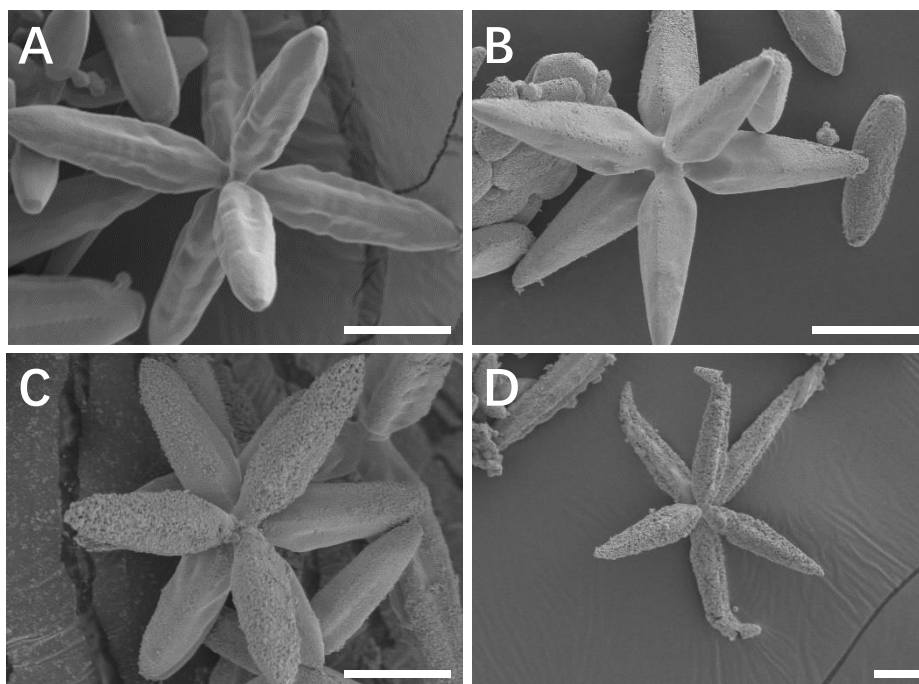


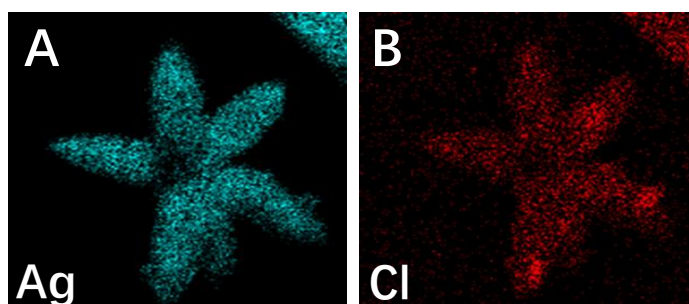
Supplementary Material (SM)

## Facile Synthesis of Porous Hexapod Ag@AgCl Dual Catalysts for In Situ SERS Monitoring of 4-Nitrothiophenol Reduction

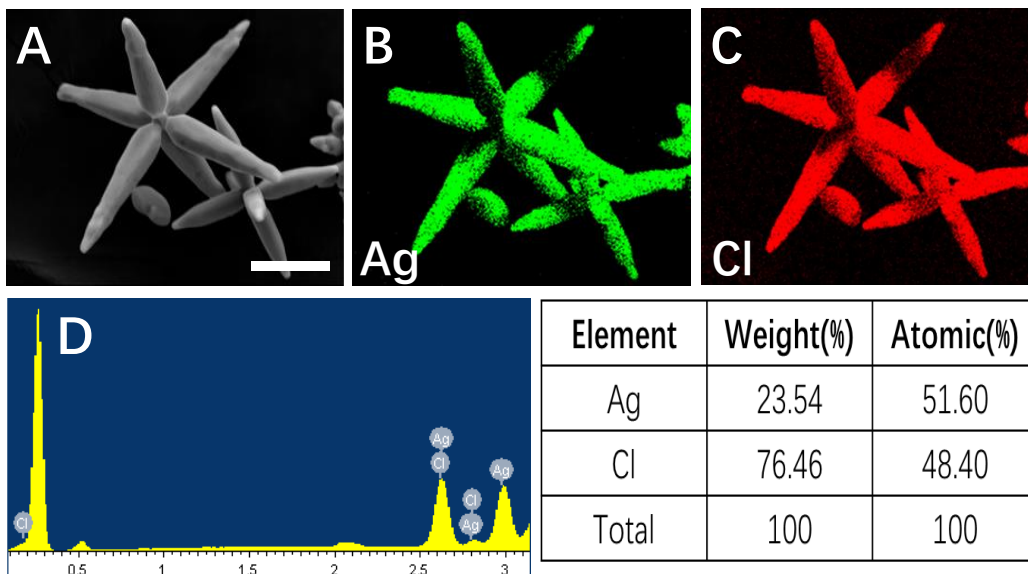
Yux Yuxiang Lu<sup>1</sup>, Jikai Mao<sup>1,2</sup>, Zelin Wang<sup>1,3</sup>, Yazhou Qing<sup>1</sup>, and Jianguang Zhou<sup>1,2,\*</sup>



