

Supporting Information

Core/shell Ag@silicate nanoplatelets and poly(vinyl alcohol)
spherical nanohybrids fabricated by coaxial electrospraying as
highly sensitive SERS substrates

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FIGURE CAPTIONS

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Fig. S2 UV-Vis absorption spectra of the colloidal AgNPs in AgNO₃/copolymer/silicate reductions with a weight ratio of 1:1:0. Inset: 0.005 wt% yellow-gold solution confirming AgNP formation following treatment at 80 °C for 9 h.

Fig. S3 UV-Vis absorption spectra of the colloidal AgNPs in AgNO₃/copolymer/silicate reductions with a weight ratio of 1:1:1. Inset: 0.005 wt% yellow-gold solution confirming AgNP formation following treatment at 80 °C for 10 h.

Fig. S4 UV-Vis absorption spectra of the colloidal AgNPs in AgNO₃/copolymer/silicate reductions with a weight ratio of 10:10:1. Inset: 0.005 wt% yellow-gold solution confirming AgNP formation following treatment at 80 °C for 8 h.

Fig. S5 UV-Vis absorption spectra of the colloidal AgNPs in AgNO₃/copolymer/silicate reductions with a weight ratio of 20:20:1. Inset: 0.005 wt% yellow-gold solution confirming AgNP formation following treatment at 80 °C for 8 h.

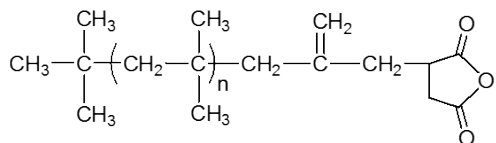
TABLE LIST

Table S1. Solubility of PIB-SA, POE-2000, and tri-block copolymer in water and organic solvents.

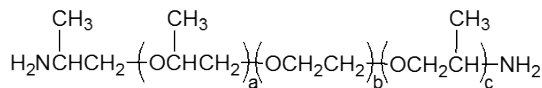
VIDEO LIST

Video S1. A movie demonstrating the Taylor cone from hybrid liquid droplets in the electrospray process is provided. The liquid body of the inner needle PVA solution and the outer needle Ag@silicate

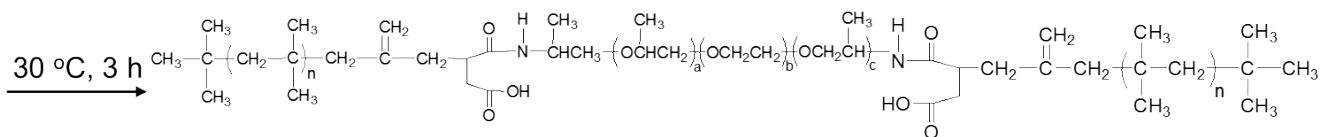
hybrids shows a conical shape, referred to as the Taylor cone, at 25 KV threshold voltage, with a half angle of 49.8° .



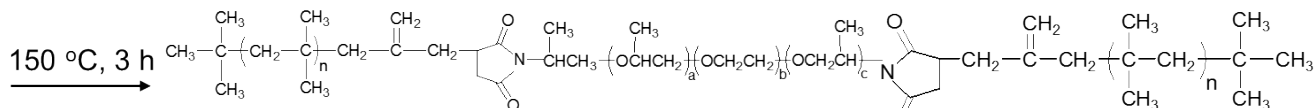
Polyisobutylene-*g*-succinic anhydride
(PIB-SA) $n = 25\text{--}26$, $M_w = 1,335$ g/mol



Poly(oxyethylene)-diamine
(POE-2000) $a+c = 6$, $b = 39$, $M_w = 2,000$ g/mol



PIB-amidoacid-POE-amidoacid-PIB intermediate



PIB-imide-POE-imide-PIB tri-block copolymer (copolymer)

Scheme S1. Synthesis of copolymer as organic dispersant.

