The electrospinning time is 1 h and acquisition time is 3 s.



**Fig. S10** (a) SERS spectra of AuNRs-AgNWs/PVA electrospun mat without DTTCI molecules, the electrospinning time is 1 h and the concentration of AuNRs is 40 nM. (b) SERS spectra of ethanol solution containing  $10^{-4}$  M DTTCI molecules. The acquisition time is 3 s.



**Fig. S11** SEM images of the cross-section of electrospun mats. (a) and (b) have the same electrospinning time of 1 h, but different AuNRs concentrations (10 nM and 40 nM, respectively), while (b) and (c) have the same AuNRs concentration, but different electrospinning time (1 h and 2 h, respectively). All these samples have the same AgNWs concentration (4 mg/mL in the electrospun solution).



**Fig. S12** SERS spectra of  $10^{-4}$  M DTTCI molecules adsorbed on (a) AuNRs-AgNWs/PVA electrospun mat with AuNRs concentration of 10 nM, and (b) corresponding AuNRs-AgNWs/PVA casted film, the electrospinning time is 1 h and the concentration of AuNRs is 10 nM. The acquisition time is 3 s.