

## Supporting Information

### Suppression of Blinking in Single CsPbBr<sub>3</sub> Perovskite Nanocrystals through Surface Ligand Exchange

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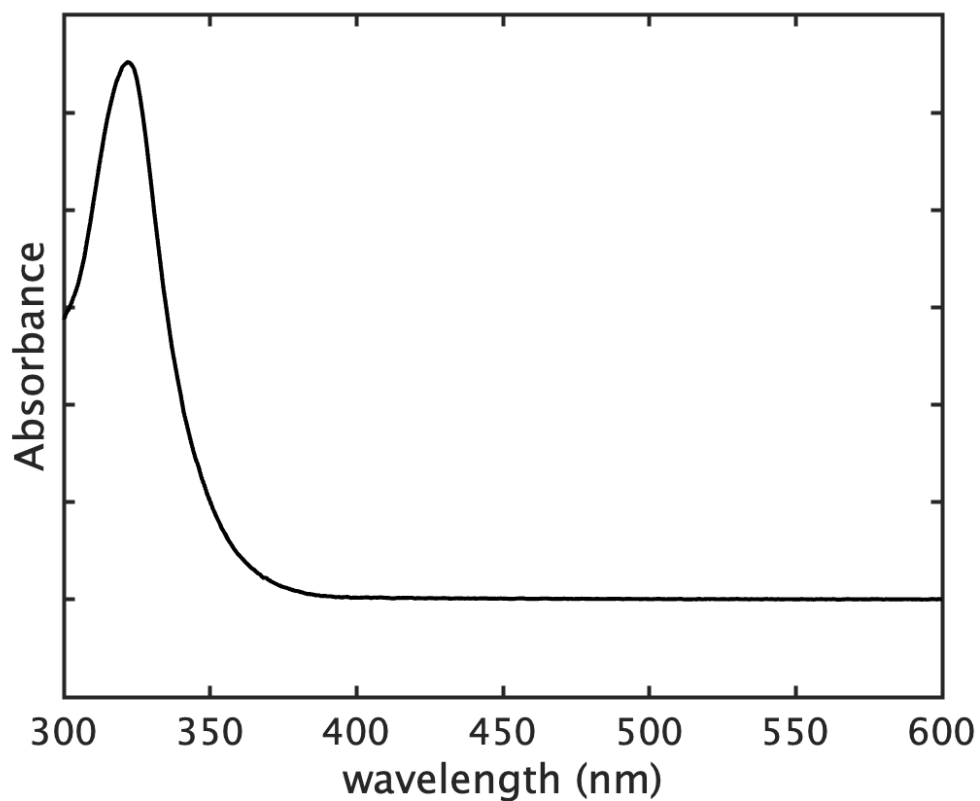
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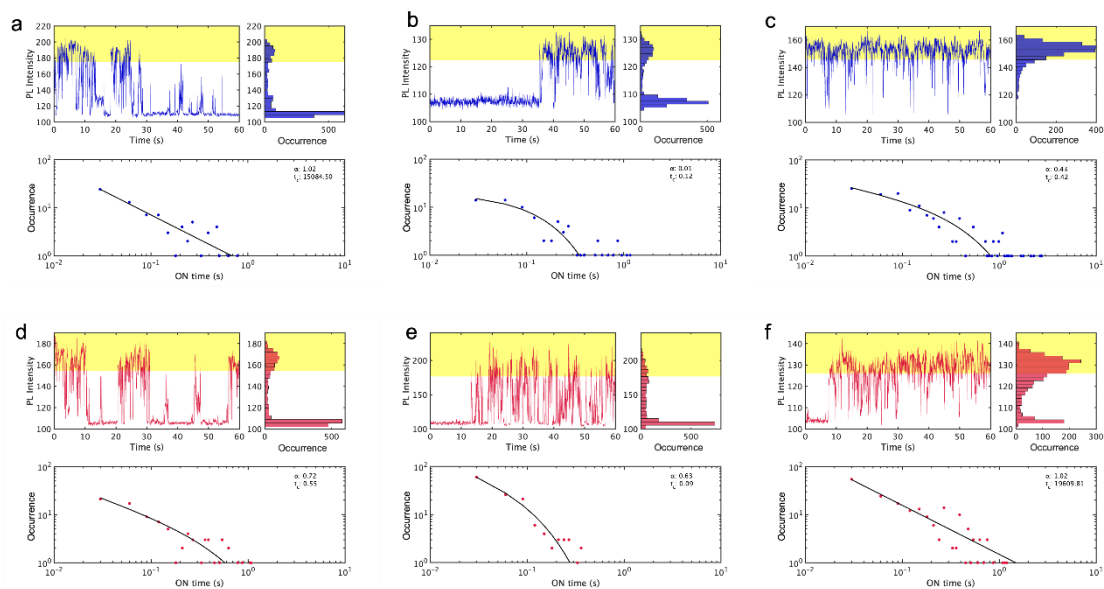
Fig. S1 – S5

