

Supporting Information

**Photoinduced Electron-Transfer Processes of Carbon Nanohorns with Covalently
Linked Pyrene Chromophores: Charge-Separation and Electron-Migration Systems**

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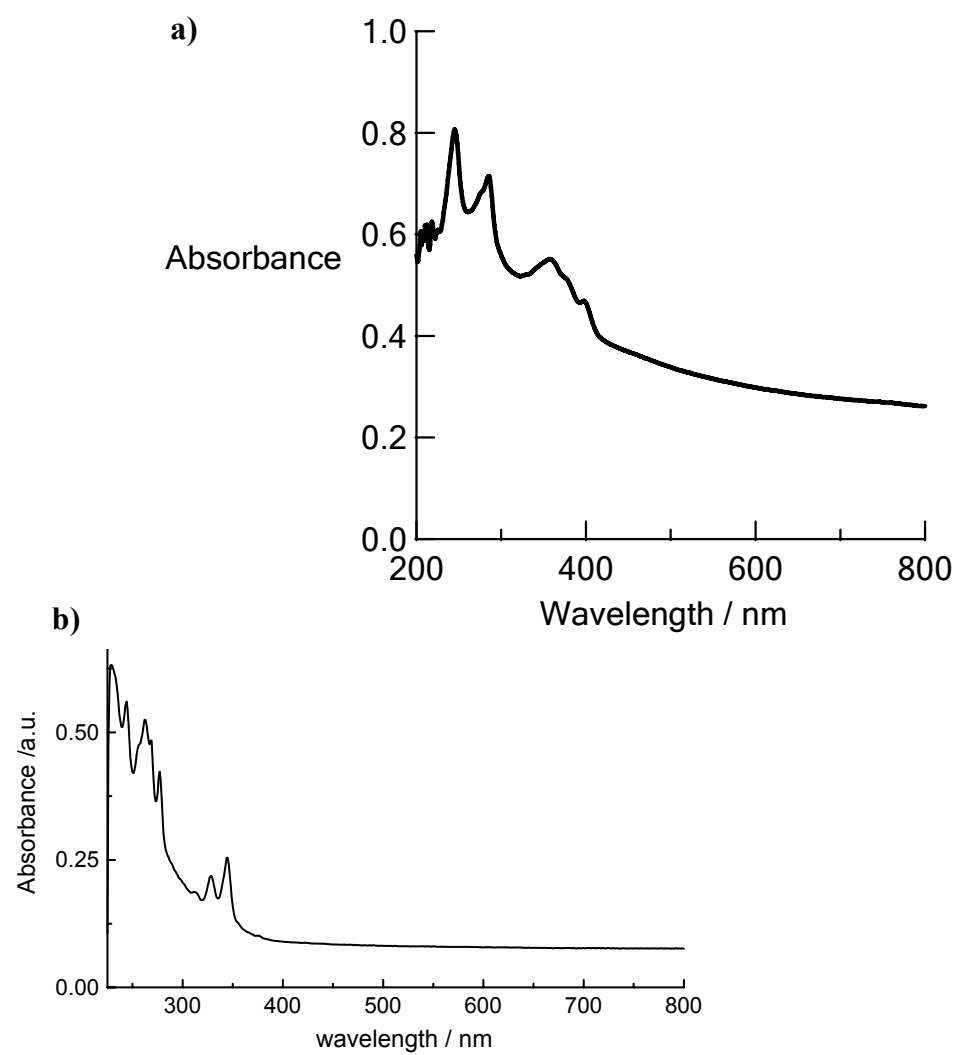
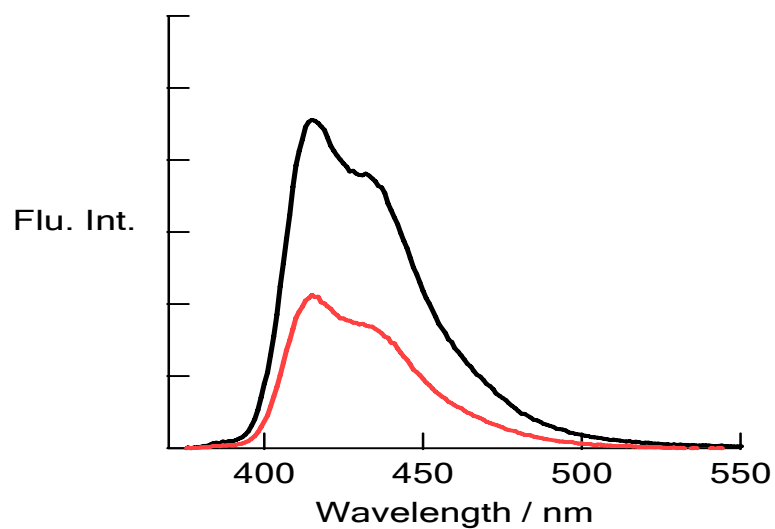


