

SUPPORTING INFORMATION

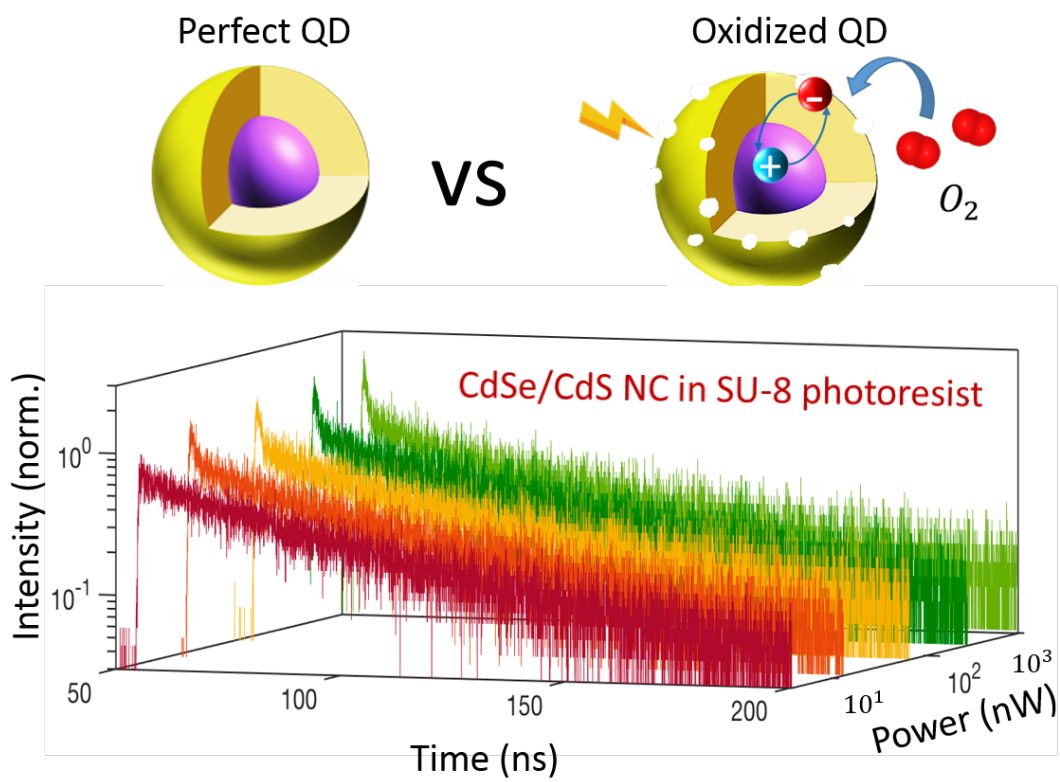


Figure prepared for TOC.

