

QD-“Onion”-Multicode Silica Nanospheres with Remarkable Stability as pH sensor.

Ivan Castelló Serrano,^a Qiang Ma^a and Emilio Palomares^{a,b}.*

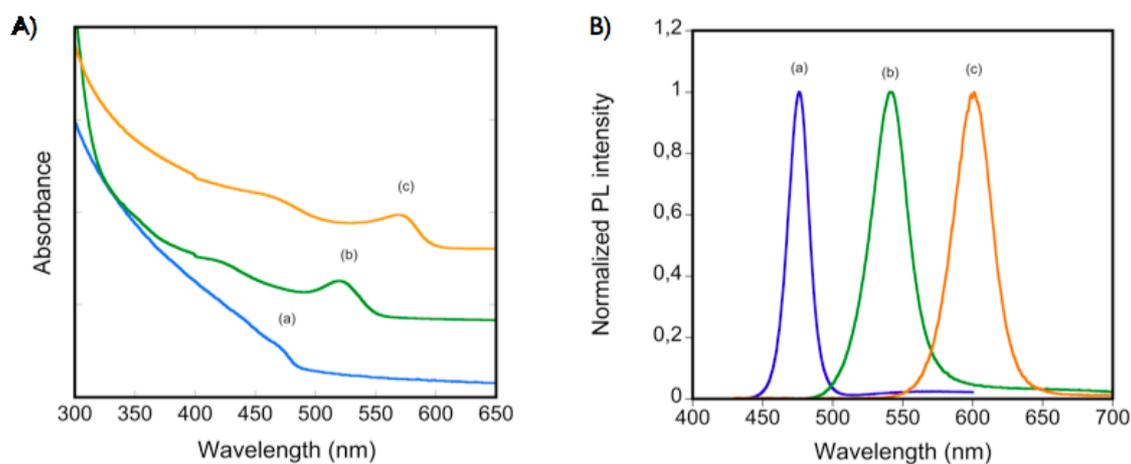
^a Institute of Chemical Research of Catalonia (ICIQ). Avda. Paisos Catalans, 16.

Tarragona E-43007. Spain Fax: 34 977920223; Tel: 34977929241; ^b ICREA. Avda.

Lluís Companys, 23. Barcelona. E-08010. Spain

E-mail: epalomares@iciq.es.

Synthesis of QDs

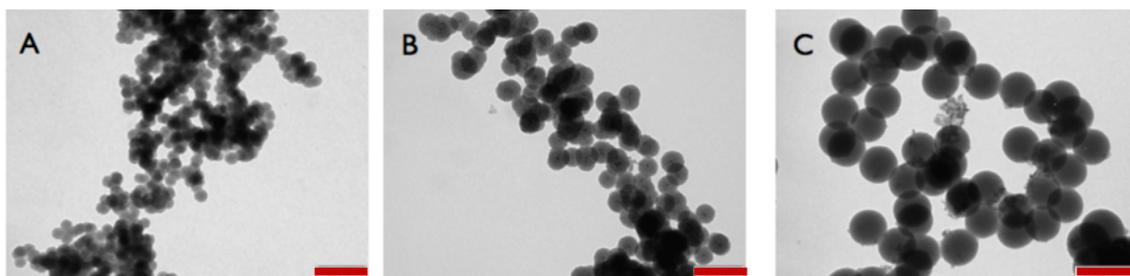


Supporting **Figure S1**. Comparison of the UV-Vis absorption (A) and emission spectra (B) of blue Zn_xCd_{1-x}S (a), green CdSe/ZnS (b) and orange CdSe/ZnS (c) colloidal QDs.



Supporting Figure S2. Photographs of a series of $Zn_xCd_{1-x}S$ (blue), and CdSe/ZnS (green and orange) QDs under daylight (above) and under UV light (below), respectively.

Synthesis of QOM



Supporting Figure S3. TEM images of QOM with different number of silica layers. A) core (quantum dots with a silica shell), B) 1-layer QOM (core with another layer of silica with embedded quantum dots), C) 2-layer QOM (core with 2 layers of silica with embedded quantum dots). The scale bar corresponds to 200 nm.

pH test

Supporting Table T1. Results of the chemical stability at different pH values over time

pH	2	3	4	5	6	7	8	9	10	11
1h	0.628	0.832	0.976	1.010	0.996	1.000	1.010	1.092	1.095	0.255
3h	0.631	0.811	0.980	0.990	1.010	1.010	1.010	1.087	1.091	0.261
5h	0.618	0.820	0.961	0.990	0.992	0.997	0.998	1.011	1.093	0.238
1d	0.570	0.760	0.910	0.940	0.940	0.992	0.970	0.920	0.930	0.201
2d	0.580	0.730	0.890	0.920	0.950	0.970	0.910	0.930	0.870	0.202
3d	0.490	0.660	0.850	0.890	0.920	0.910	0.850	0.900	0.830	0.191
4d	0.450	0.690	0.823	0.881	0.902	0.921	0.861	0.870	0.840	0.163
5d	0.440	0.620	0.730	0.840	0.850	0.910	0.830	0.860	0.790	0.136
6d	0.410	0.530	0.701	0.806	0.839	0.893	0.819	0.853	0.786	0.123
7d	0.400	0.510	0.690	0.770	0.818	0.880	0.822	0.840	0.770	0.120

Figure S4. Figure showing silica nano-spheres containing green emissive QD's. We would like to remark that the QDs can be envisage as dark spots inside the nano-spheres.

