Supporting Information for :

Nanoporous photocathode and photoanode made by multilayer assembly of quantum dots

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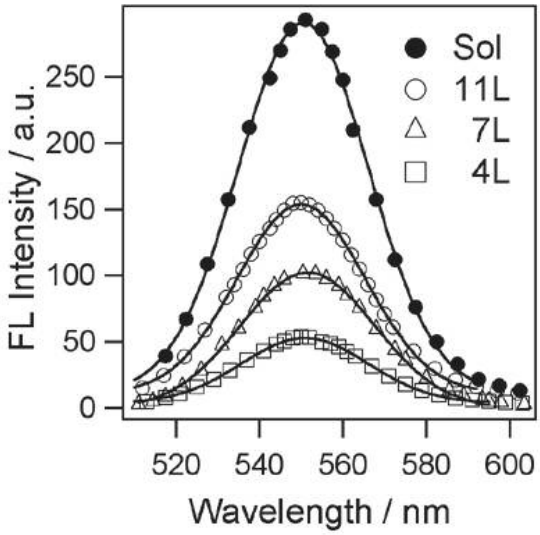

Figure S1. Not normalized Steady-state fluorescence specrta of CdSe films at n = 4, 7 and 11 Layers.

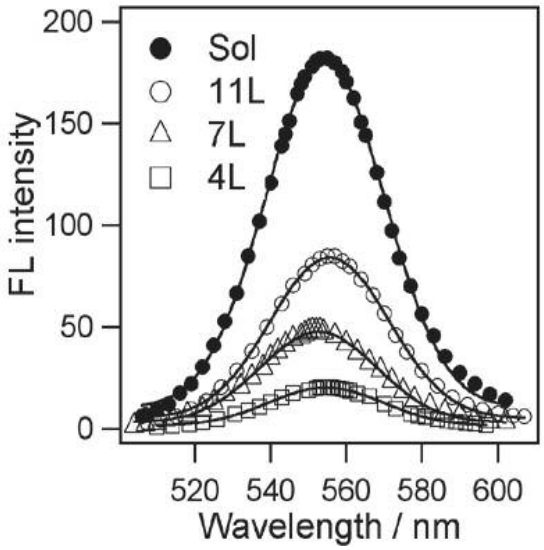

Figure S2. Not normalized Steady-state fluorescence specrta of CdSe@CdS films at n = 4, 7 and 11 Layers.

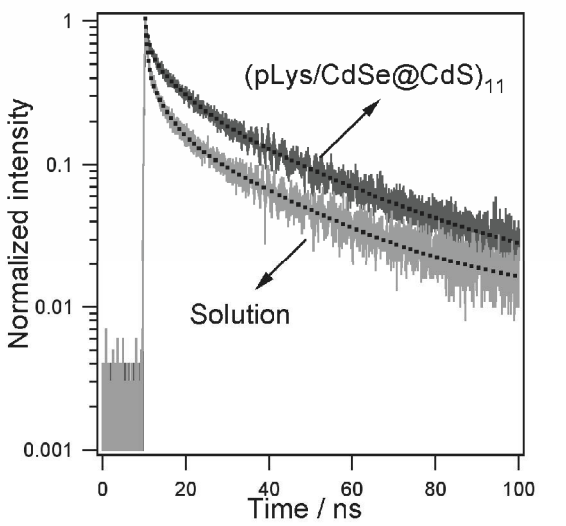

Figure S3. Fluorescence decay profiles of CdSe in solution and in $(pLys/CdSe@CdS)_{11}$. The dashed lines show the best fit obtained by eq (1).

