Supporting Information

Figure A. From top to bottom, PL spectra of a 100% TOPO system followed by all PL and UV spectra acquired for the 20:80, 50:50, 80:20 and 100:0 TOP:TOPO systems. UV spectra are offset vertically, PL spectra are overlaid directly. No spectra are normalized. The extent of sampling reduced the total reaction volume by ~40% after 30 minutes.

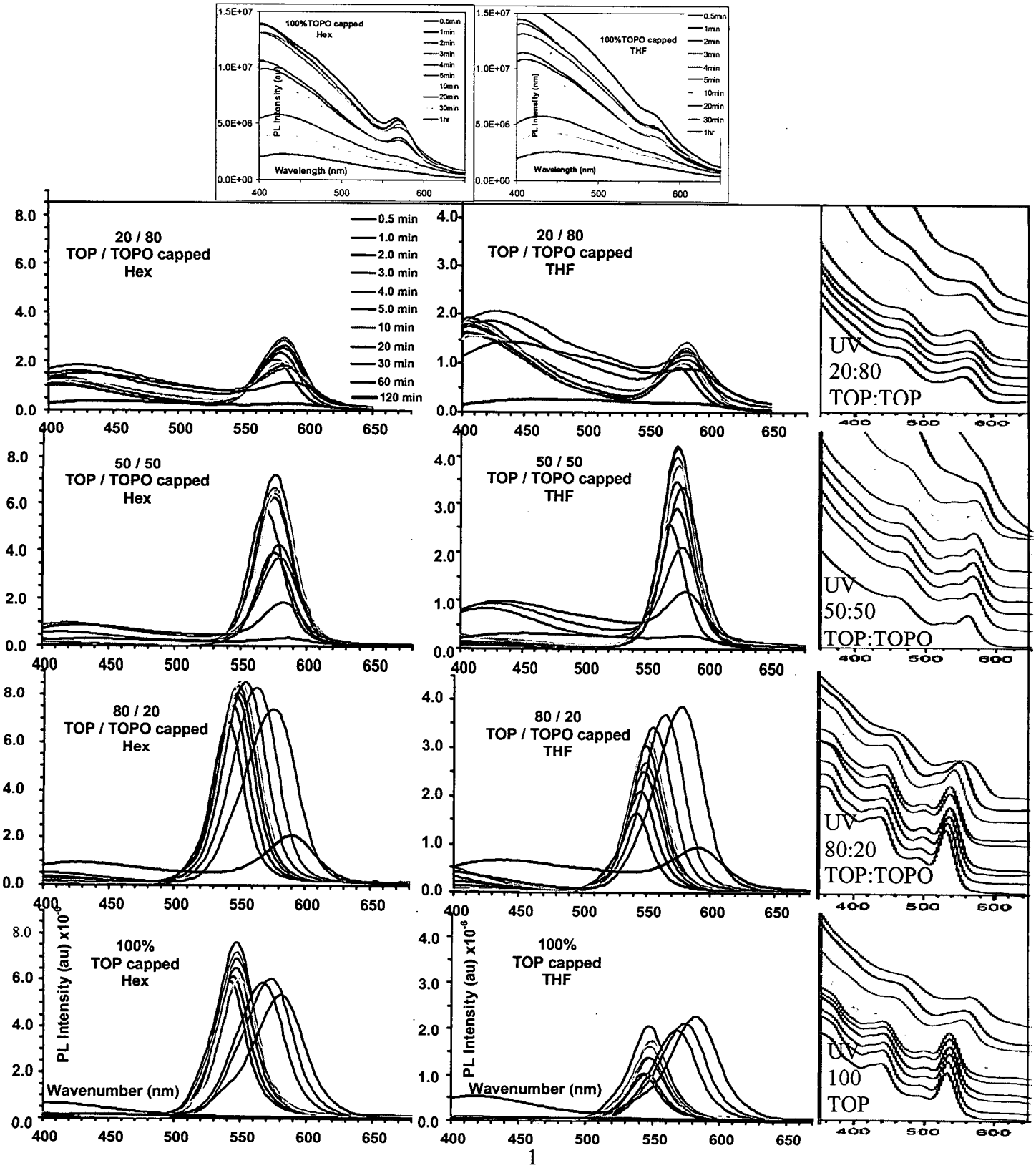


Figure B: UV-vis and PL spectra of samples selected for powder X-ray analysis, TEM and quantum yield determination showing original intensities; absorbance spectra are displaced vertically and PL spectra are directly overlaid. The dotted line indicates the PL excitation wavelength of 530nm. Emission integration areas were obtained between 510-600nm for all samples, and were corrected for the excitation wavelength. As shown, the linewidths for these nanocrytals dispersed in hexanes are approximately equal in emission and absorption, and the emission peak is redshifted from the absorption maximum (9, 7.8 and 5 nm for 100, 80:20 and 50:50 respectively).

