Tuning Au/SiO_2 nanostructures from 1D to 3D interconnected nanotube networks using polycarbonate porous templates

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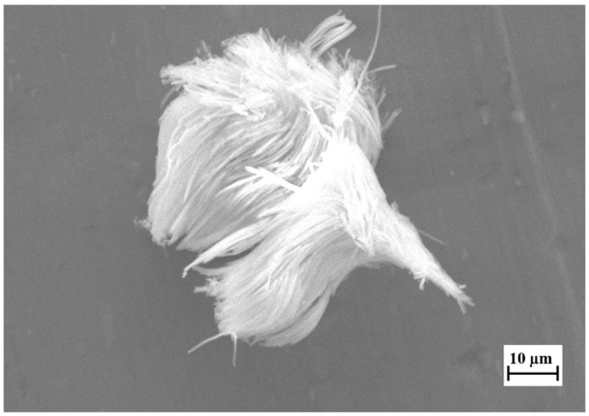

Figure S1. SEM images of 1D $mSiO_2$ calcined at 550 °C.

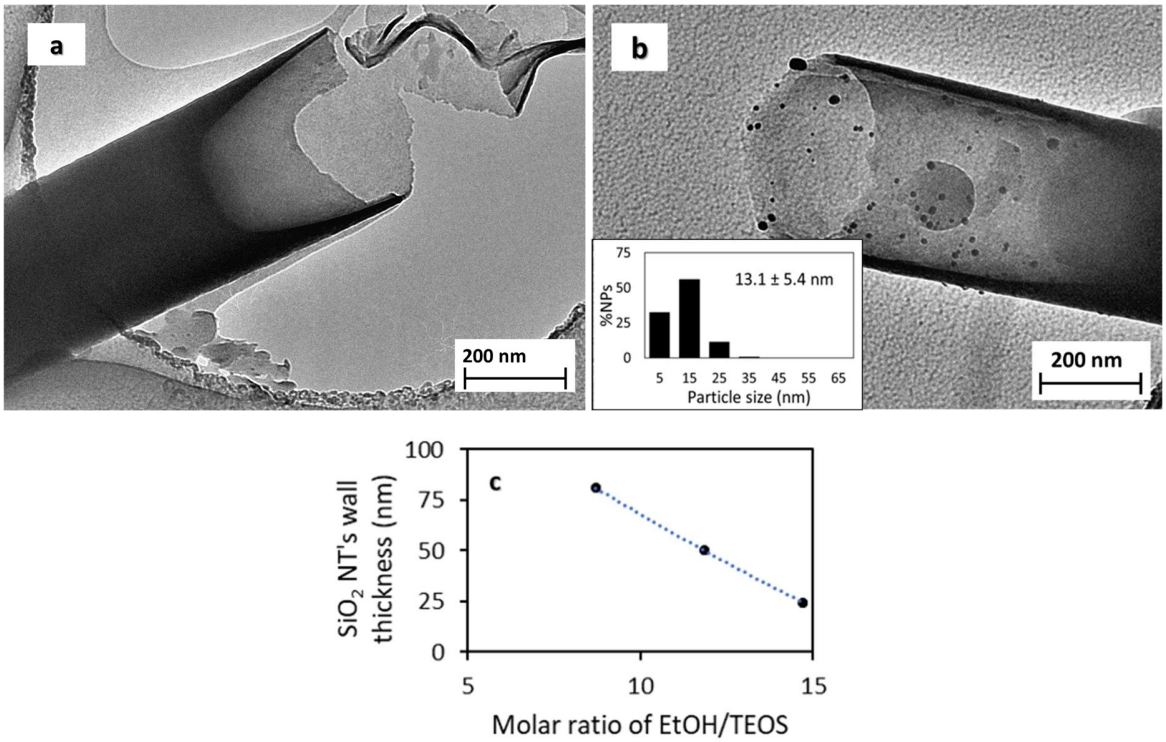

Figure S2. TEM image of 1D $npSiO_2$ NTs before (a) and after (b) electroless deposition of Au NPs with in the inset, the histogram of the Au particles size distributions, and (c) the evolution of the SiO_2 NTs wall thickness as function of the amount of EtOH used during the synthesis.