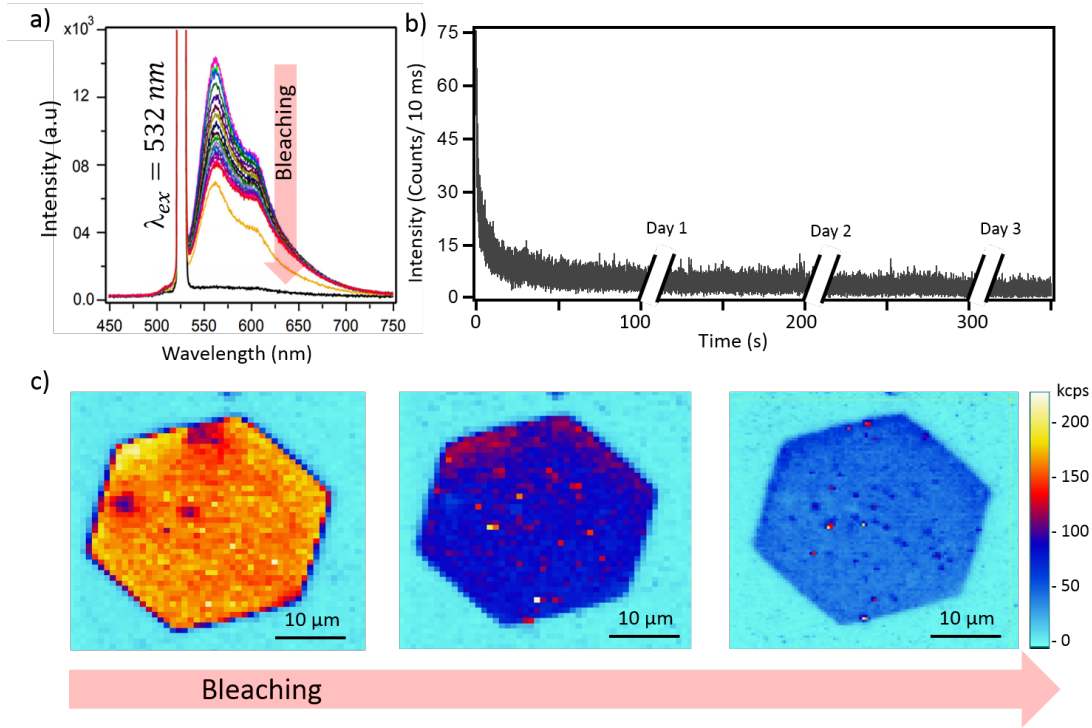


FIGURE S 1 Bleaching the SU-8 fluorescence by a 532 nm laser excitation. (a) Fluorescence spectra intensities of SU-8 resist decrease as a function of the excitation time (by few second). (b) Measurement of fluorescence intensity of SU-8 resist as a function of time. Each measurement is realized by 100 s, day after day. (c) Evolution of fluorescence image of a SU-8 hexagonal disk containing quantum dots. At beginning, the fluorescence of SU-8 resist is very bright, and no QDs can be found. After scanning with high laser power, the fluorescence of SU-8 resist is strongly reduced and the QDs appear clearly.

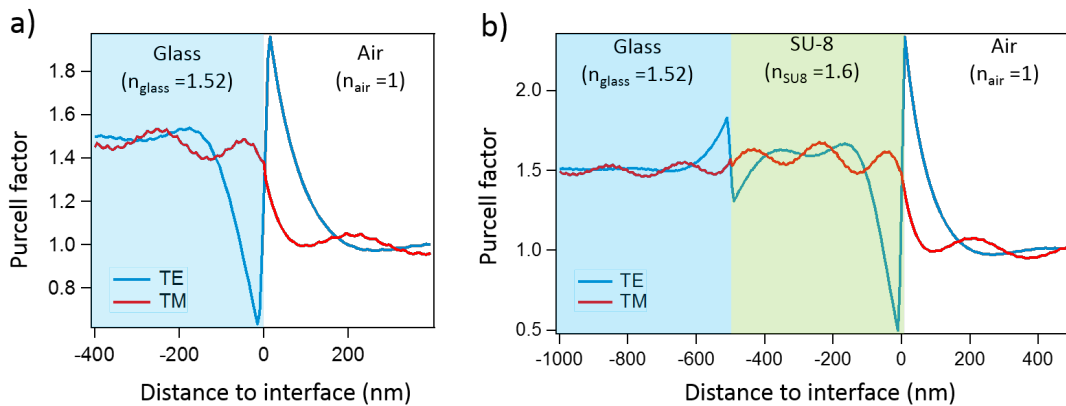


FIGURE S 2 The calculation results of Purcell factor dependence upon the distance to the interface of different media. The single QD is considered as a single emitter locating at different distances for these simulations. The dependence of Purcell factor for single QD at the glass/air interface ($n_{\text{glass}} = 1.51$, $n_{\text{air}} = 1$) (a) and in the SU-8 polymer film ($n_{\text{SU-8}} = 1.58$) (b).

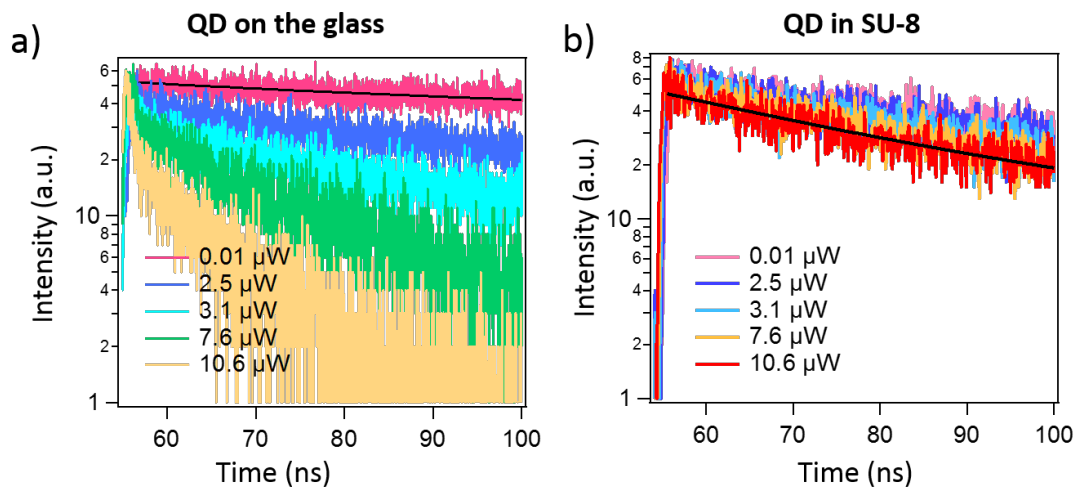


FIGURE S 3 The measured PL lifetimes of single CdSe/CdS QDs excited at room temperature in different media. (a) The lifetime of a single QD excited on a glass substrate decreases from 70.32 to 46.21, 35.04, 24.67 and 15.75 ns at the different excited powers of 0.01, 2.5, 3.1, 7.6, and 10.6 μW , respectively. (b) The lifetimes of a single QD located in SU-8 film is almost constant with a fitted lifetime of 45.2 ± 0.15 ns.