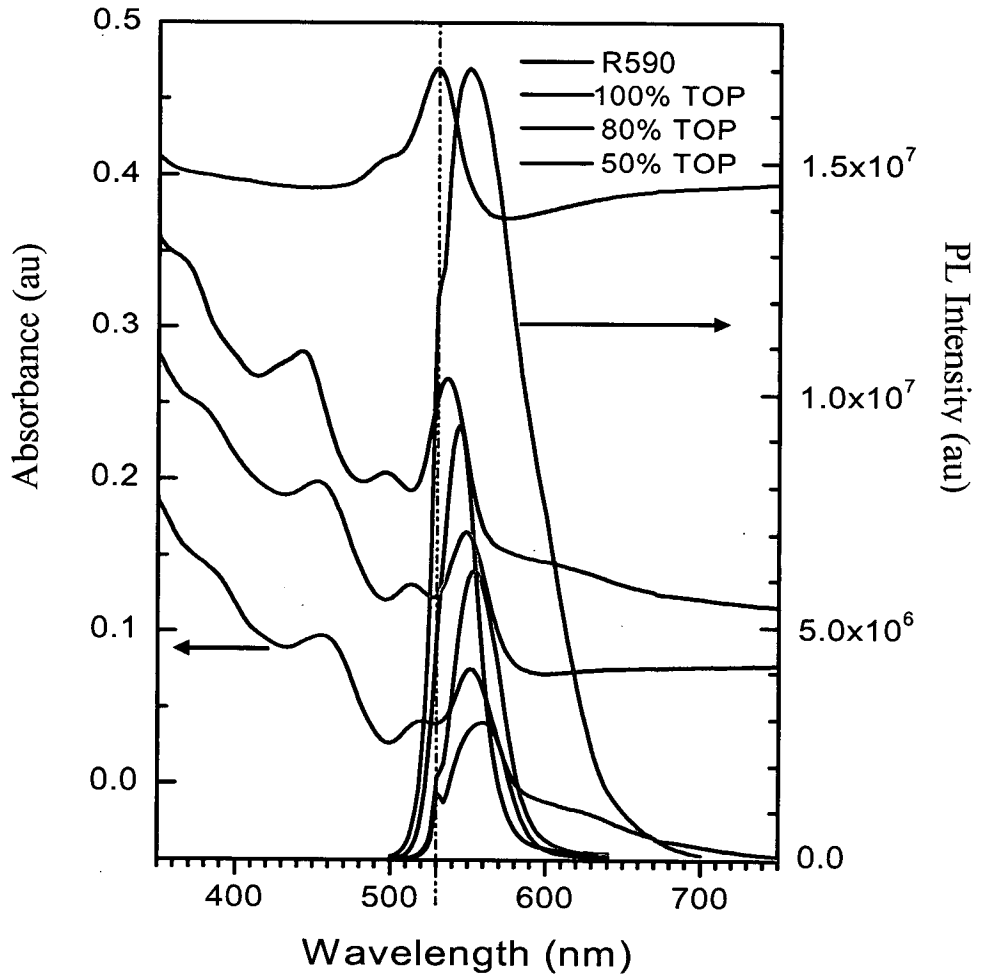


Figure C: Redshift (Δnm) of UV absorbance maximum after injection of ligand (TOP or TOPO) into a 100% TOP reaction at ca. 5 minute growth time (using reaction conditions as detailed in manuscript). Values are reported as the change in peak position relative to the first (30 second) sample, acquired from dispersions in THF. Arrow indicates point of addition.