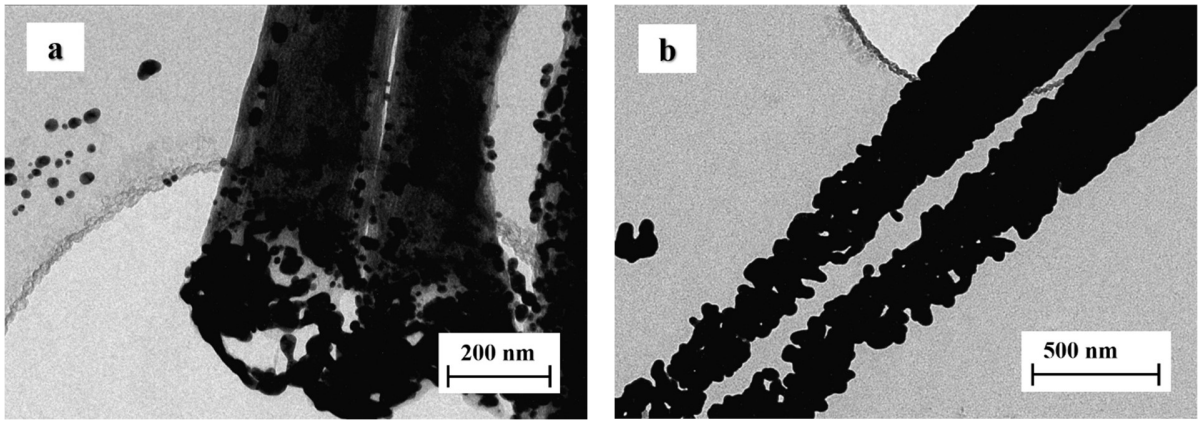

Figure S3. TEM images of 1D Au mSiO_2 NTs materials with an Au deposition time (last step of the electroless deposition) of (a) 20 min and (b) 24 h.

Table S1. Concentration of solutions studied for the Au electroless deposition in SiO_2 NTs.

#	1 (ref.)	2	3	4	5	6	7
[Sn^{2+}] **3 min**	0.026 M	0.013 M	0.013 M	0.013 M	0.003 M	0.026 M	0.026 M
[Ag^{+}] **2 min**	0.029 M	0.029 M	0.015 M	0.015 M	0.003 M	0.029 M	0.029 M
[Au^{+}] **5 min**	7.9 10^{-3} M	7.9 10^{-3} M	7.9 10^{-3} M	4.0 10^{-3} M	7.9 10^{-4} M	7.9 10^{-4} M	7.9 10^{-5} M

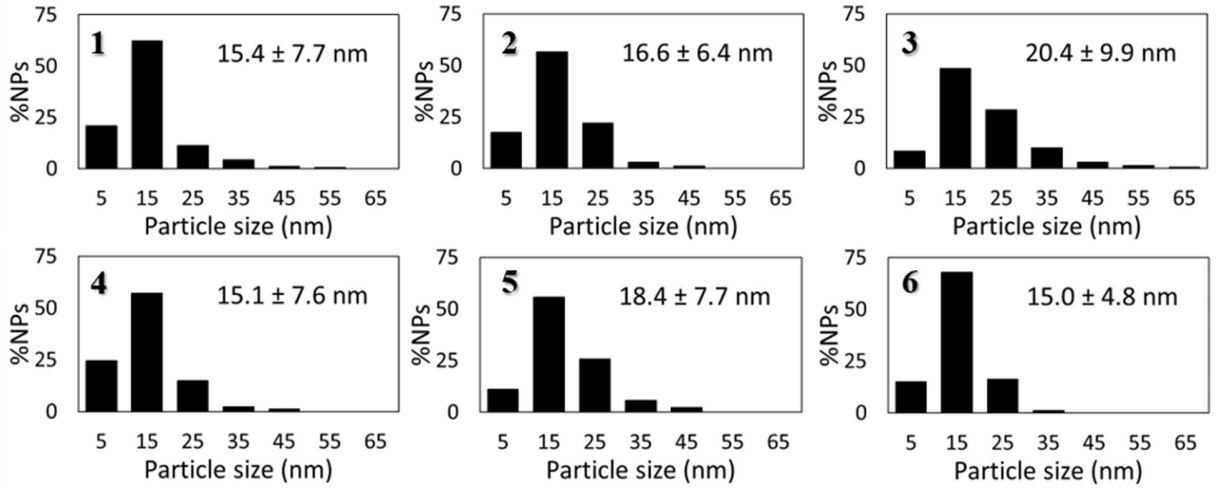

Figure S4. Study of the solutions concentration effect (as detailed in Table S1) on the distribution of particle sizes determined by TEM.

