

Noncovalent assemblies of CdSe semiconductor quantum dots and an amphiphilic long-chain *meso*-arylporphyrin

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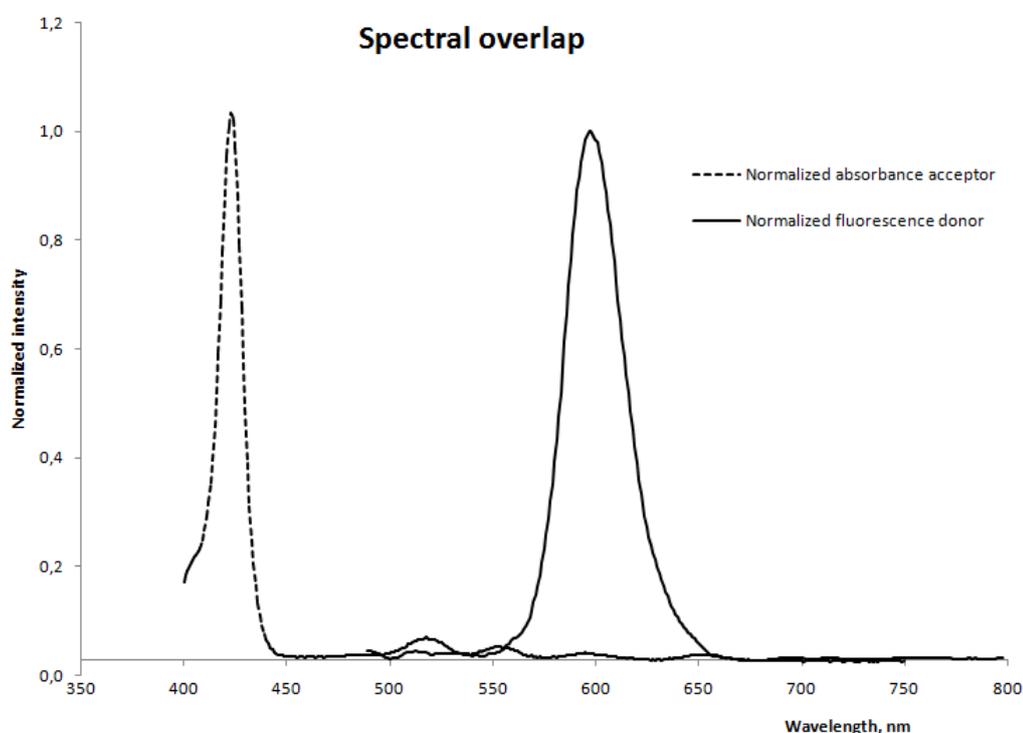


Figure S1 Overlapping of the spectra of quantum dots and the porphyrin **H₂PyP**.

Procedure for the preparation of 5-(4-pyridyl)-10,15,20-tris(4-n-octaoxyphenyl)porphyrin (H₂PyP)

n-Octaoxybenzaldehyde (0.5 g, 1.724 mmol) and 4-pyridylbenzaldehyde (0.094 g, 0.575 mmol) dissolved in 8 ml of propionic acid were added to 4 ml of acetic acid. The mixture was boiled for 10 min; 0.154 g (2.30 mmol) of pyrrole in 4 ml of nitrobenzene was added dropwise and the contents were boiled for 2 h. The product was extracted in the dichloromethane/water

system, purified by column chromatography on G60 silica gel and recrystallized from methanol. Yield, 0.085 g (12%); R_f 0.26 (dichloromethane--ethyl acetate, 10 : 1).

Electronic absorption spectrum (CHCl_3) λ_{max} , nm ($\lg \epsilon$): 423.2 (7.84); 519.4 (6.44); 552.8 (6.23); 588.4 (5.9); 651.2 (5.77). ^1H NMR spectrum (CDCl_3 , δ , ppm), 9.04 (2H, d., $\text{CH}=\text{N}$, $J = 5.88$ Hz), 8.90-8.94 (6H, m, $\text{CH}=\text{}$), 8.79 (2H, d, $\text{CH}=\text{}$, $J = 4.82$ Hz), 8.16 (2H, d., 2-H, $J = 5.97$ Hz), 8.09 (6H, d.m, 2-H, $J = 8.67$ Hz), 7.29 (6H, d, 3-H, $J = 8.71$ Hz), 4.25 (6H, t., - $\text{OCH}_2(\text{CH}_2)_6\text{CH}_3$, $J = 6.48$ Hz), 1.94-2.04 (6H, br.m, - $\text{OCH}_2\text{CH}_2(\text{CH}_2)_5\text{CH}_3$), 1.59-1.69 (6H, br.m, - $\text{O}(\text{CH}_2)_2\text{CH}_2(\text{CH}_2)_4\text{CH}_3$), 1.35-1.54 (24H, br.m, - $\text{O}(\text{CH}_2)_3(\text{CH}_2)_4\text{CH}_3$), 0.96 (9H, br.s, AlkCH_3), -2.75 (2H, br.s, NH). ^{13}C NMR spectrum (CDCl_3 , δ , ppm): 159.1, 150.7, 148.2, 135.6, 134.1, 129.9, 129.5, 120.9, 120.3, 115.8, 112.8, 76.6, 31.9, 29.3, 26.2, 22.7, 14.1. MS MALDI-TOF m/z : calculated 1000.487, calculated 1000.359.

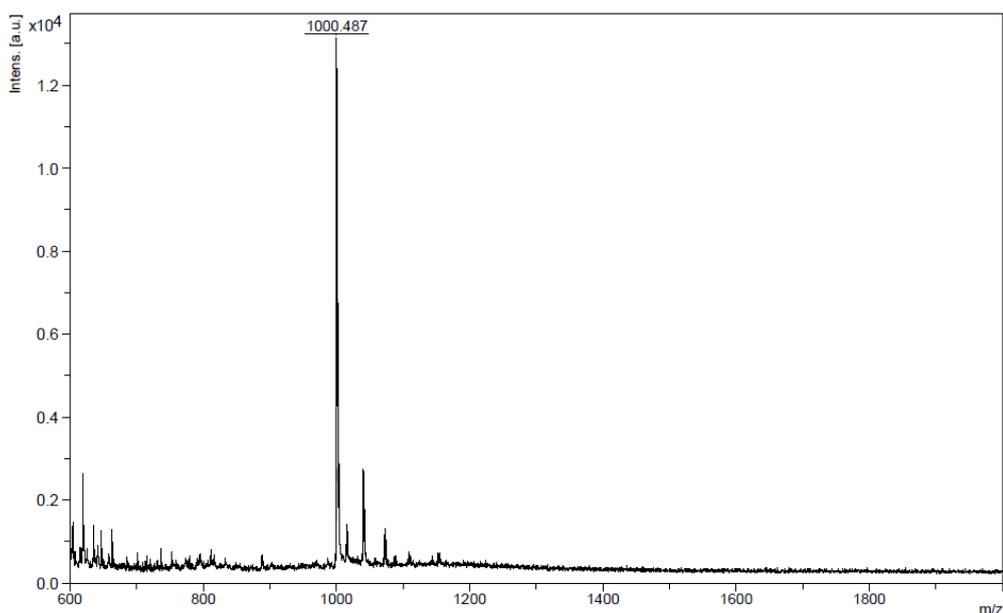


Figure S2 MALDI-TOF mass spectrum of **H₂PyP**.