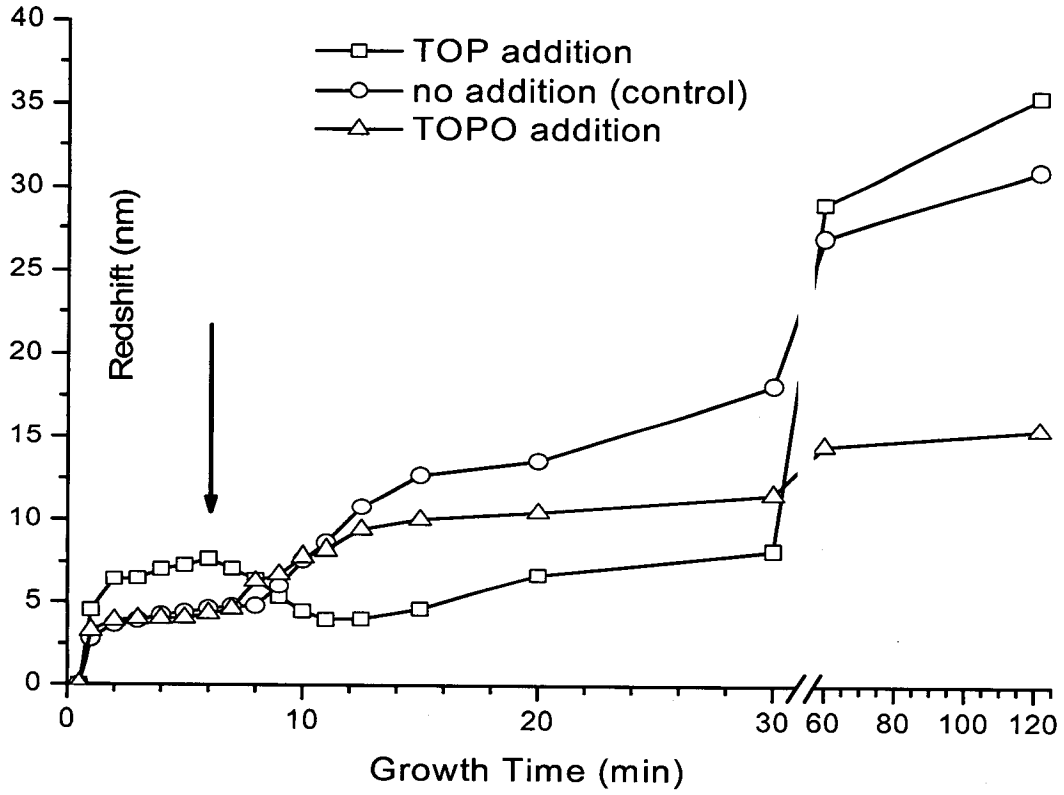
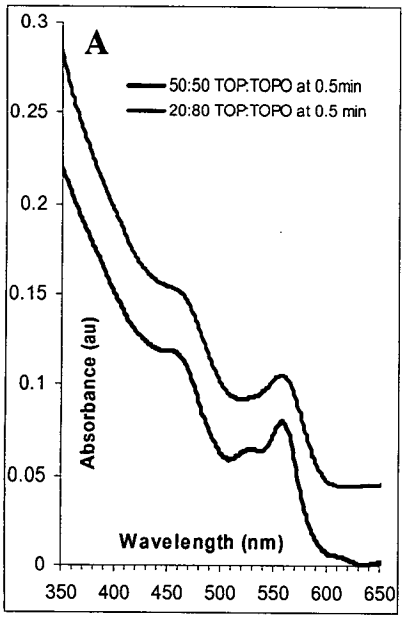
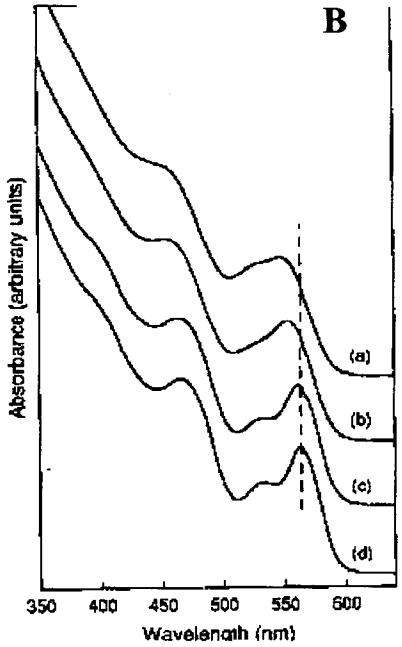
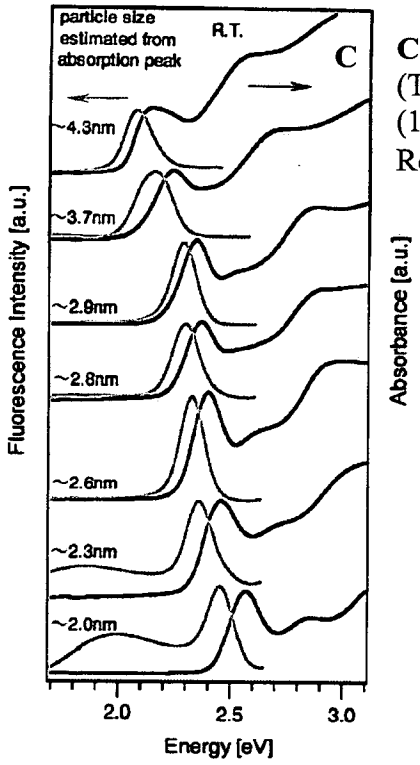


Figure D: Comparison of the UV spectra. **A**: from our approach; **B**: JACS 1993; **C**: J. Lumin. 2002. **D**: Nano Lett. 2002, 2, 1315. It bears to mention that this is the ratio of ligands used in the literature comparison to the organometallic system of Murray (Ref 4); the ultimate reasons for the use of this particular ligand ratio was not documented in this paper. We believe it may, partly, stem from the requirements of a swift injection of the (precursor) TOPSe / $Cd(CH_3)_2$ / TOP solution into the reaction flask consisting of solely TOPO. Simply stated, a smaller injection volume allows tighter control during the nucleation timeframe in general. In all our experiments, the injection volume utilized is small and is constant, and our CdSe nanocrystals from the 50:50 reaction batch are comparable to those shown in Ref 4. Therefore, our reported data are quite reasonable.





B: 42:58
(TOP:TOPO, wt)
(1.3Cd:1Se mol)
Ref. 4-Figure 1a



C: 22:78
(TOP:TOPO, wt)
(1.3Cd : 1Se mol)
Ref. 13a- Figure 3.

D: 25:75
(TOP:TOPO, wt)
(1Cd:4.7 Se)
Ref.13b-Figure1.