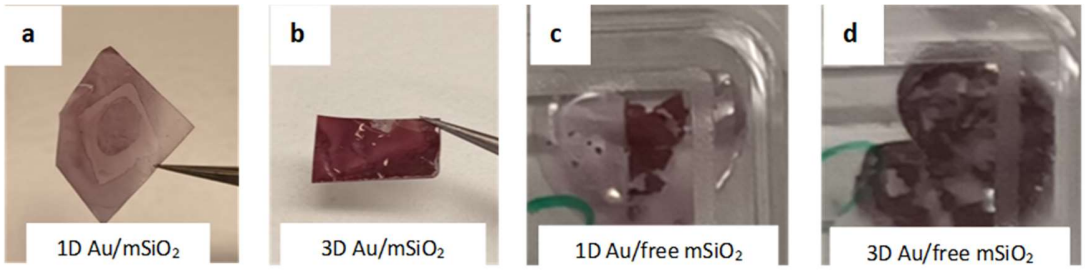

Figure S5. Pictures of the 1D and 3D Au/SiO_2 NTs with the electroless Au deposition performed (a and b) before or (c and d) after the template extraction step. For c and d, the composites are deposited on a PET membrane.

Table S2. Mass percentage of C, O, Si and Au elements in Au/SiO_2 NTs measured by SEM-EDX and the calculated Au wt.% in Au/SiO_2 (by simply omitting the carbon contribution).

wt. %	1D Au/npSiO_2	1D Au/mSiO_2	1D Au/free mSiO_2	3D Au/npSiO_2	3D Au/mSiO_2	3D Au/ free mSiO_2
C (0.3 keV)	17.2	52.0	23.3	13.1	25.1	31.4
O (0.5 keV)	36.49	33.4	45.0	24.4	25.5	39.2
Si (1.7 keV)	41.76	9.7	13.6	59.8	38.5	12.9
Au (2.1 keV)	4.59	5.0	18.2	2.7	10.9	16.4
Au in Au/SiO_2	5.5	10.4	23.7	3.1	14.6	24.0

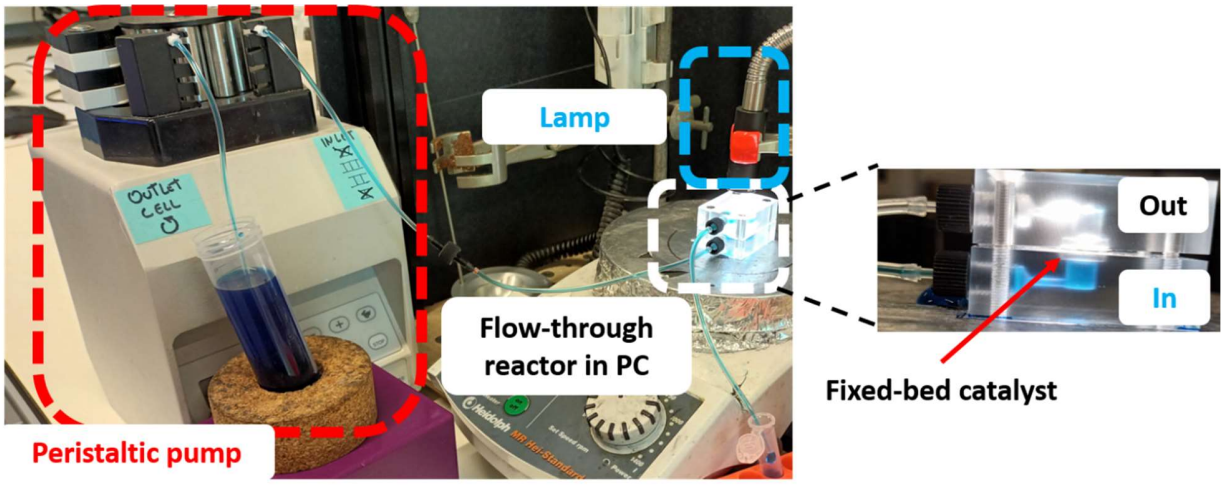

Figure S6. Pictures of the system used for the photodegradation of MB in continuous flow, composed of a peristaltic pump, PVC tubes, a lamp (OSL2IR Fiber Illuminator) and a polycarbonate cell used as a flow-through reactor.