Supporting Information

Resolving Electron Injection from Singlet Fission-Borne Triplets into Mesoporous Transparent Conducting Oxides

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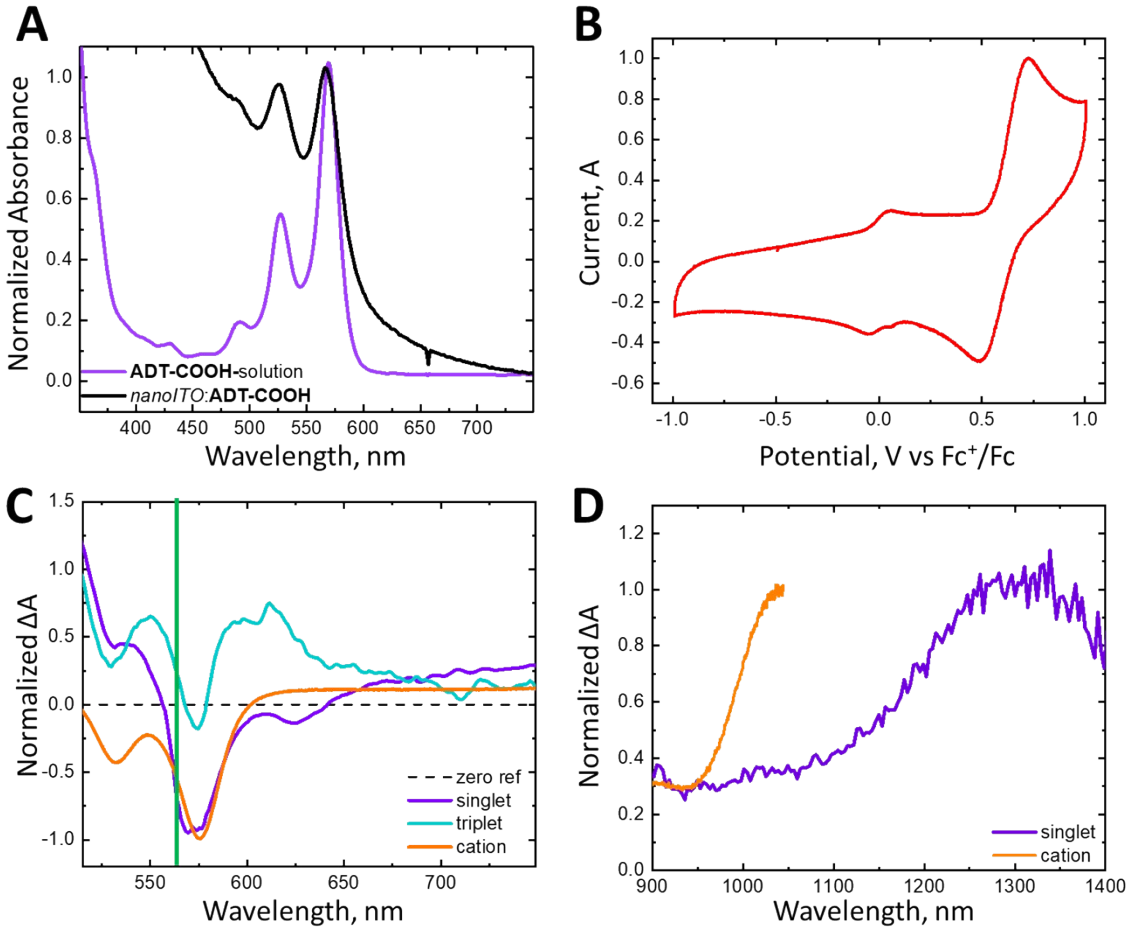

Figure S1. **A**. Steady state absorption spectra of **ADT-COOH** dissolved in THF (purple) and *nanoITO*:**ADT-COOH** in air (black). **B**. Cyclic voltammogram of ADT-COOH in 0.1 M TBAPF6 in degassed dichloromethane with platinum working and counter electrodes and a $Ag/AgNO_3$ reference electrode. Potentials were referenced to Fc^+/Fc. **C**. Difference spectra in the visible regime of the **ADT-COOH** singlet (purple) as determined by transient absorption spectroscopy (500 nm excitation, THF solution), the triplet (teal) as determined through sensitization with anthracene,[1] and the cation (orange) as determined through spectroelectrochemistry. **D**. Difference spectra in the NIR regime of the **ADT-COOH** singlet (purple) as determined by transient absorption spectroscopy (500 nm excitation, THF solution), and the cation (orange) as determined through spectroelectrochemistry. The abrupt cutoff of the cation spectrum is due to the spectral limitations of the detector.