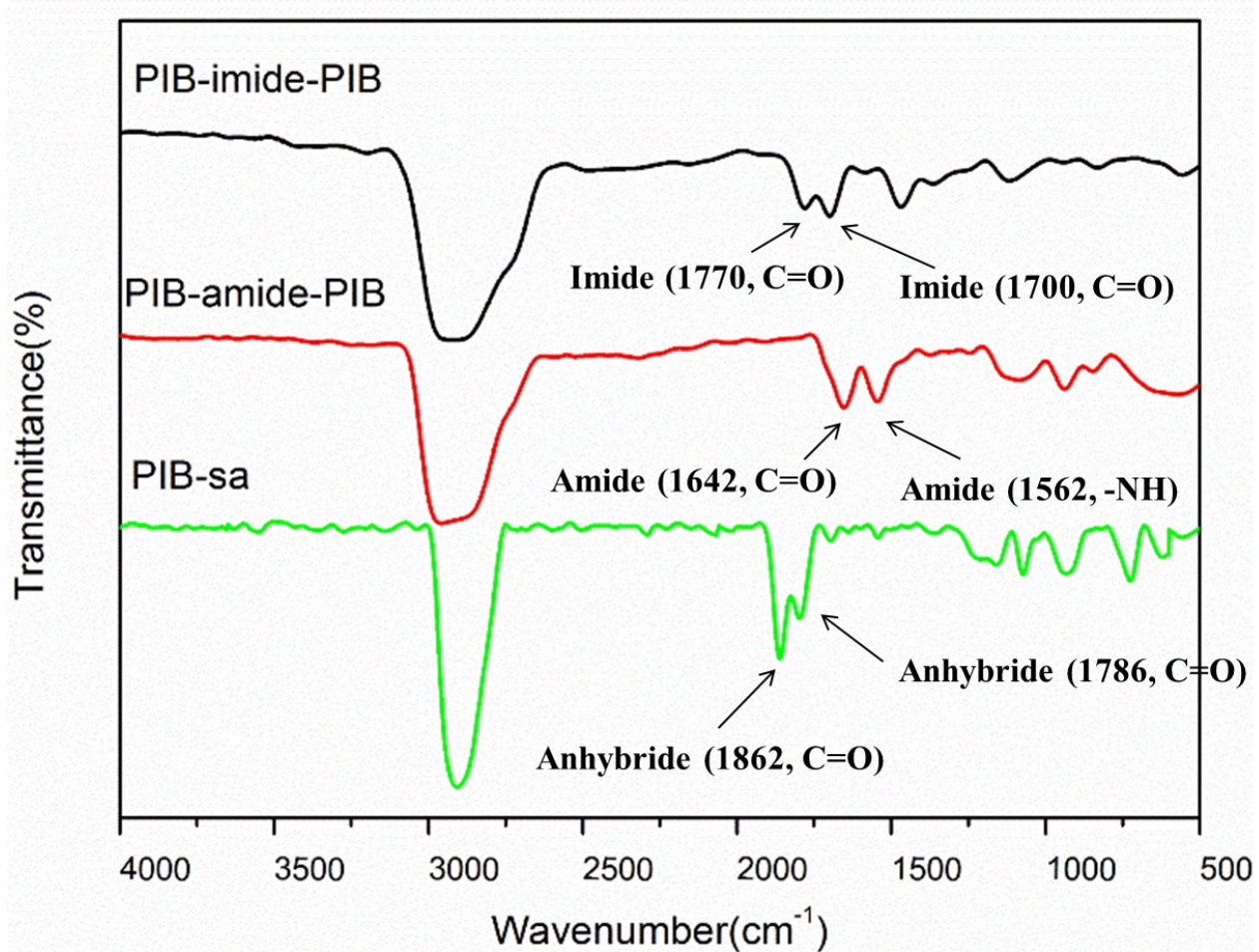


Fig. S1 FT-IR spectra of PIB-amidoacid-POE-amidoacid-PIB intermediate and PIB-imide-POE-imide-PIB tri-block copolymer (copolymer).