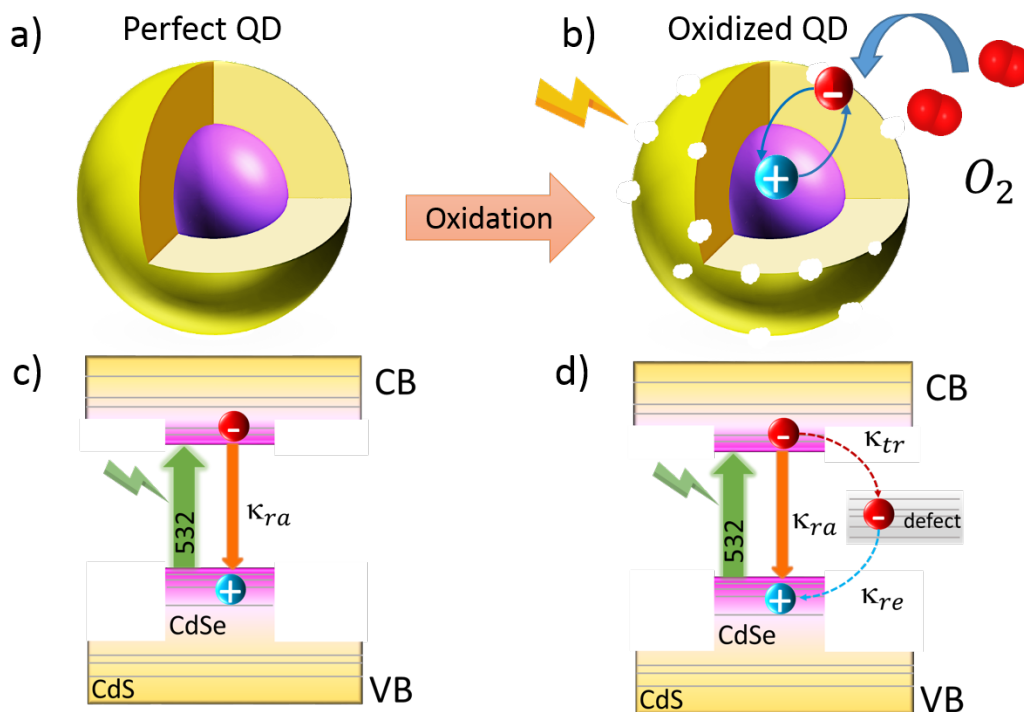


FIGURE S 4 Illustration of a perfect (a) and an oxidized (b) CdSe/CdS core/shell structure. The schematic energy diagrams corresponding to the QD with (c) and without (d) defect mode on the shell.

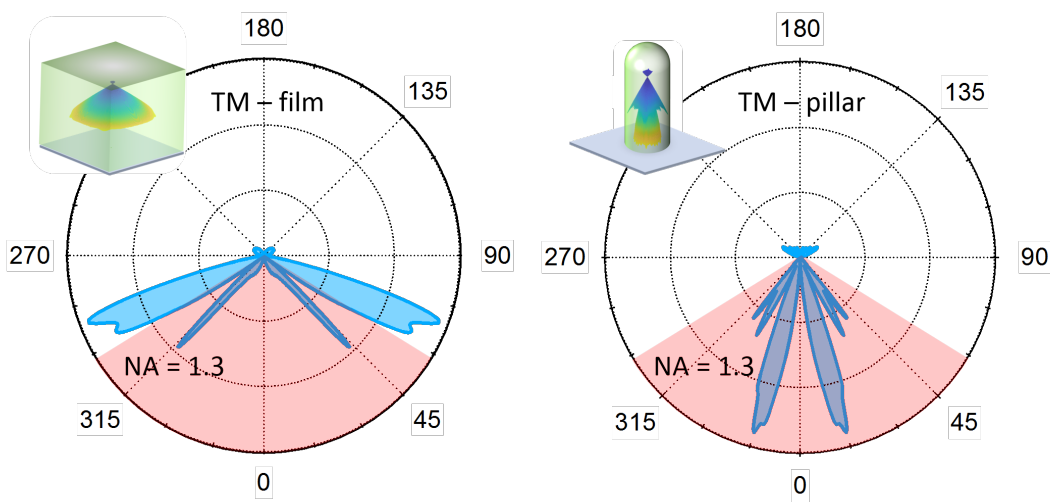


FIGURE S 5 Simulated angular radiation pattern of a single QD in the film (a) and in the polymeric pillar (b). The QD is described by 2 orthogonal isotropic transition dipoles (2D dipoles) for the calculation. Theoretically, most emitted photons could be detected by the objective lens having a NA = 1.3, when the QD is embedded in a polymeric pillar.