

Supporting Information

Highly-dispersed TiO₂ nanoparticles with abundant active sites induced by surfactant as a prominent substrate for SERS: Charge transfer contribution

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Table S1 The BET surface area and XPS information of different TiO₂ NPs.

Samples	BET/m ² ·g ⁻¹	O _V /O _T
TiO ₂	123	0.84
6%P-TiO ₂	122	0.87
12%P-TiO ₂	120	0.94
18%P-TiO ₂	123	1.55
24%P-TiO ₂	120	1.38
30%P-TiO ₂	121	0.85
36%P-TiO ₂	124	0.83

O_T: lattice oxygen, O_V: vacancy oxygen; O_V/O_T: the XPS peak area ratio of O_V and O_T.

Table S2 The Raman shifts and assignments of PABA molecule.

Raman		SERS	Assignment
Solid	Solution		
		1075w	benzene vibrations
1132 vw	1095 w	1135 w	The result of interaction between the $\beta_{(NH_2)}$ and $\beta_{(C-H)}$
1180 w	1174 w	1179 w	Mixed vibration (benzene ring)
1285 m	1268 w	1274 w	$\nu_{(C-H)}$, $\nu_{(O-H)}$
1312 w	1339 w	1324 w	$\nu_{(C-C)}$
		1403 w	$\nu_{C=O}$ (carboxyl group)
1434 w	1452 w	1460 m	Mixed vibration (benzene ring)
1601 w	1606 s	1602 s	Mixed vibration (benzene ring)

v: stretching vibration, β : rocking vibration; s: strong, m: medium, w: weak, vw: very weak.

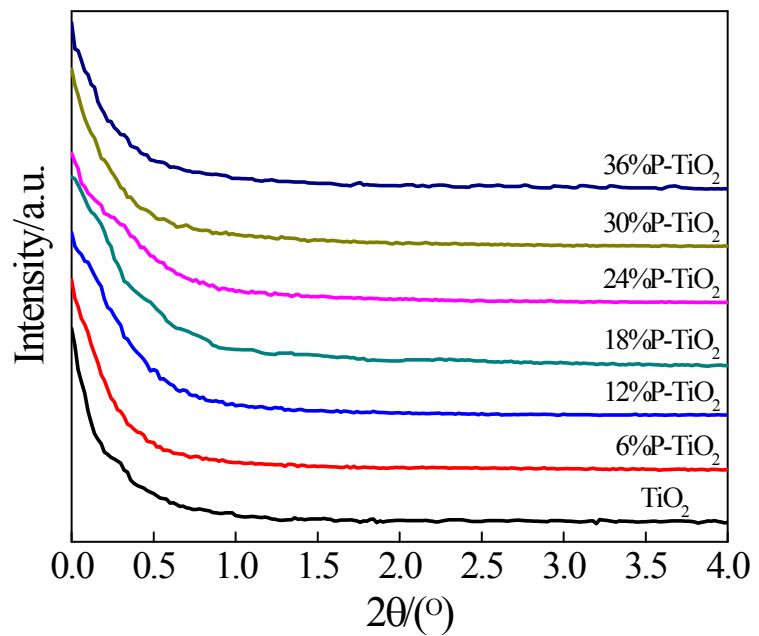


Fig. S1 SAXRD patterns of as-prepared different TiO_2 samples.

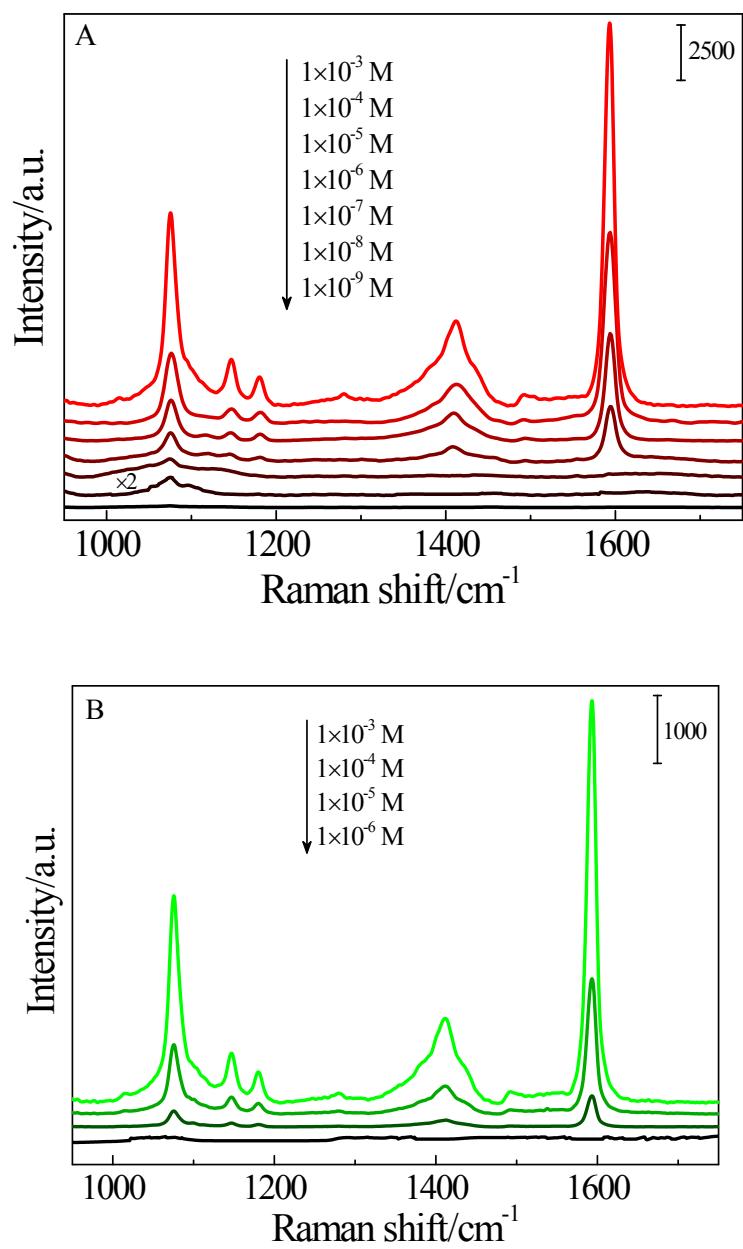


Fig. S2 SERS spectra of 4-MBA adsorbed on the 18%P-TiO₂ (A) and TiO₂ (B) substrates from different concentration solution.