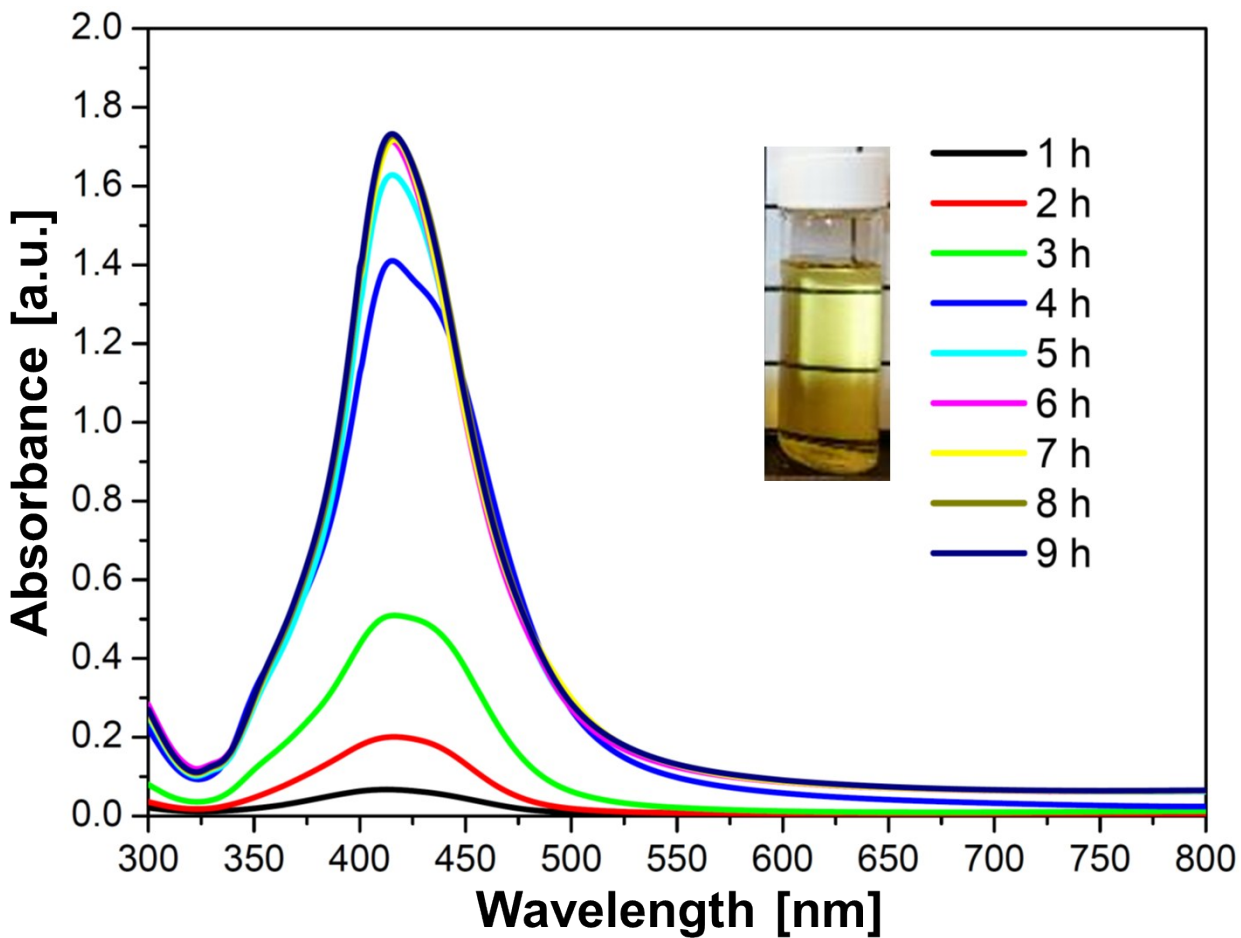


Fig. S2 UV-vis absorption spectra of the colloidal AgNPs in AgNO_3 /copolymer/silicate reductions with a weight ratio of 1:1:0. Inset: 0.005 wt% yellow-gold solution confirming AgNP formation following treatment at 80 °C for 9 h.