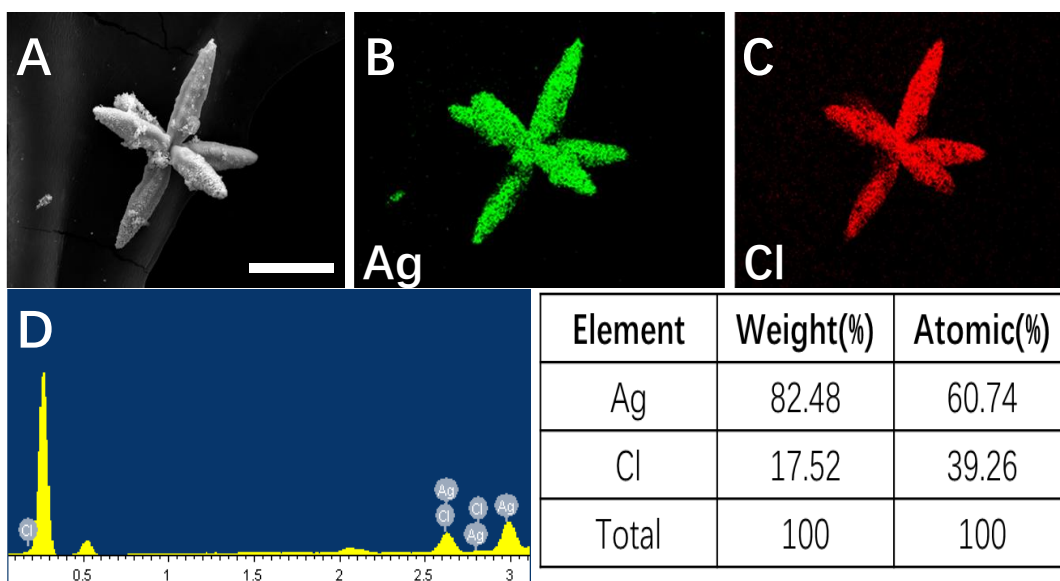
**Figure S1.** (A–D) SEM image of Ag@AgCl microstructure of sample 1–4. Scar bar: 10  $\mu\text{m}$  (A–D).



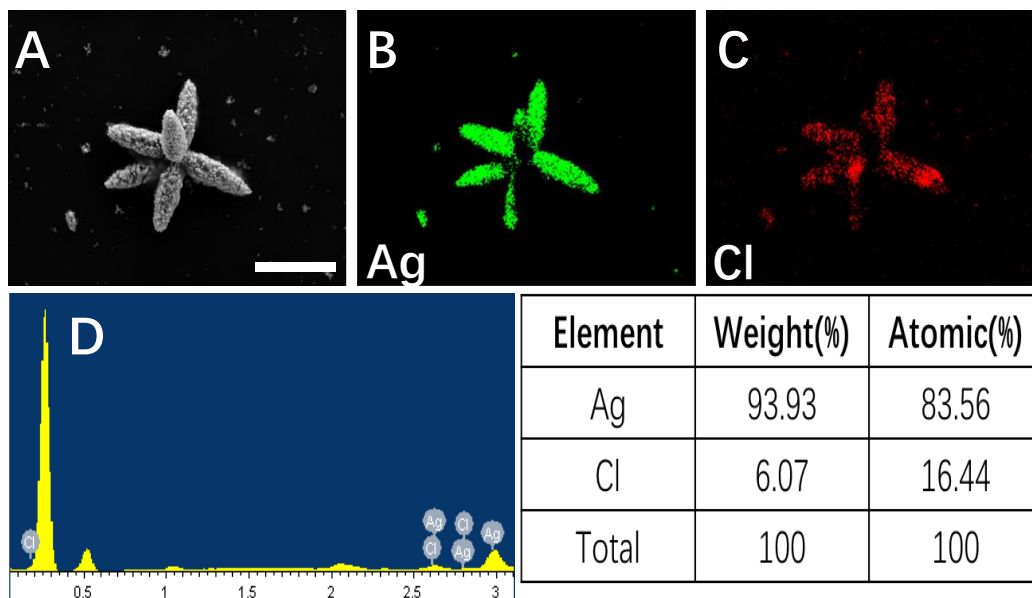
**Figure S2.** (A,B) EDS elemental mapping of Ag@AgCl indicating the Ag and Cl elemental distribution 1–4. Scar bar: 8  $\mu\text{m}$  (A–D).



