

SUPPORTING INFORMATION

Insights into emulsion synthesis of self-assembled suprastructures formed by Janus silica particles with -NH₂/-SH surface groups

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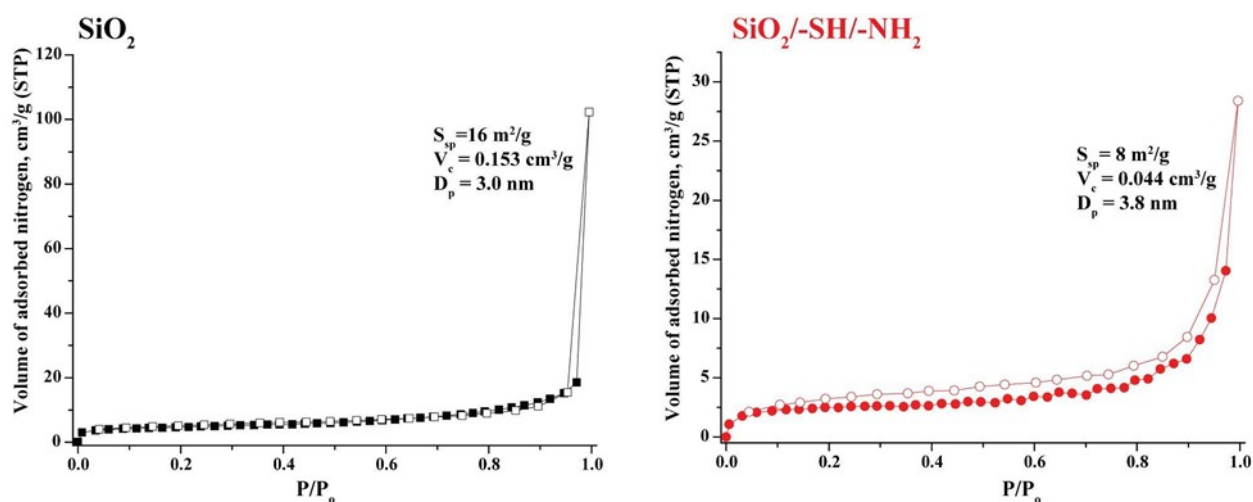


Figure S1. Low-temperature nitrogen adsorption-desorption isotherms.

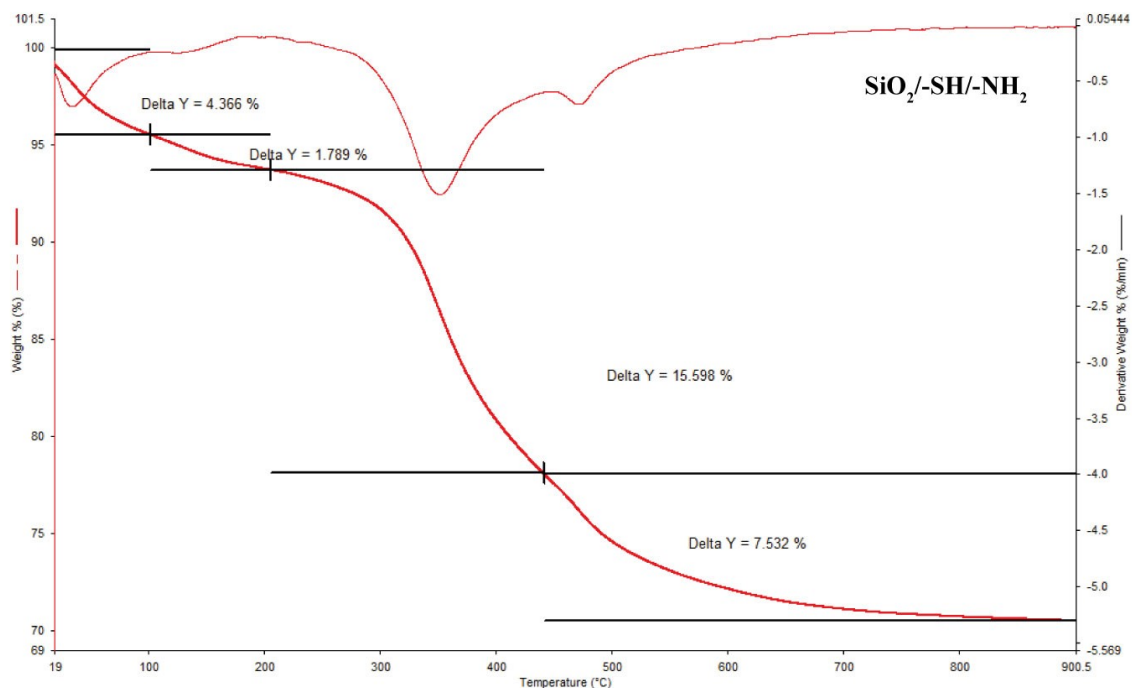


Figure S2. Thermogram of bifunctional silica particles $\text{SiO}_2\text{-SH/-NH}_2$.

