

SUPPORTING INFORMATION

**Electrochemical Charging of CdSe Quantum
Dots: Effects of Adsorption *Versus* Intercalation**

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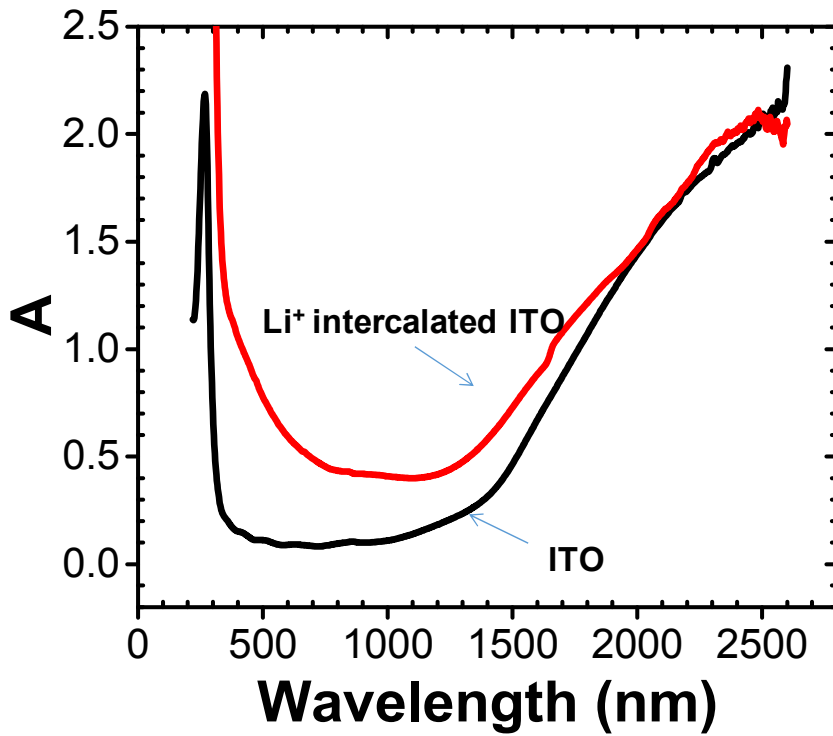


Figure S1. Changes in the optical absorption spectra of indium tin oxide (ITO) coated glass slide occurring as a result of potential-induced Li⁺ insertion.

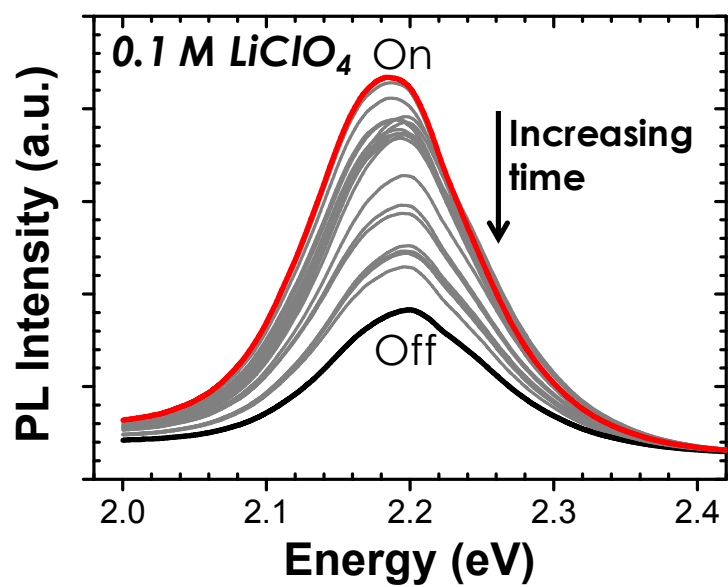
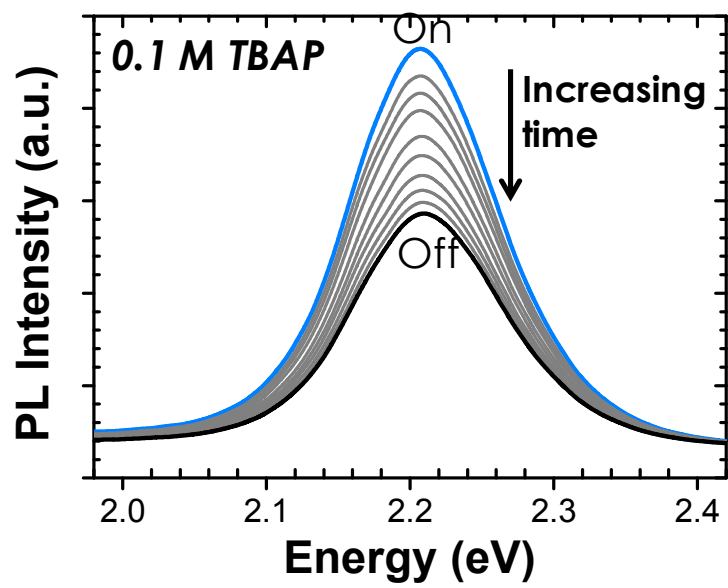