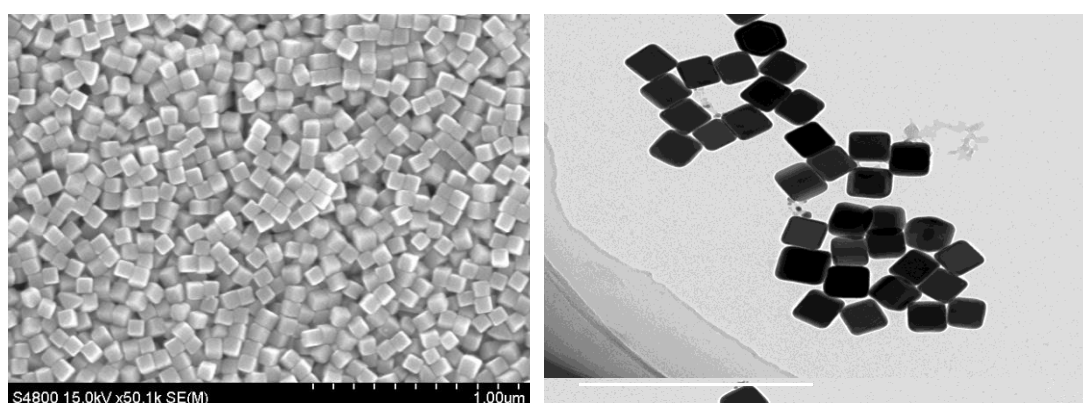
**Figure S3.** (A) SEM image of Ag@AgCl microstructure (sample 1); (B,C) EDS elemental mapping of Ag@AgCl indicating the Ag and Cl elemental distribution. (D) The corresponding EDS elemental spectrum of Ag@AgCl microstructure. Scar bar: 10  $\mu\text{m}$  (A–C).



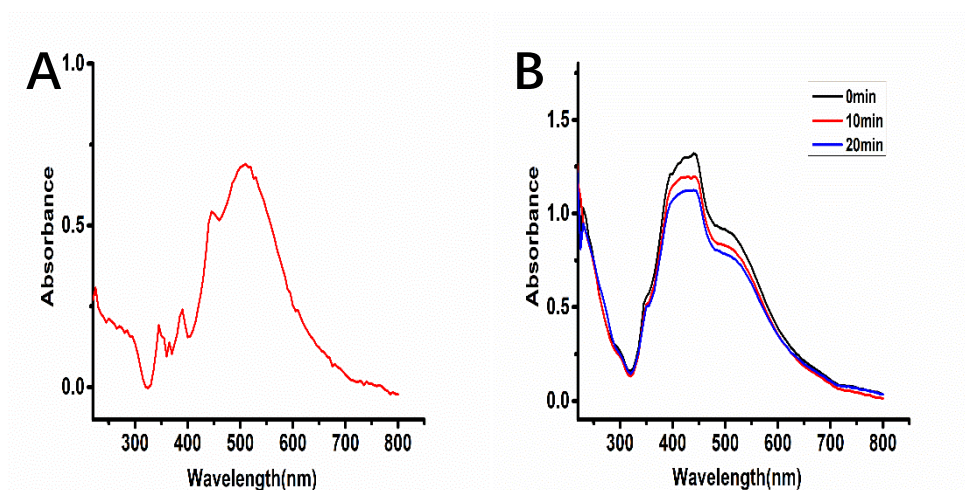
**Figure S4.** (A) SEM image of Ag@AgCl microstructure (sample 2); (B,C) EDS elemental mapping of Ag@AgCl indicating the Ag and Cl elemental distribution. (D) The corresponding EDS elemental spectrum of Ag@AgCl microstructure. Scar bar: 10  $\mu\text{m}$  (A–C).