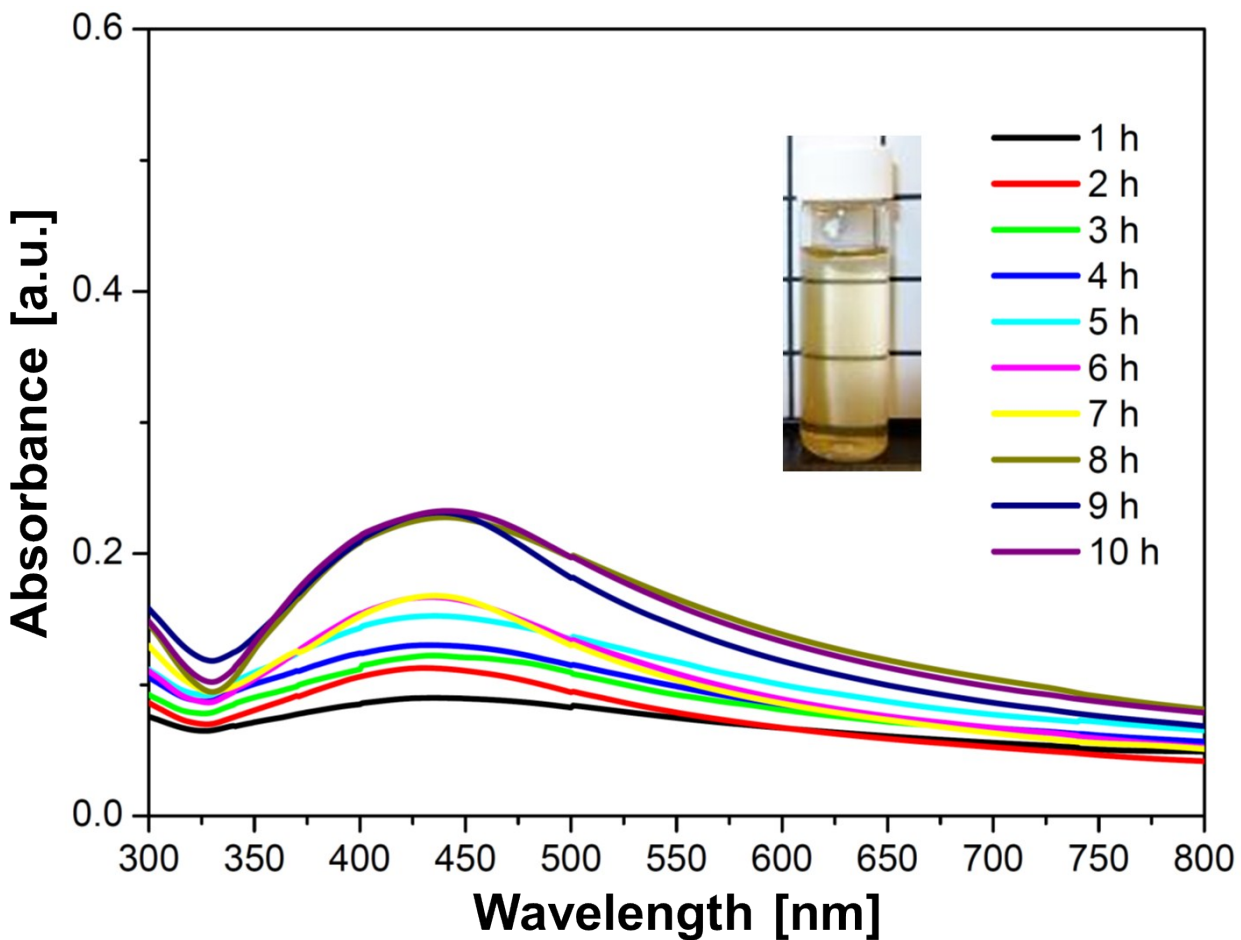


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