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ELECTRONIC SUPPORTING INFORMATION

Multiple-Structured Nanocystals Towards Bifunctional Photoluminescent-Superhydrophobic Surfaces

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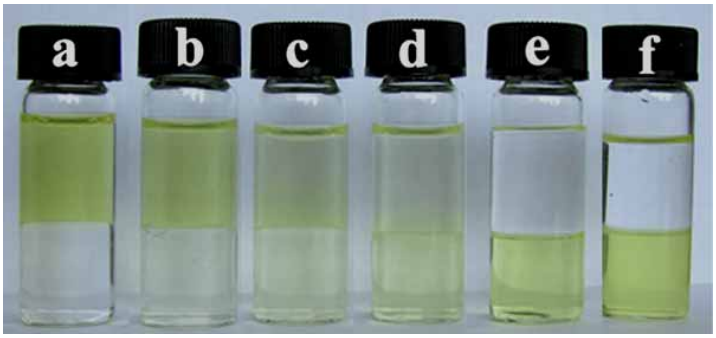

Fig. S1. Digital pictures of the interfacial reactions for CdS-D-DDAm as a function of reaction time (a) 0 d, (b) 1 d, (c) 5 d, (d) 15 d, (e) 25 d and (f) 30 d. The vessel containing two phase solution was sealed and maintained at room temperature for several days. The color of the water phase gradually changes from greenish yellow to colorlessness, while the color of oil phase gradually changes from colorlessness to greenish yellow along with the reaction time, which visually confirms that the NCs are actually transferred slowly from the water to the oil phase as a function of reaction time.

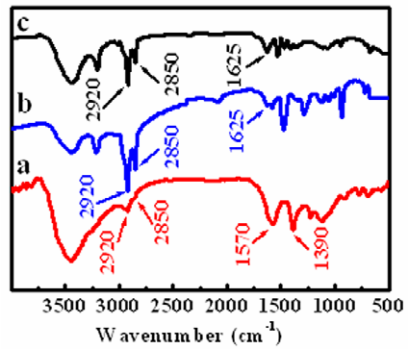

Fig. S2. FT-IR spectra of (a) TGA-stabilized CdS NCs, (b) CdS-D-DDAm and (c) D-DDAm. After the phase transfer process, the characteristic absorption peak at 1625 cm-1 (ν_{N-H}) from DDAm are present, while the peaks at 1570 cm^{-1} and 1390 cm^{-1} (ν_{COO^-}) from TGA disappear. Moreover, the peak intensity at 2850 and 2920 cm^{-1} (ν_{CH2}) is stronger than that of parent NCs. It means the achievement of the phase transfer through ligand exchange reaction.

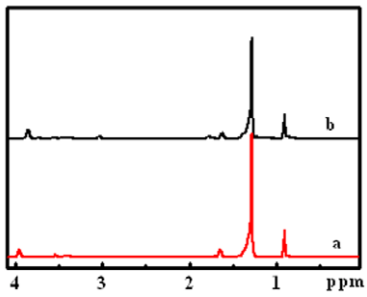

Fig. S3. ^{1}H NMR of (a) CdS-D-DDAm and (b) D-DDAm. The ^{1}H NMR spectrum of CdS-D-DDAm is almost unchanged in compared with that of D-DDAm except the key protons (-CH_2-N-) at ca. 4 ppm are slightly shifted. This difference indicates the strong interaction of D-DDAm ligand with the CdS NCs surface.

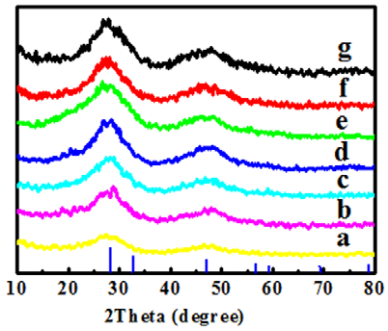

Fig. S4. XRD patterns of (a) TGA-stabilized CdS NCs, (b) CdS-D-PAm, (c) CdS-D-OAm, (d) CdS-D-DDAm, (e) CdS-D-CHAm, (f) CdS-D-An and (g) CdS-D-PAAm (τ = 1/1, reaction time: 25 d).

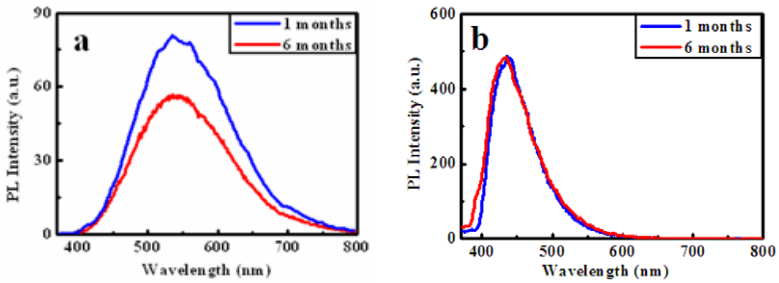

Fig. S5. PL spectra of (a) TGA-stabilized CdS NCs and (b) CdS-D-DDAm (λ_{ex} = 360 nm).

Fig. S6. Contact angle of the film of TGA-stabilized CdS NCs.