**Figure S5.** (A) SEM image of Ag@AgCl microstructure (sample 3); (B,C) EDS elemental mapping of Ag@AgCl indicating the Ag and Cl elemental distribution. (D) The corresponding EDS elemental spectrum of Ag@AgCl microstructure. Scar bar: 10  $\mu\text{m}$  (A–C).



**Figure S6.** (A) SEM image of Ag cubes; (B) TEM image of Ag cubes.



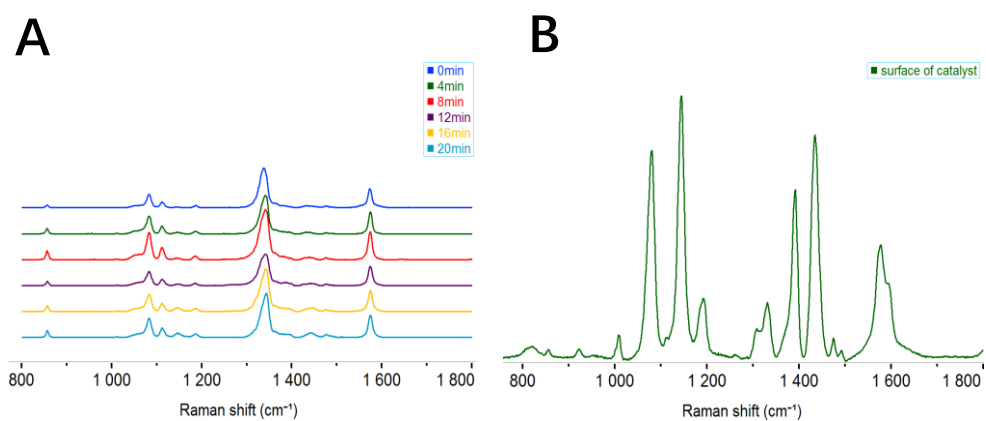
**Figure S7.** (A) Absorption spectrum of Ag cubic; (B) Absorption spectra of 4-NTP reduction by Ag cube catalyzed.

A	Equation	$y = a + b*x$	B	Equation	$y = a + b*x$
	Plot	Mean		Plot	Mean
	Weight	No Weighting		Weight	No Weighting
	Intercept	$0 \pm --$		Intercept	$0 \pm --$
	Slope	$0.02035 \pm 0.0$		Slope	$0.03103 \pm 0.001$
	Residual Sum of Sq	0.00678		Residual Sum of Squa	0.00458
	Pearson's r	0.98902		Pearson's r	0.99731
	R-Square (COD)	0.97816		R-Square (COD)	0.99462
	Adj. R-Square	0.97379		Adj. R-Square	0.99355
C	Equation	$y = a + b*x$	D	Equation	$y = a + b*x$
	Plot	Mean		Plot	Mean
	Weight	No Weighting		Weight	No Weighting
	Intercept	$0 \pm --$		Intercept	$0 \pm --$
	Slope	$0.08781 \pm 0.006$		Slope	$0.18251 \pm 0.0043$
	Residual Sum of Squa	0.06348		Residual Sum of Square	0.02046
	Pearson's r	0.98586		Pearson's r	0.99861
	R-Square (COD)	0.97193		R-Square (COD)	0.99722
	Adj. R-Square	0.96631		Adj. R-Square	0.99666

**Figure S8.** (A–D) The corresponding parameters of the fitted straight line, correspond to Figure 5B,D,F,H, respectively.

	Line in Figure 5B	Line in Figure 5D	Line in Figure 5F	Line in Figure 5H
Point1	0	0	0	0
Point2	0.00685	0.00831	0.01873	0.0134
Point3	0.00253	0.01336	0.00576	0.00974
Point4	0.00788	0.01452	0.01568	0.03308
Point5	0.00241	0.01628	0.01072	0.03762
Point6	0.00621	0.00731	0.01592	0.01692

**Table S1.** The deviation values used by the error bars when fitting straight lines for line in Figure 5B,D,F,H, respectively.



**Figure S9.** (A) The spectrum of 4-NTP change with time under a 0.25 mW 633 nm laser; (B) The spectra of 4-NTP adsorb on the surface of catalyst.