Movies of blinking:

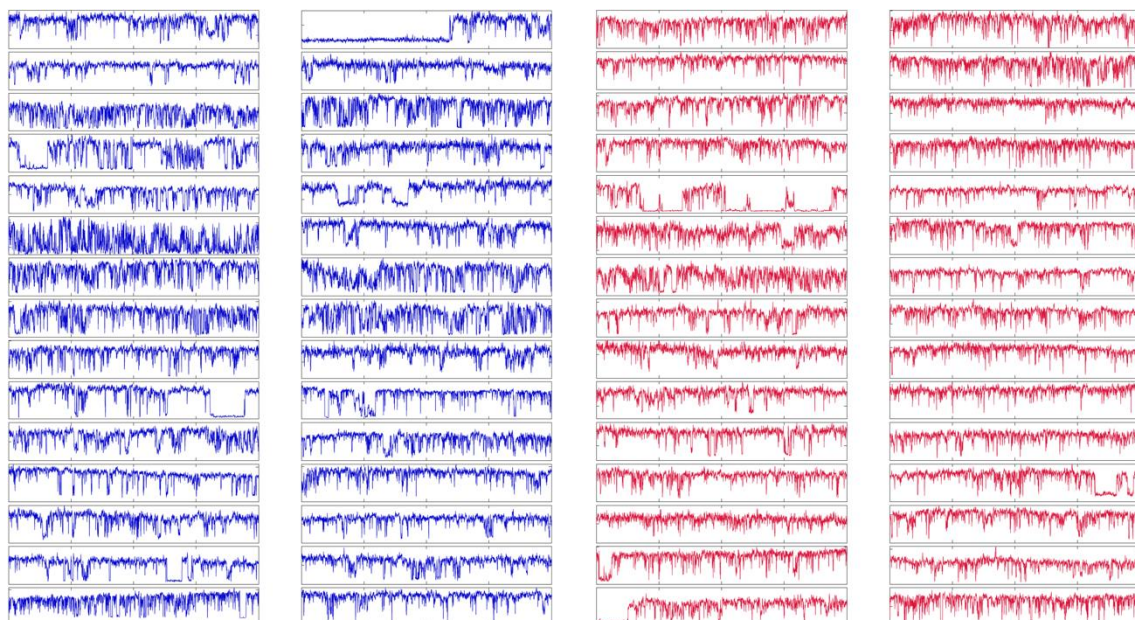
- AfterLigandExchange
- BeforeLigandExchange



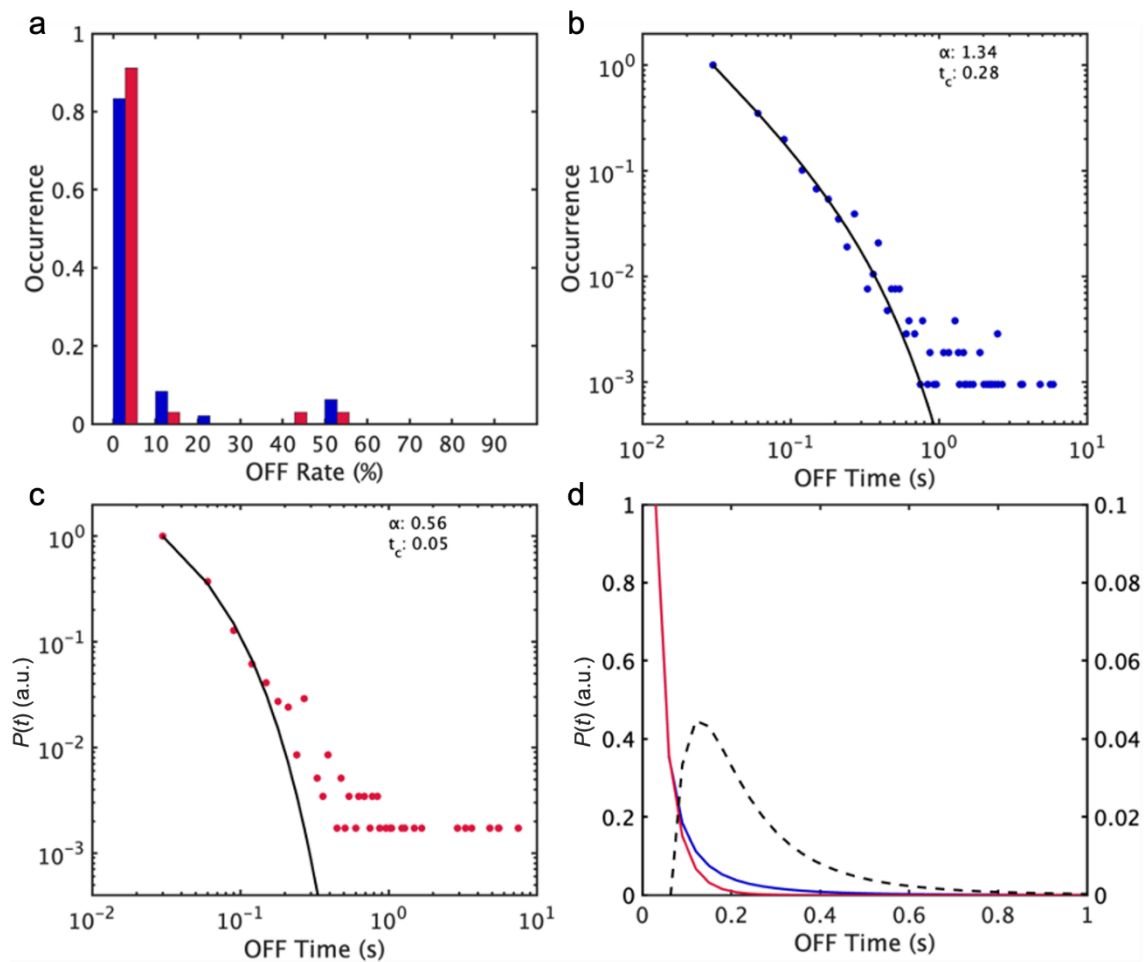
**Figure S1.** Absorption spectrum of a sample of CsPbBr<sub>3</sub> NC solution with excess DMDDAB ligand. The sample appeared colorless and transparent with an absorption peak at 322 nm. Based on previous reports, it can be inferred that an intermediate between CsPbBr<sub>3</sub> and Cs<sub>4</sub>PbBr<sub>6</sub> is formed [1].



