Supporting Information for "Detection of nitro explosives via LSPR sensitive silver clusters embedded in porous silica"

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Figure S1. Nitrogen adsorption (□) and desorption (o) isotherms of silica-embedded silver clusters. The corresponding BET surface area and micropore volume are 159 m^2/g and 0.41 cm^3/g, respectively.

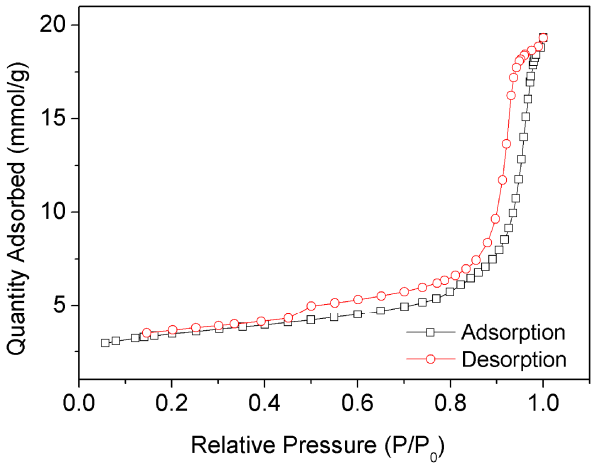
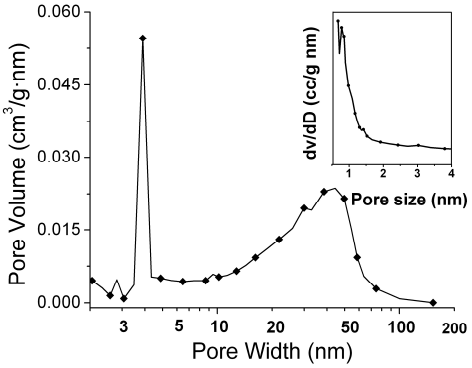


Figure S2. Pore size distribution curves of Ag clusters embedded in porous silica (inset shows the microporosity of the silica). A narrow distribution of pores centered around 4 nm is due to the tensile strength effect (TSE) phenomenon. [1]



[1] Johan C. Groen, Louk A.A. Peffer, Javier Perez-Ramirez, Microporous and Mesoporous Materials, 2003, 60, 1

Table S1 Dielectric constant and dipole moment of organic compounds used[2]

Entry	Substance	Dielectric constant, ε	Dipole moment, D
1	*p*-nitrotuluene (*p*-NT)	22.2	4.47
2	2,4,6-trinitrotoluene (TNT)	22	
3	nitroglycerin (NG)	19.2	3.38
4	phenol	12.4	1.22
5	benzoic acid	8.93 [3]	

[2]James G. Speight, Lange′s Handbook of Chemistry 16th Edition, McGraw-Hill, 2004

[3] Yurquina, A., Journal of Molecular Liquids 2003, 108(1-3), 119-133

Figure S3. Extinction band change observed for silica-embedded silver clusters before and after the addition of 1 μM solutions of TNT. (i.e. that silica-embedded silver clusters are sensitive to the presence of TNT)

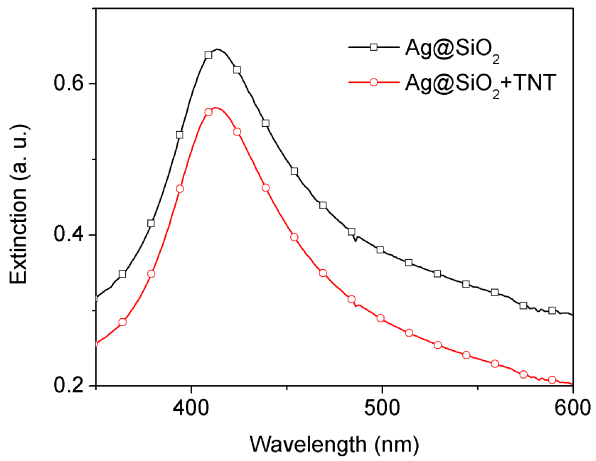


Figure S4. Relative extinction changes ($\Delta E/E_0$) of silica-embedded silver clusters at 410 nm versus TNT concentration.

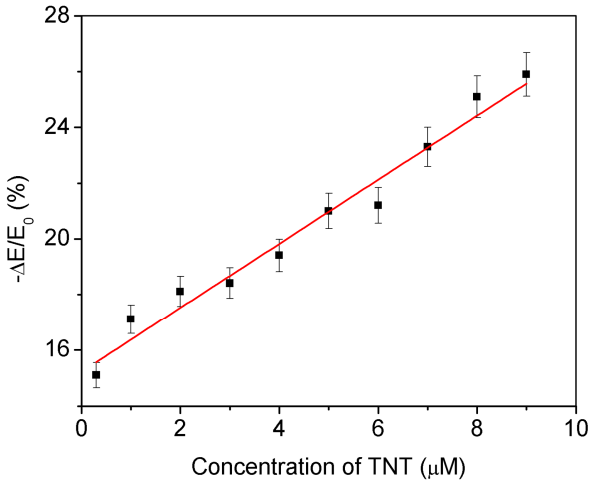


Figure S5. Absorption spectra of 100 μM solution of phenol (a) and centrifugate of the mixture of 100 μM solution of phenol and silica-embedded silver clusters (b).

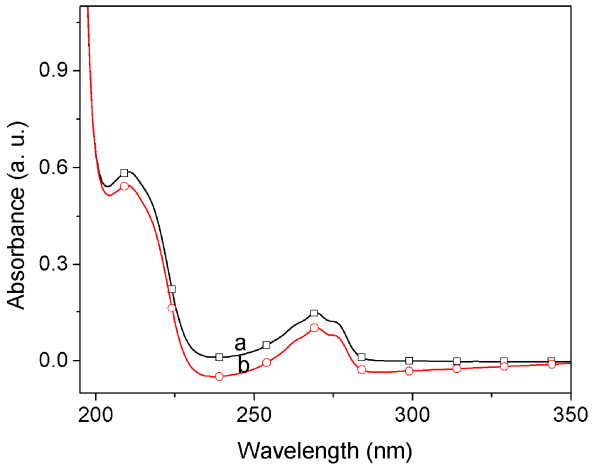


Figure S6. Absorption spectra of 100 μM solution of sodium phenolate (a) and centrifugate of the mixture of 100 μM solution of sodium phenolate and silica-embedded silver clusters (b).

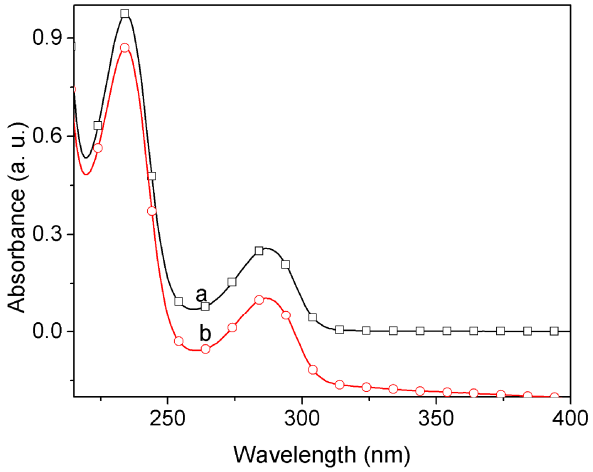


Figure S7. Absorption spectra of 100 μM solution of TNT (a) and centrifugate of the mixture of 100 μM solution of TNT and silica-embedded silver clusters (b).