Electronic Supplementary Information (ESI)

Photoinduced electron transfer in supramolecular complexes of a π-extended viologen with porphyrin monomer and dimer

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Fig. S1. MALDI-TOF MS spectrum of BHV$^{2+}$ (ClO$_4$)$^{2-}$ using dithranol as a matrix.
Fig. S2. $^1$H NMR spectrum of BHV$^{2+}$(ClO$_4^-$)$_2$ in CD$_3$CN. The peak assignments are shown in the experimental section in SI.
Fig. S3 (a) UV-visible spectra of H₄(DR) (6.0 × 10⁻⁵ M) in the presence of various concentrations of BHV²⁺ (0 to 5.5 × 10⁻³ M) in PhCN. The arrows indicate the direction of change. Inset: Plots of the absorbance vs [BHV²⁺] at 500 nm. (b) Plots of [H₄(DR)]₀/[A₀-A₀] vs [BHV²⁺]⁻¹ at 650 nm.
Fig. S4. Fluorescence spectra of H₄(DPA) (6.0 × 10⁻⁵ M) in the presence of various concentrations of BHV²⁺ (0 to 5.5 × 10⁻³ M) in deaerated PhCN. The arrows indicate the direction of change. Inset: Plots of the fluorescence intensity at 680 nm vs. [BHV²⁺]. (b) Plots of [H₄(DPA)]₀/(I – I₀) vs. [BHV²⁺]⁻¹ at 680 nm.
Fig. S5. Differential pulse voltammograms of (a) H₄(DPA) (1.0 × 10⁻⁴ M), (b) BHV²⁺ (1.0 × 10⁻⁴ M), (c) H₄(DPA)H (1.0 × 10⁻⁴ M) with BHV²⁺ (6.0 × 10⁻³ M), and (d) H₄(DPA) (6.0 × 10⁻³ M) with BHV²⁺ (1.0 × 10⁻⁴ M) in deaerated PhCN containing 0.10 M TBAPF₆. Scan rate: 4 mV s⁻¹.
Fig. S6. (a) Second-order plots of the absorption at 640 nm of H$_2$TPP$^{\cdot+}$-BH$_V^{\cdot+}$ obtained upon nanosecond flash photolysis after laser excitation at 570 nm with different laser power (9.0, 3.4, 0.8 mJ/pulse) in deaerated PhCN at 298 K. (b) Second-order plots of the absorption at 640 nm of H$_4$(DPA)$^{\cdot+}$-BH$_V^{\cdot+}$ obtained upon nanosecond flash photolysis after laser excitation at 570 nm with different laser power (8.7, 3.3, 0.8 mJ/pulse) in deaerated PhCN at 298 K.