Figure S2. Changes in the photoluminescence spectrum of CdSe QD film, which was previously charged ('On' state) in Li^+ - and TBA^+ -containing electrolytes. The spectrum marked as 'Off' represents the ground-state photoluminescence spectra recorded before electrochemical reduction. The decay is a result of discharge of 1S_e state populated during charging, which was induced here by exposure of the cell to ambient air at room temperature.

A)

Cd 3d analysis				
QD As synthesized				
<i>Energy (eV)</i>	<i>FWHM (eV)</i>	<i>%Area</i>	<i>Integrated Area</i>	<i>Max Height</i>
404.3	1.0	39.2	1206.9	1090.2
405.5	1.6	22.6	696.3	408.8
411.0	1.0	29.0	893.7	883.7
412.0	1.3	9.2	282.0	210.2
QD-TBAP				
<i>Energy (eV)</i>	<i>FWHM (eV)</i>	<i>%Area</i>	<i>Integrated Area</i>	<i>Max Height</i>
404.3	1.0	48.4	3819.5	3605.8
405.5	1.6	8.4	660.3	387.7
411.0	1.0	32.3	2549.7	2521.3
412.0	1.3	11.0	868.4	627.5
QD-Li+				
<i>Energy (eV)</i>	<i>FWHM (eV)</i>	<i>% Area</i>	<i>Integrated Area</i>	<i>Max Height</i>
401.8	1.7	7.2	1106.9	616.4
403.4	1.3	4.9	746.2	647.7
404.9	1.5	23.8	3660.4	2292.5
405.8	1.0	23.4	3607.1	3258.3
406.9	1.6	2.5	388.0	227.8
408.5	1.6	0.8	123.0	72.2
410.1	1.3	2.8	435.1	305.1
411.5	1.5	14.7	2259.8	1415.3
412.4	1.0	15.7	2415.0	2375.9
413.4	1.3	4.2	650.0	484.6

B)

Se 3d Analysis				
QD As synthesized				
<i>Energy (eV)</i>	<i>FWHM (eV)</i>	<i>%Area</i>	<i>Integrated Area</i>	<i>Max Height</i>
53.1	1.2	39.8	116.7	91.4
53.9	1.6	45.4	132.9	78.0
55.2	1.5	14.8	43.3	27.2
QD-TBAP				
<i>Energy (eV)</i>	<i>FWHM (eV)</i>	<i>% Area</i>	<i>Integrated Area</i>	<i>Max Height</i>
53.1	1.2	44.6	318.9	249.6
53.9	1.6	52.0	371.8	218.3
55.2	1.5	3.5	25.0	15.7
QD-Li+				
<i>Energy (eV)</i>	<i>FWHM (eV)</i>	<i>% Area</i>	<i>Integrated Area</i>	<i>Max Height</i>
53.1	1.2	10.1	93.6	73.3
53.9	1.6	56.8	529.3	310.8
55.2	1.5	22.9	213.0	133.4
56.0	1.0	10.3	95.6	89.8

Table S1. Summary of the XPS fitting analysis of A) Cd 3d, and B) Se 3d envelopes.