Figure S1: Electronic absorption spectra of a) nanohybrid 2 and b) nanohybrid 3.

a)



b)

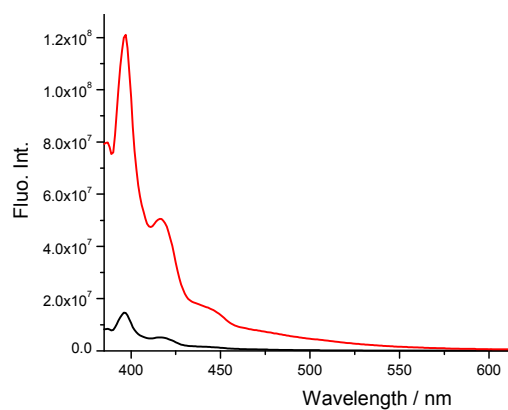


Figure S2: Steady-state fluorescence spectra of a) pyrene amine (black) and nanohybrid **2** (red) at $\lambda_{\text{exc.}} = 360$ nm, and b) pyrene butanol (red) and nanohybrid **3** (black) at $\lambda_{\text{exc.}} = 350$ nm.

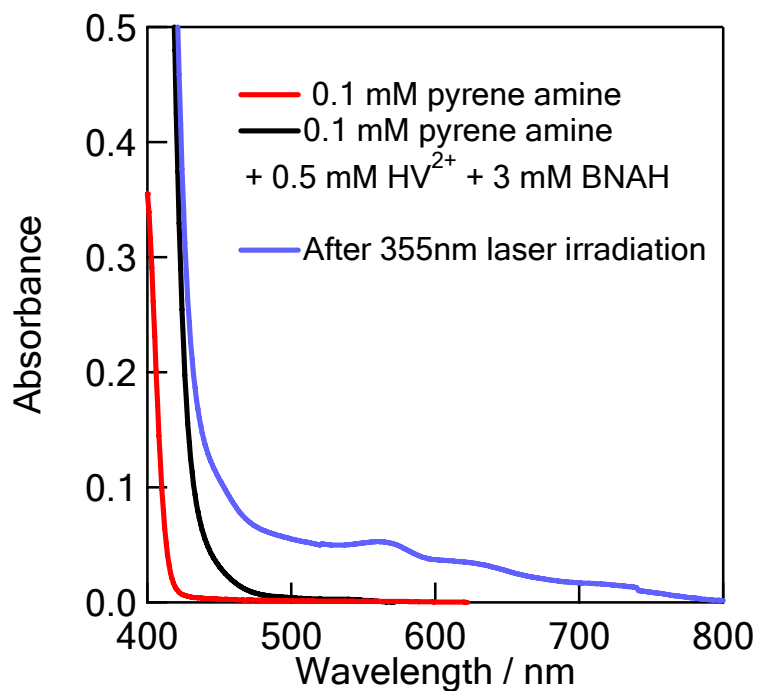


Figure S3: Steady-state absorption spectral changes of pyrene amine in the presence of 0.5 mM HV²⁺ and BNAH before and after repeated 355-nm laser light irradiation (ca. 3 mJ/pulse) in deaerated CH₂Cl₂.

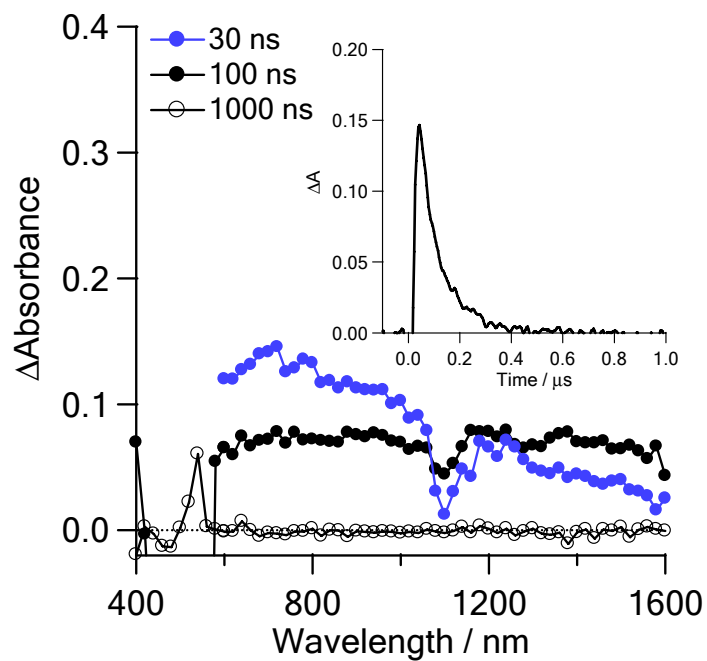


Figure S4: Nanosecond transient absorption spectra of nano hybrid **1** in the presence of BNAH (5mM) as observed upon 532-nm (ca. 3 mJ/ pulse) laser irradiation in deaerated CH_2Cl_2 . Inset: Absorption-time profile at 750 nm (emission in the 400-600 nm disturbed the observation of the transient absorption in this region).