Table S1. Adhesion energy for the surface-modified samples, bearing amino-, thiol, and dual amino & thiol surface functions.

	$\text{SiO}_2\text{-NH}_2$	$\text{SiO}_2\text{-SH}$	$\text{SiO}_2\text{-SH/-NH}_2$
AE Fit 1	$0.061 \pm 4,30\text{E-}4$ fJ	0.440 ± 0.003 fJ	0.273 ± 0.016 fJ
AE Fit 2	$0.142 \pm 0,003$ fJ	$0.683 \pm 6.25\text{E-}4$ fJ	0.551 ± 0.003 fJ
AE Fit 3		0.551 ± 0.002 fJ	0.648 ± 0.013 fJ
AE Fit 4		0.811 ± 0.015 fJ	

Table S2. $\text{SiO}_2\text{-SH/-NH}_2$, surface atomic concentration, at. %.

	C 1s		O 1s	Si 2p	S 2p	N 1s	
Conce, at. %	30.89		34.89	25.06	6.03	3.14	
Conce, at. %	27.8	3.09	34.89	25.06	6.03	2.67	0.46
	C-C	C-N/C-S	C-O-Si	Si-O, SiO_2	Thiol, R-SH, S^{2-}	-NH_3^+	C-NH ₂

Table S3. $\text{SiO}_2\text{-SH/-NH}_2$ + fluorescein, surface atomic concentration, at. %.

	C 1s		O 1s	Si 2p	S 2p	N 1s		
Conce, at. %	33.57		35.58	23.30	4.83	2.73		
Conce, at. %	25.18	8.39	33.87	1.71	23.30	4.83	2.32	
	C-C	C-N/C-S	C-O-Si	HO-Si	Si-O, SiO_2	Thiol, R-SH, S^{2-}	-NH_3^+	C-NH ₂

Table S4. $\text{SiO}_2\text{-SH/-NH}_2\text{+Ag(I)}$, surface atomic concentration, at. %.

	C 1s		O 1s	Si 2p	S 2p		N 1s			Ag3d	
Conce, at. %	32.23		36.60	21.13	4.54		2.66			2.83	
Conce, at. %	28.36	3.87	32.45	4.15	21.13	2.31	2.23	0.51	1.89	0.26	2.83
	C-C	C-N/C-S	C-O-Si	HO-Si	Si-O, SiO_2	Thiol, R-SH, S^{2-}	-SO_x	NO_3^-	-NH_3^+	C-NH ₂	

Table S5. SiO₂/-SH/-NH₂+fluorescein +Ag(I), surface atomic concentration, at. %.

	C 1s			O 1s		Si 2p	S 2p		N 1s			Ag3d
Conce, at. %	33.52			36.64		21.10	4.23		2.66			1.85
Conce, at. %	27.95	4.04	1.54	33.58	3.06	21.10	3.33	0.90	0.94	1.07	0.65	1.85
	C-C	C- N/C- S	C-S- O	C-O- Si	HO- Si	Si-O, SiO ₂	Thiol, R-SH, S ²⁻	-SO _x	NO ₃ ⁻	-NH ₃ ⁺	C-NH ₂	

Table S6. SiO₂/-SH/-NH₂+Au(III), surface atomic concentration, at. %.

	C 1s			O 1s		Si 2p	S 2p		N 1s		Au4f
Conce, at. %	30.99			38.25		22.34	4.53		2.48		1.41
Conce, at. %	26.16	3.68	1.15	35.70	2.55	22.34	1.95	2.58	0.63	1.85	1.41
	C-C	C-N/C-S	C-S-O	C-O- Si	HO-Si	Si-O, SiO ₂	Thiol, R-SH, S ²⁻	-SO _x	-NH ₃ ⁺	C-NH ₂	Au- H-S- C

Table S7. SiO₂/-SH/-NH₂+ Eu(III), surface atomic concentration, at. %.

	C 1s			O 1s		Si 2p	S 2p	N 1s			Eu3d
Conce, at. %	38.83			33.24		19.76	4.90	2.16			1.11
Conce, at. %	33.98	2.94	1.91	31.57	1.67	19.76	4.90	0.52	0.98	0.66	1.11
	C-C	C- N/C- S	C-S- O	C-O-Si	HO-Si	Si-O, SiO ₂	Thiol, R-SH, S ²⁻	NO ₃ ⁻	-NH ₃ ⁺	C-NH ₂	Eu ³⁺

Table S8. SiO₂/-SH/-NH₂+Eu(III)+Au(III), surface atomic concentration, at. %.

