## Reentrant Stabilization of Grafted Nanoparticles in Polymer Solutions

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Dynamic light scattering (DLS) is used to characterise the particles size as well as the functionalisation. The bare QDs size is 5nm. After ligand exchange the size increase is attributed to the size of the ligand layer, referred to as  $R_{shell}$  (size of the shell). The radius of gyration of the freely dispersed ligand is given by  $R_g$  (radius of gyration) and is computed with Eqn S1 and S2 given below where we follow Zilliox.<sup>1</sup> The ratio between  $R_{shell}$  and  $R_g$  can be used to estimate the grafted density. In our case the ratio is around 2. This means that the ligands are indeed grafted on the particle surface and not simply adsorbed (the latter would have limited the ratio to unity).



S1. The schema of R<sub>shell</sub> and R<sub>g</sub>.

1. Zilliox, J. G.; Roovers, J. E. L.; Bywater, S., Preparation and Properties of Polydimethylsiloxane and Its Block Copolymers with Styrene. *Macromolecules* **1975**, *8*, 573-578.