

Supplementary Files

Highly transparent and luminescent gel glass based on reabsorption-free gold nanoclusters

Kun-Bin Cai¹, Hsiu-Ying Huang^{1*}, Po-Wen Chen², Xiao-Ming Wen³, Kai Li⁴, King
Chester Capinig Co¹, Ji-Lin Shen¹, Kuo-Pin Chiu¹, Chi-Tsu Yuan^{1,4,5*}

¹Department of Physics, Chung Yuan Christian University, Taoyuan, Taiwan

²Physics Division, Institute of Nuclear Energy Research, Taoyuan, Taiwan

³Centre for Micro-Photonics, Swinburne University of Technology, Hawthorn
Australia

⁴Master Program in Nanotechnology, Chung Yuan Christian University, Taoyuan,
Taiwan

⁵R&D Center for Membrane Technology, Chung Yuan Christian University, Taoyuan,
Taiwan

Fig. S1. TEM image, size distribution and XPS data for as-synthesized AuNCs.

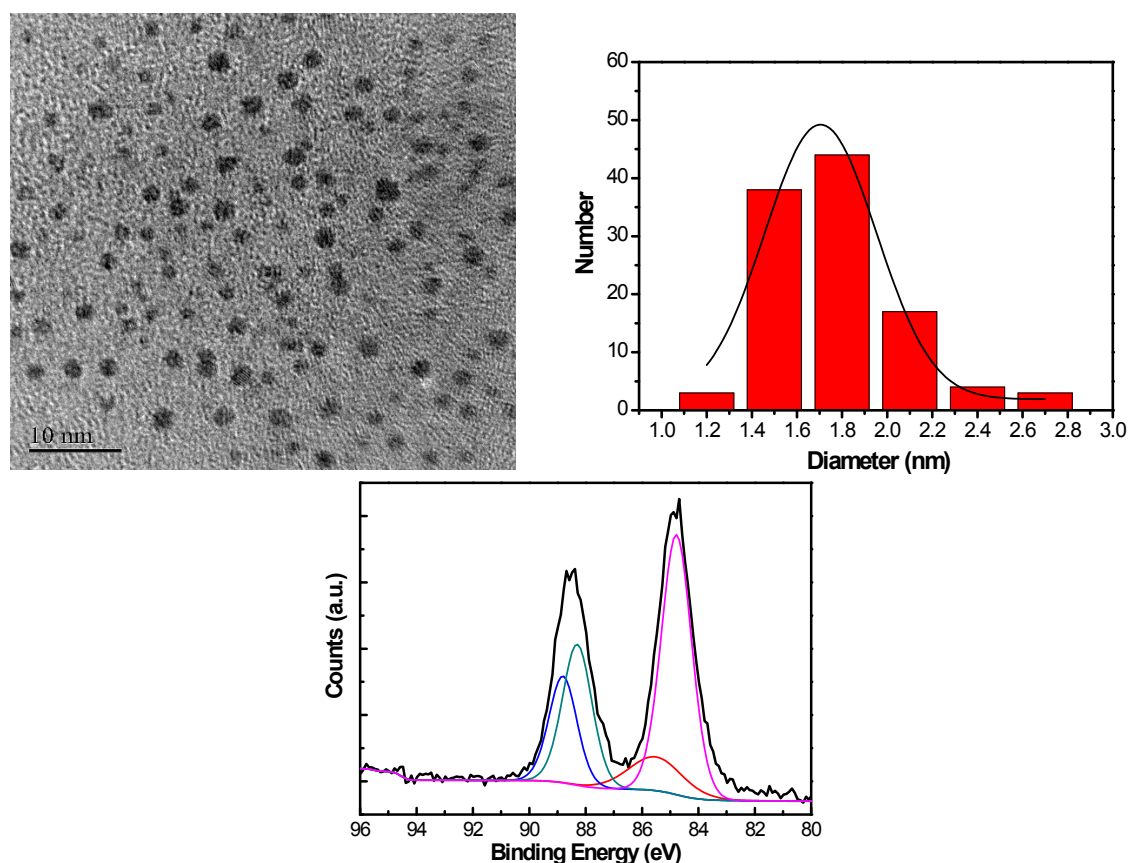
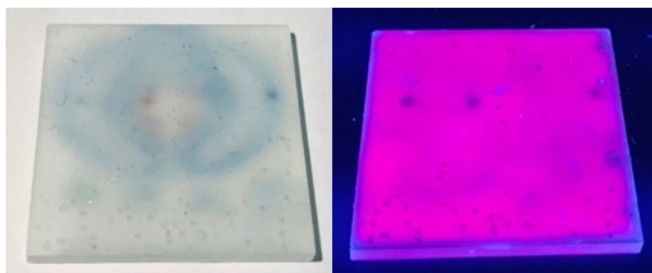
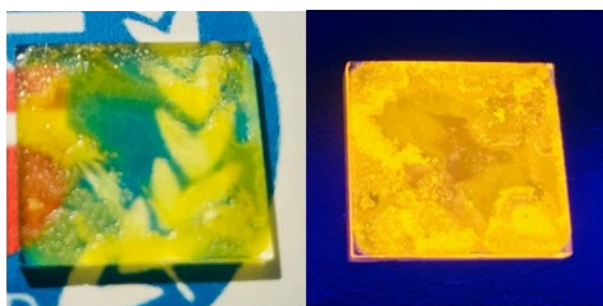


