Supporting Information

Role of nonradiative defects and environmental oxygen on exciton recombination processes in $CsPbBr_3$ perovskite nanocrystals

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Figure S1

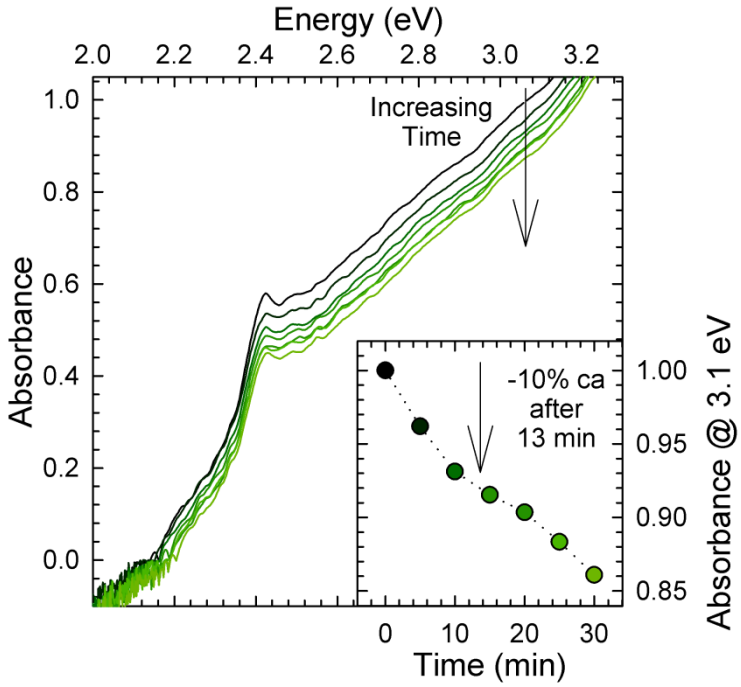

Figure S1 Optical absorption spectra of a submonolayer film of CsPbBr3 NCs deposited onto an ITO-coated glass covered with a layer of ZnO nanoparticles (NPs), immersed in the electrolyte solution used for the spectro-electrochemical experiments (tetrabutylammonium perchlorate, 0.1 M in propylene carbonate). The first spectrum is measured 5 seconds after the addition of the electrolyte (black line) and subsequent measurements are performed every 5 minutes (increasingly lighter green lines) up to a total time of 30 minutes, in order to cover the SEC data collection time span (13 minutes and 30 seconds for 2 cycles under negative EC potential and 10 minutes for 2 cycles under positive EC potential.) The inset shows the optical absorbance values at 3.1 eV, corresponding to the excitation energy used for the SEC experiments, extracted from the absorbance spectra and reported as a function of time.

Figure S2

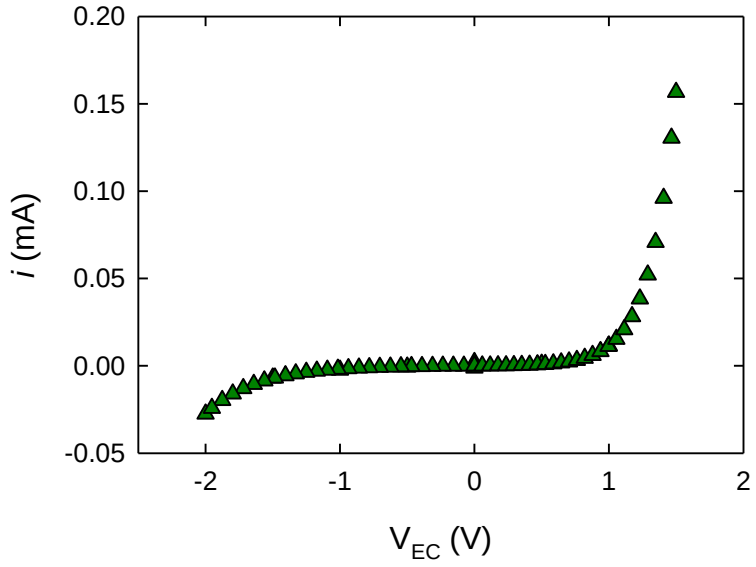

Figure S2 Current-voltage response collected during a SEC scan using the setup described in Fig.2a under both negative and positive potentials, showing the onset of the current for $|V_{EC}|>\sim 1V$.

Supporting Table S1: Parameters used to reproduce the spectro-electrochemical trends

ρ_{TS}	1
E_F	-4.5 eV (E_{CB}=-5.6eV; E_{VB}=-3.4eV, ref.38)
E_T	-4.43 eV
γ	0.13

We highlight that the trends in Fig.2g could be obtained also with other sets of γ, ρ_{TS} and E_T-values. Therefore, the parameters in Table S1 have to be considered indicative and not univocal and serve the purpose of showing that the observed experimental response can be reproduced with the proposed model.