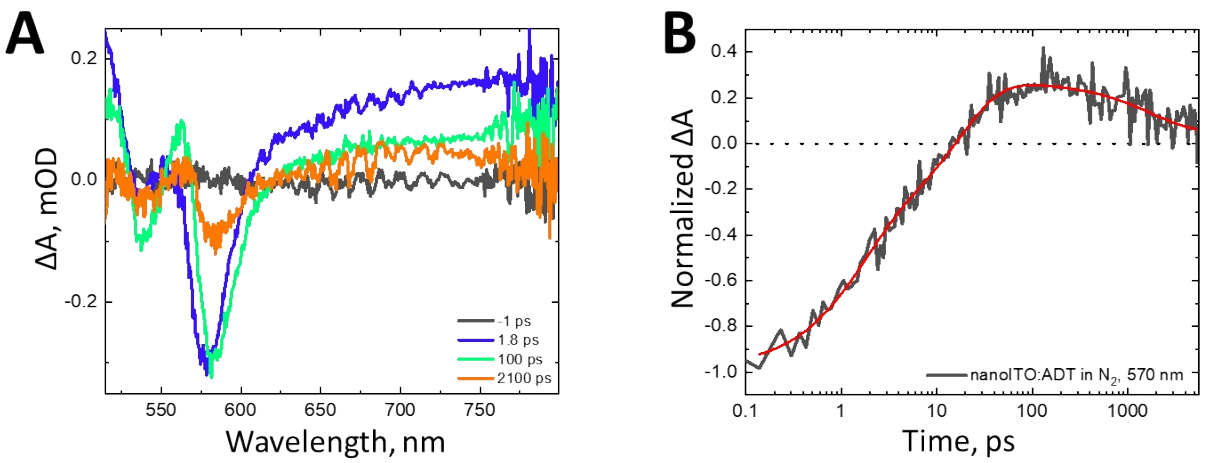

Figure S2. **A**. Transient absorption spectra of *nanoITO*:**ADT-COOH** in an N_2 atmosphere after 500 nm photoexcitation (60 nJ/pulse) at pump-probe delays of -1 ps (black), 1.8 ps (blue), 100 ps (green), 2100 ps (orange). **B**. Transient absorption kinetics of *nanoITO*:**ADT-COOH** in an N_2 atmosphere measured at 570 nm. Triexponential Fit is shown as a red line.