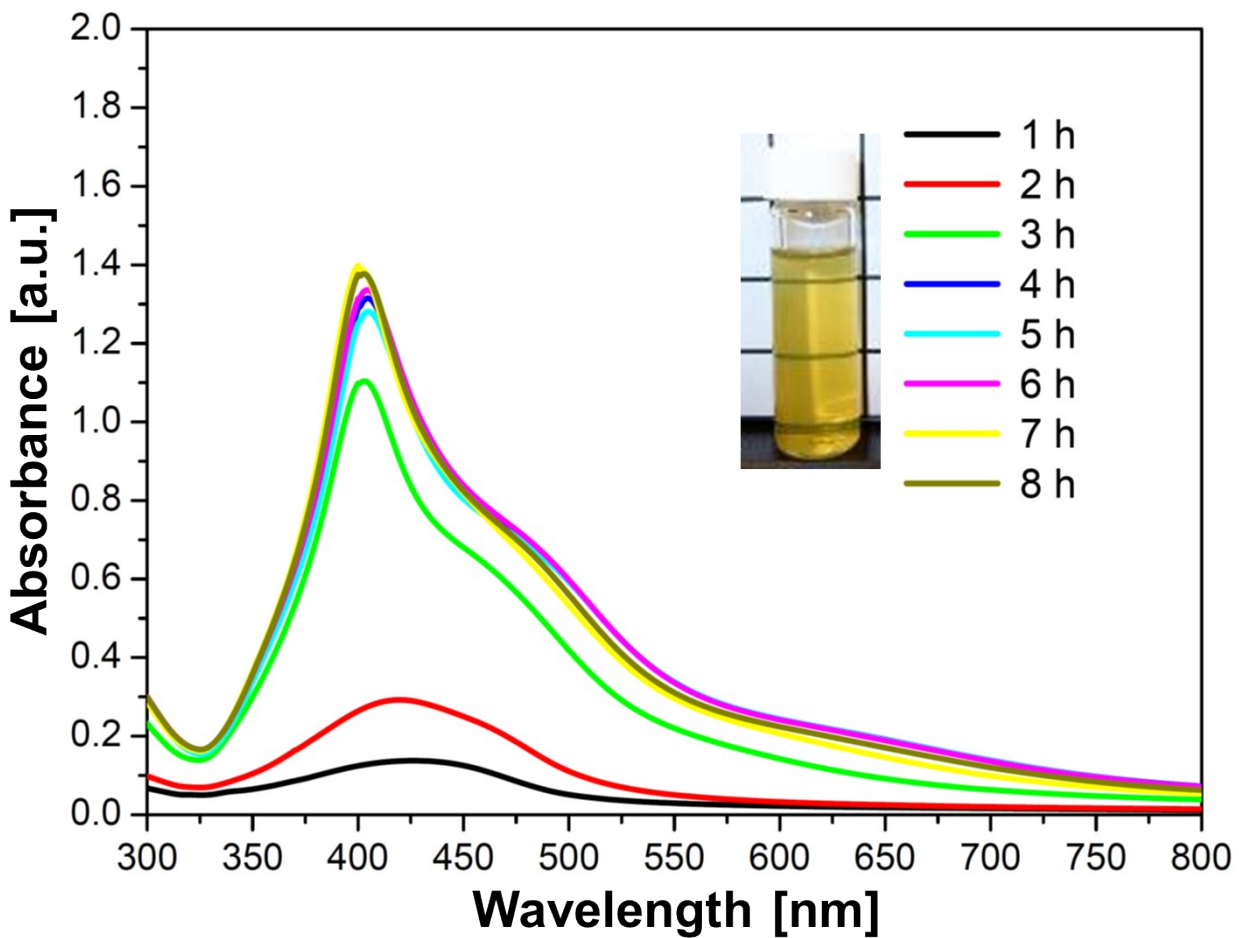


