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## **Supplementary Information**

## Influence of the Fullerene LUMO Level on the Stability of Bulk Heterojunction Solar Cells

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Figure S1: UV/vis spectra of all P3HT: fullerene (1:0.7) blend films after different times of irradiation under ambient air.



**Figure S2:** Normalized time absorption profile of the ground state bleaching at 510 nm (**a**) and the polaron signal at 650 nm (**b**) for all P3HT:fullerene blends.



**Figure S3:** Normalized time absorption profile of the exciton signal at 1200 nm of a P3HT:F5 film for different pump energies during the first 10 ps (**a**) and the respective reciprocal during the first picosecond including linear fits (**b**) indicating the initial bimolecular kinetics due to  $S_1$ - $S_1$  annihilation.