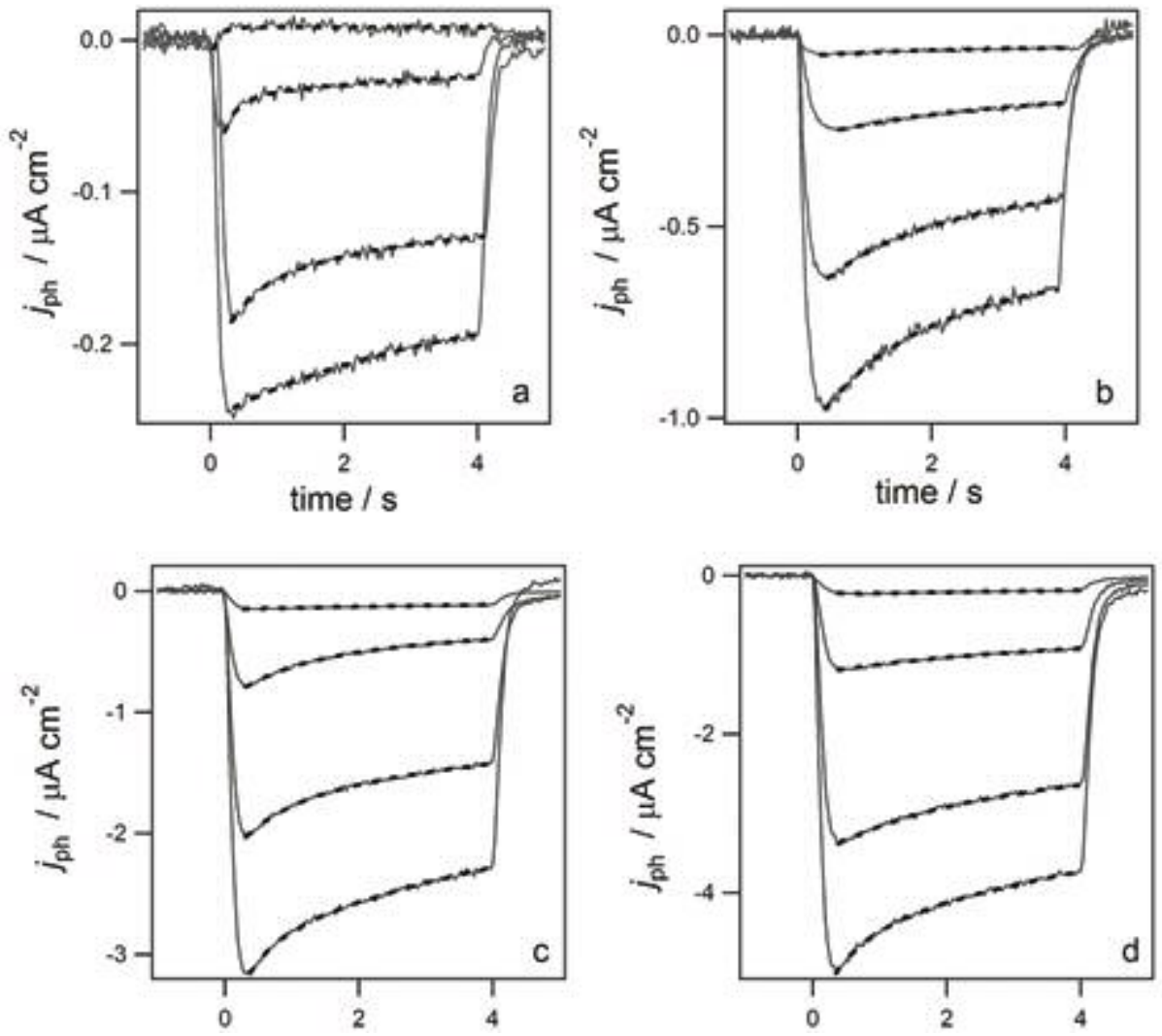

Figure S4. Photocurrent transient responses of $(pLys/CdSe)_1$ (a), $(pLys/CdSe)_3$ (b), $(pLys/CdSe)_7$ (c) and $(pLys/CdSe)_{10}$ (d) at four different potentials : -0.4 V, 0 V, 0.4 V and 0.8 V from bottom to top. The dashed lines are fittings employing eq. 6.