Fig. S2. The photographs for GSH-AuNCs in a glass matrix.

(a) *KH792 + GSH-AuNCs*



(b) *DBATES + GSH-AuNCs*

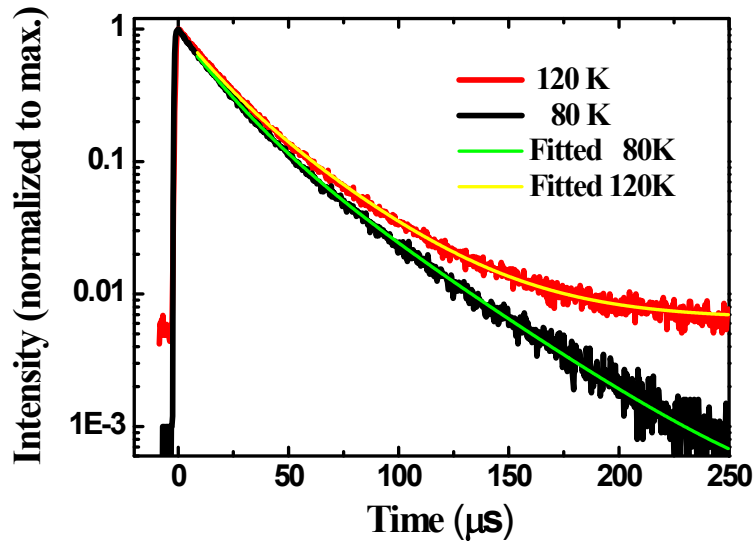


S3. Fitting results for DDAB-AuNCs dispersed in solvent and in glass.

	DDAB-AuNCs	DDAB-AuNC glasses
A_1	0.38	0.45
τ_1	0.4 μs	8 μs
A_2	0.22	0.16
τ_2	3.6 μs	20.5 μs
A_3	0.26	0.2
τ_3	9 μs	10 μs
$\langle \tau \rangle$	7.3 μs	13.1 μs

Fig. S4. Fitting results for PL decay trace measured at 120 K and 80 K.

The TRPL data were fitted using multi-exponential decay functions (bi-exponential decays for 80 K and tri-exponential decays for 120 K), as shown below.



	120K		80K
A_1	0.21	A_1	0.58
τ_1	14 μs		
A_2	0.48	τ_1	15 μs
τ_2	21 μs	A_2	0.32
A_3	0.2		
τ_3	45 μs	τ_2	36 μs