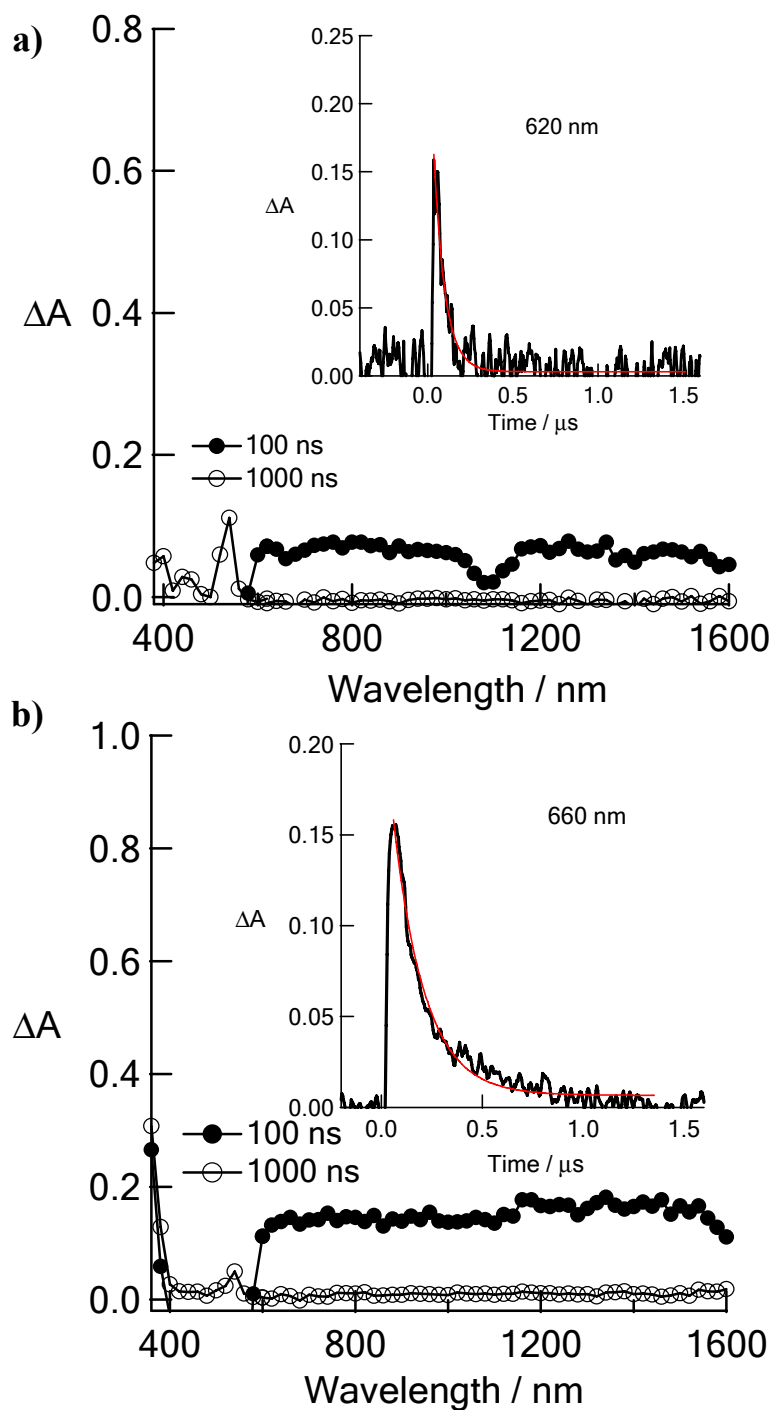


Figure S5: Nanosecond transient absorption spectra of nanohybrid (a) **2** and (b) **3** in the presence of BNAH (5mM) as observed upon 532-nm (ca. 3 mJ/ pulse) laser irradiation in deaerated CH_2Cl_2 . Inset: Absorption-time profiles (emission in the 400-600 nm disturbed the observation of the transient absorption in this region).