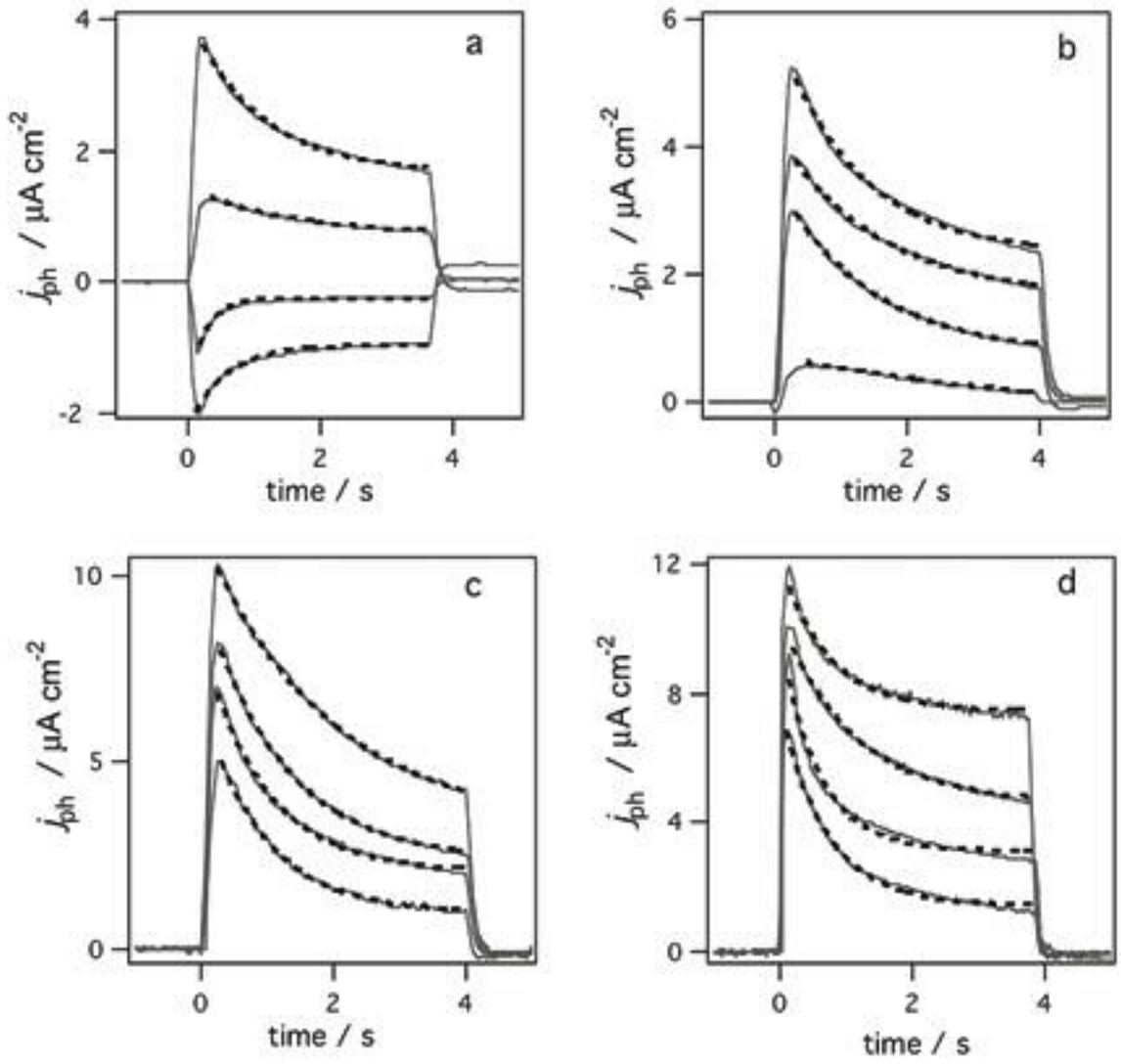

Figure S5. Photocurrent transient responses of $(pLys/CdSe@CdS)_1$ (a), $(pLys/CdSe@CdS)_3$ (b), $(pLys/CdSe@CdS)_7$ (c) and $(pLys/CdSe@CdS)_{10}$ (d) at four different potentials : -0.4 V, 0 V, 0.4 V and 0.8 V from bottom to top. The dashed lines are fittings employing eq. 6

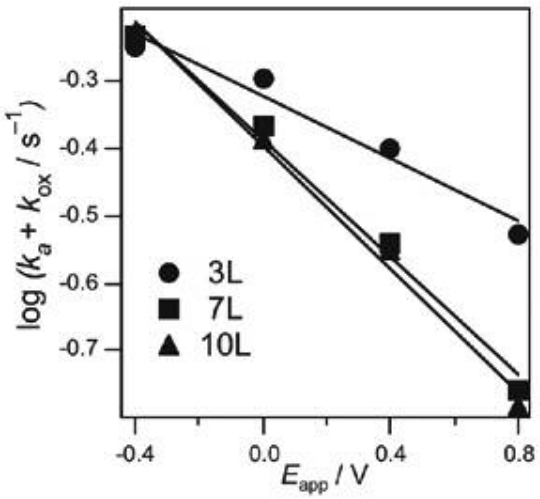

Figure S6. Values of $\log\left(k_{\mathrm{ox}} + k_{\mathrm{a}}\right)$ *vs* electrode potential for various film thicknesses, extracted from the fitting results of photocurrent decay in figure S3 using eq. 6.