	C 1s			O 1s		Si 2p	S 2p		N 1s		Eu3d	Ag3d
Conce, at. %	27.17			40.03		24.39	5.22		2.14		0.08	0.98
Conce, at. %	22.62	4.55		35.48	4.55	24.39	1.85	3.37	0.86	1.28	0.08	0.98
	C-C	C-N/C-S		C-O-Si	HO-Si	Si-O, SiO ₂	Thiol, R- SH, S ²⁻	-SO _x	-NH ₃ ⁺	C-NH ₂	Eu ³⁺	Au- H-S- C

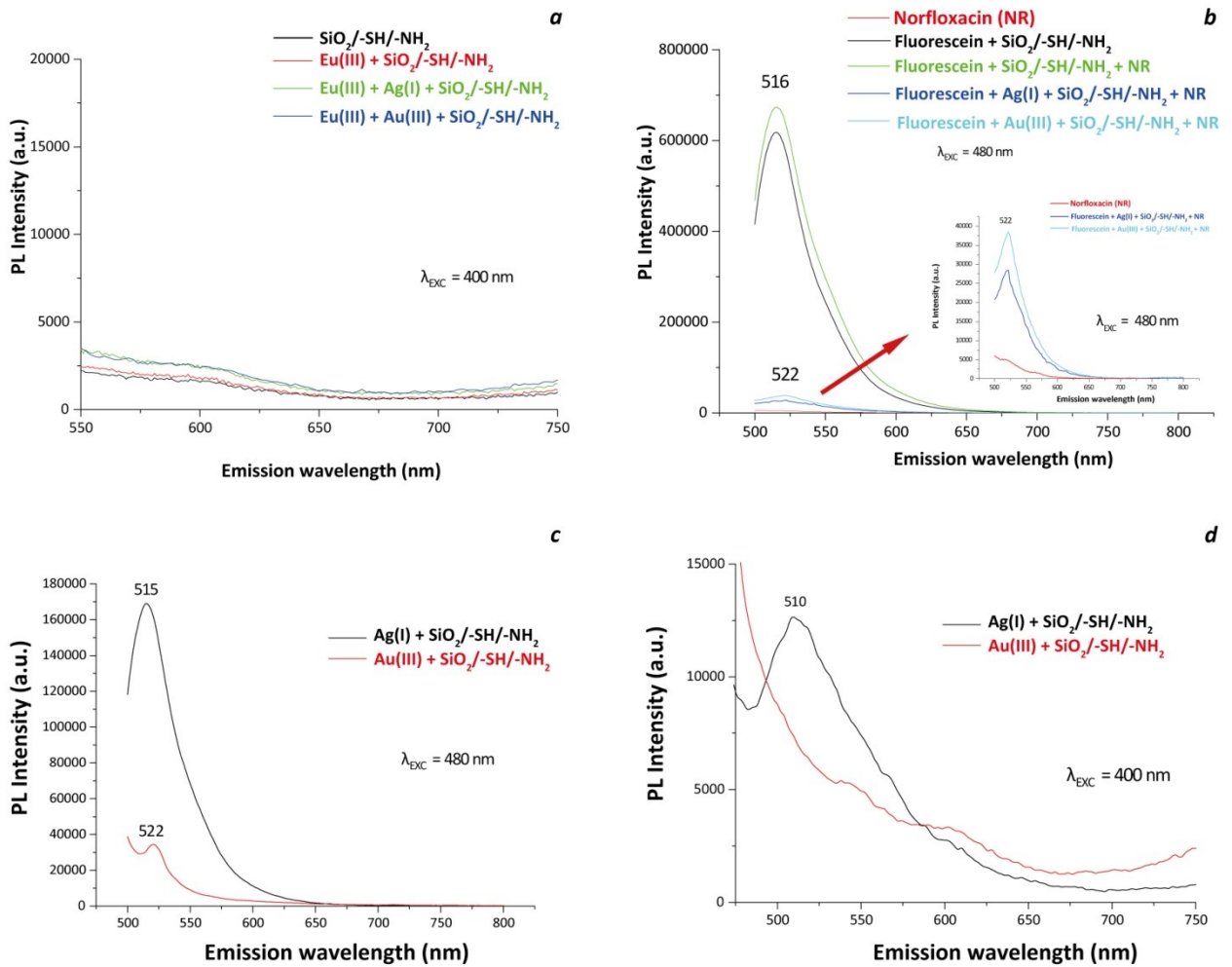


Figure S3. Photoluminescence spectra of suspensions of $\text{SiO}_2\text{-SH/-NH}_2$ silica particles with different λ_{exc} : loaded with and without cations (a) ($C_{\text{sample}} = 0.1 \text{ g}\cdot\text{L}^{-1}$), with fluorescein in the presence of the antibiotic norfloxacin (b) ($C_{\text{sample}} = 0.05 \text{ g}\cdot\text{L}^{-1}$), silica particles with adsorbed gold or silver cations (c,d) ($C_{\text{sample}} = 0.1 \text{ g}\cdot\text{L}^{-1}$).