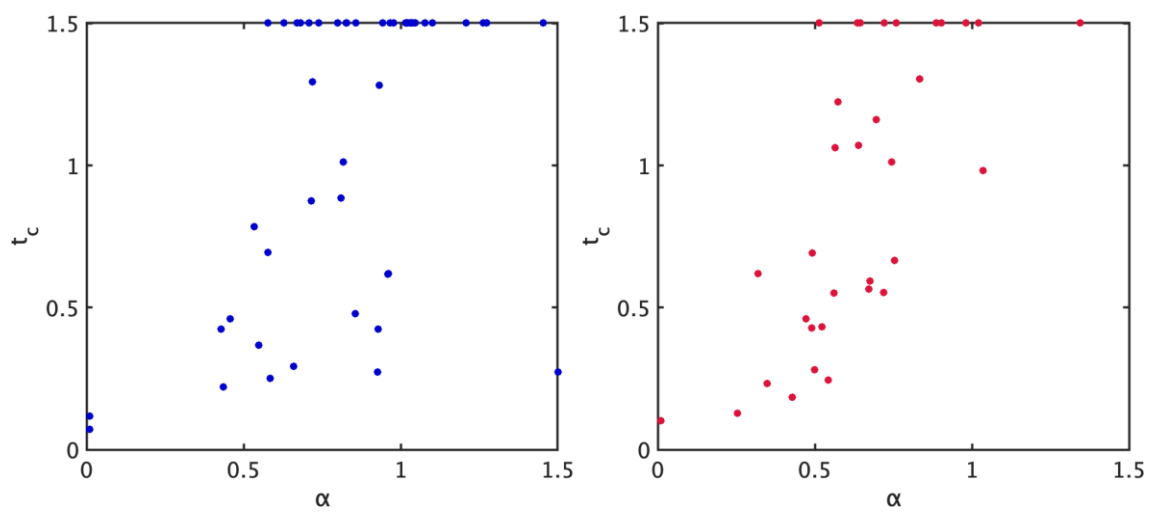
**Figure S2.** Examples of various and rare blinking traces and their analysis. **(a), (d)** Nanocrystals with the majority of OFF-time both before and after ligand exchange. **(b), (e), (f)** Nanocrystals blinking after a few seconds of OFF-time. Some nanocrystals were predominantly ON-time even before ligand exchange **(c)**, while others were predominantly OFF-time even after ligand exchange **(d), (e)**.



**Figure S3.** Examples of various blinking traces before (blue) and after (red) the ligand exchange. In all figures, the horizontal axis is time and the vertical axis is emission intensity.



**Figure S4.** (a) Comparison of the distributions of percentage of OFF-times. Probability distributions of OFF-time durations before (b) and after (c) the ligand exchange. (d) Comparison of the fits to Eq. 1 of the data from (b) and (c) and their difference (black dashed line).



**Figure S5.** Correlation between  $\alpha$  and  $t_c$  before (left) and after (right) ligand exchange. Critical time  $t_c$  greater than 1.5 is shown as 1.5.

## Reference

- [1] T. Udayabhaskararao, L. Houben, H. Cohen, M. Menahem, I. Pinkas, L. Avram, T. Wolf, A. Teitelboim, M. Leskes, O. Yaffe, D. Oron, and M. Kazes, A Mechanistic Study of Phase Transformation in Perovskite Nanocrystals Driven by Ligand Passivation, *Chem. Mater.*, 2018, **30**, 84-93