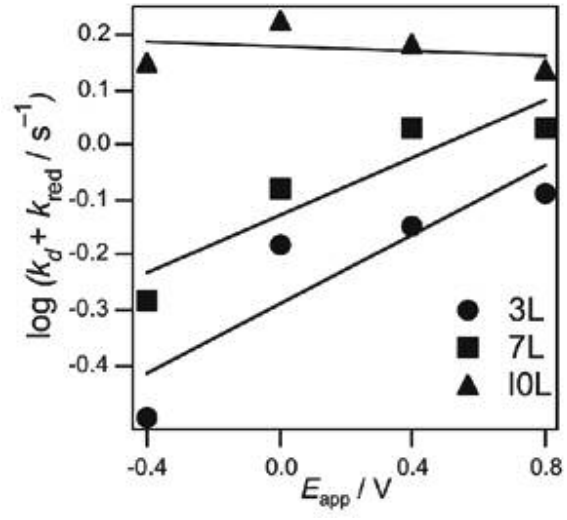

Figure S7. $\log\left(k_{\mathrm{red}} + k_{\mathrm{d}}\right)$ *vs* electrode potential for 3, 7 and 10 bilayers of $(\mathrm{pLys/CdSe@CdS})_{\mathrm{n}}$, extracted from the fitting results of photocurrent decay in Figure S4 using eq. 6.

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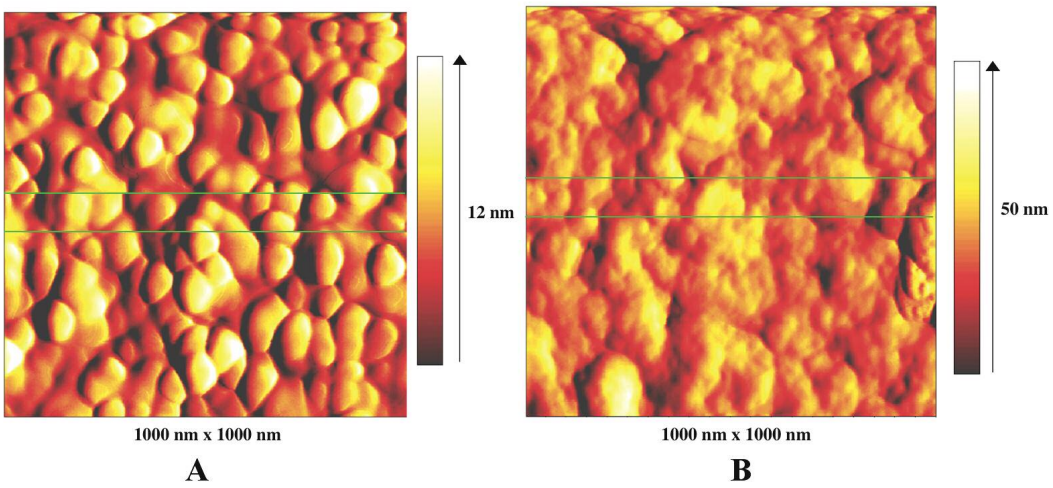

Figure S8. Atomic Force Microscopy (model Quesant Universal SPM), images taken in tapping mode: (A)AFM image of the naked gold substrate, (B) AFM image of the $(pLys/CdSe)_4$ film deposited on the same gold substrate. The average surface height of the naked substrate and the modified gold is 6.2nm and 28.2 nm respectively.

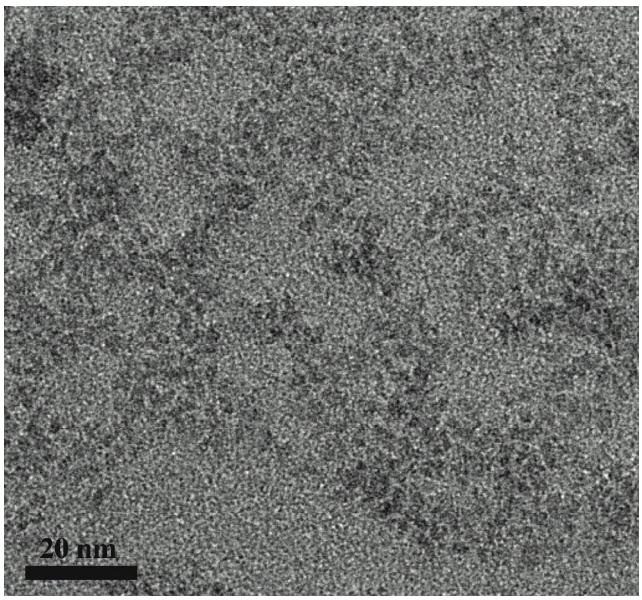

Figure S9. Transmission Electron Microscopy (TEM) image of the CdSe particles.