

Supporting Information

Tailoring of quantum dots emission efficiency by localized surface plasmons polaritons in self-organized mesoscopic rings

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Experimental

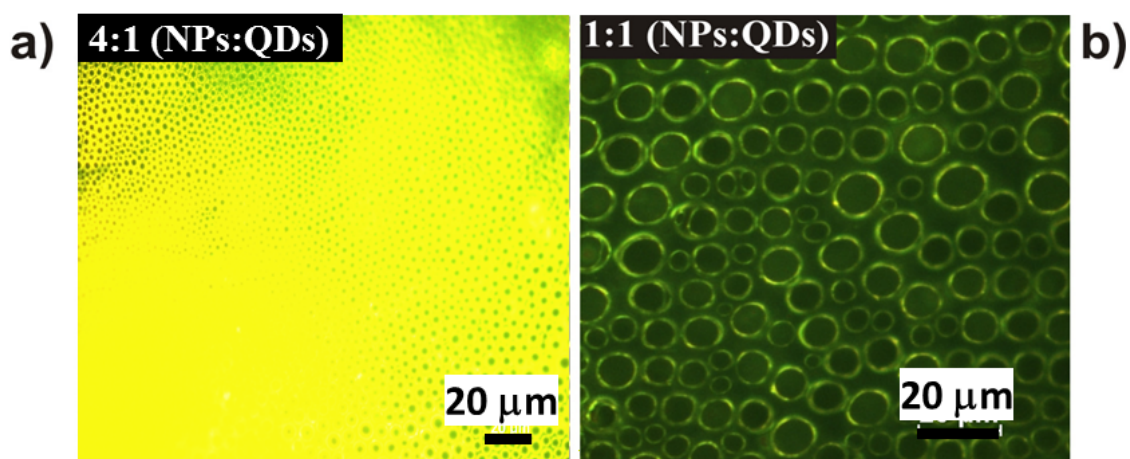
Spherical CdSe QDs (diameter 3.7 nm, $\lambda_{\text{emission}} = 585$ nm) were synthesized in 1-*n*-octadecene using *tris*(*n*-octylphosphine)oxide and *n*-hexadecylamine as the surface capping ligands, as previously reported.¹ Water soluble Ag NPs were prepared as previously reported.² The resulting nanoparticles were dispersed in ethanol by coating with poly(diallyldimethylammonium chloride) (PDADMAC).³ Briefly, 10 mL of citrate-stabilized Ag NPs were added dropwise to 10 mL of 2 g/L PDADMAC (MW 100000-200000) and 6 mM NaCl aqueous solution under gentle stirring. After 3 h, the AgNPs-PDADMAC mixture was centrifuged (10000 rpm, 60 min), washed with water (10 mL), and re-dispersed in 10 mL of ethanol.

Samples were prepared starting from a solution obtained by dissolving 12.5 mg of polycarbonate in 2 mL of chloroform; 100 μ L of the QD solution. After that, different quantity of Ag NPs were added in order to obtain different ratios between Ag NPs and CdSe QDs, namely, 0:1, 1:1, 2:1, 3:1, and 4:1. The samples were imaged with a Nikon fluorescence optical microscope upon excitation

35 by epi-illumination with a Xenon lamp. The selection of UV, blue or green light was performed by
36 using filter Nikon Ex 470, BA 520 filter.

37 In LSCM the specimens were excited by the use of a cw HeNe laser with excitation at 514 nm;
38 optical detection in either the red or the green channel was possible owing to the use of a dichroic
39 mirror.

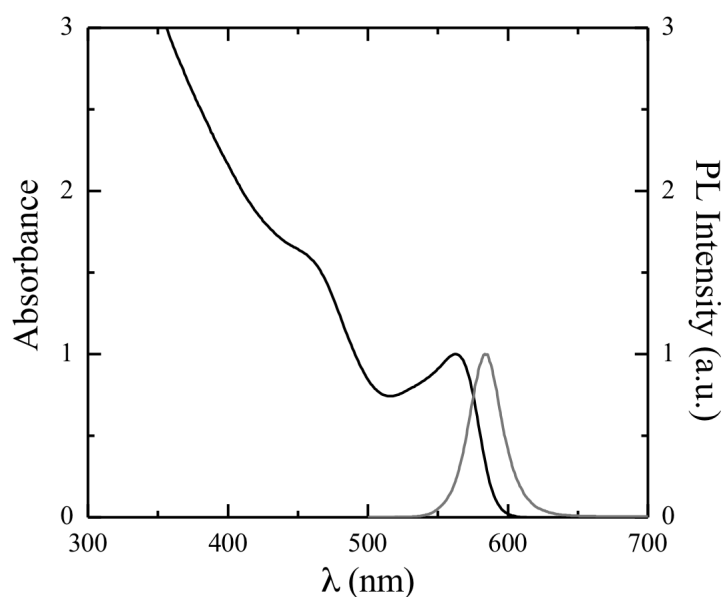
40 Scanning Electron Microscopy (SEM) measurements were performed by a Leo 1530 Fe-SEM
41 equipped with a Schottky emitter, In-Lens and Everhart and Thornley (ET) Secondary Electrons
42 (SE) detectors and Energy Dispersive X-Ray (EDX) detector has been employed.



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44 **Fig. S1** Fluorescence optical microscopy images recorded from self-organised breath figures made
45 of Ag NPs and CdSe QDs embedded in polymeric matrix in the ratio of a) 4:1 (NPs:QDs) and b)
46 1:1 (NPs:QDs). Larger amount of NPs leads to higher and more uniform fluorescence images.

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48 **Luminescence spectra of CdSe QDs in solution**



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50 **Figure S2** Absorption (black line) and luminescence ($\lambda_{\text{exc}}=380$ nm, grey line, right scale) spectra of
51 the CdSe quantum dots in chloroform solution.

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