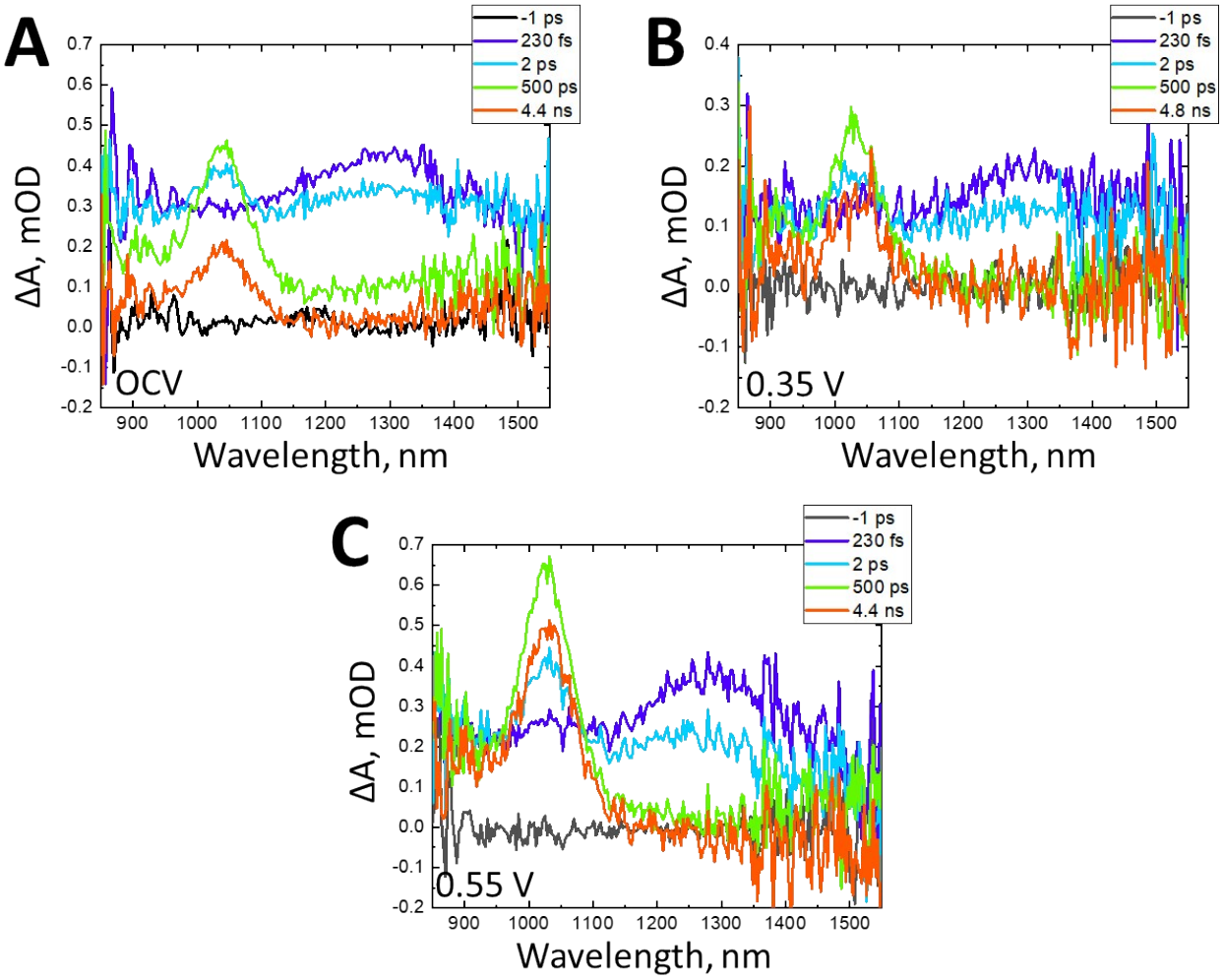

Figure S3. Transient absorption spectra after 500 nm photoexcitation (60 nJ/pulse) at pump-probe delays of -1 ps (black), 230 fs (purple), 2 ps (light blue), 500 ps (green) and 4.4 ns (orange) of *nanoITO*:**ADT-COOH** in 0.1 M TBAPF6 in MeCN at **A**. open circuit voltage (OCV) and applied potentials of **B**. 0.35 V vs Fc^+/Fc and **C**. 0.55 V vs Fc^+/Fc.

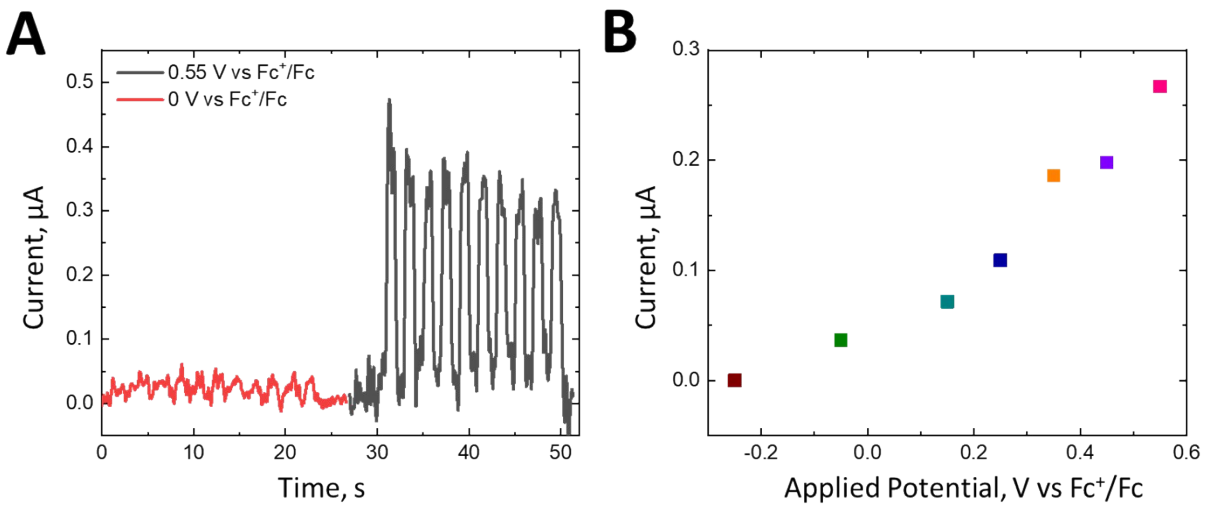

Figure S4. **A**. Photocurrent traces of *nanoITO*:**ADT-COOH** in 0.1 $TBAPF_6$ in MeCN at an applied electrochemical potential of 0 V vs Fc^+/Fc (red) and 0.55 V vs Fc^+/Fc (black) cycling 530 nm light on and off in 2s intervals. **B**. Average current vs applied potential after 530 nm illumination.

References

1. M. K. Gish, K. J. Thorley, S. R. Parkin, J. E. Anthony and J. C. Johnson, *ChemPhotoChem*, 2021, **5**, 68-78.