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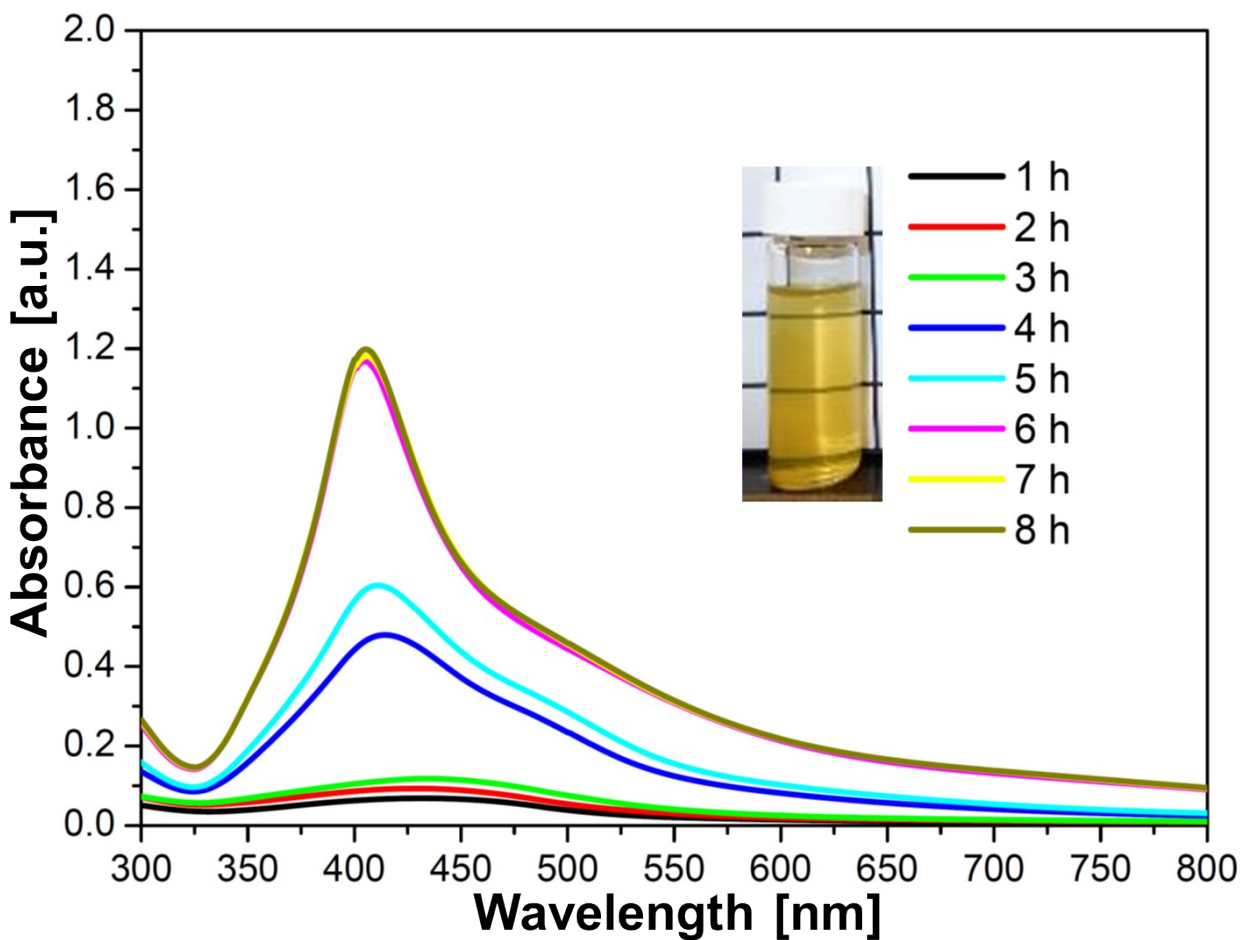


Fig. S5 UV-vis absorption spectra of the colloidal AgNPs in AgNO₃/copolymer/silicate reductions with a weight ratio of 20:20:1. Inset: 0.005 wt% yellow-gold solution confirming AgNP formation following treatment at 80 °C for 8 h.

Table S1. Solubility of PIB-SA, POE-2000, and tri-block copolymer in water and organic solvents.

Sample	H ₂ O	Ethanol	Toluene	Decane
PIB-SA	-	-	+	+
POE-2000	+	+	+-	-
Tri-block copolymer	+	+	+	+

+: soluble; + -: soluble, but sediments form after 2 h settling; -: insoluble.