Counterion Effect on the Aggregation of Anionic Perylene Dyes and the Influence on Carbon Nanotube Dispersion Efficiencies

Claudia Backes, Torsten Schunk, Frank Hauke and Andreas Hirsch*

Supplementary Information

Absorption and Emission Spectra

pH = 7

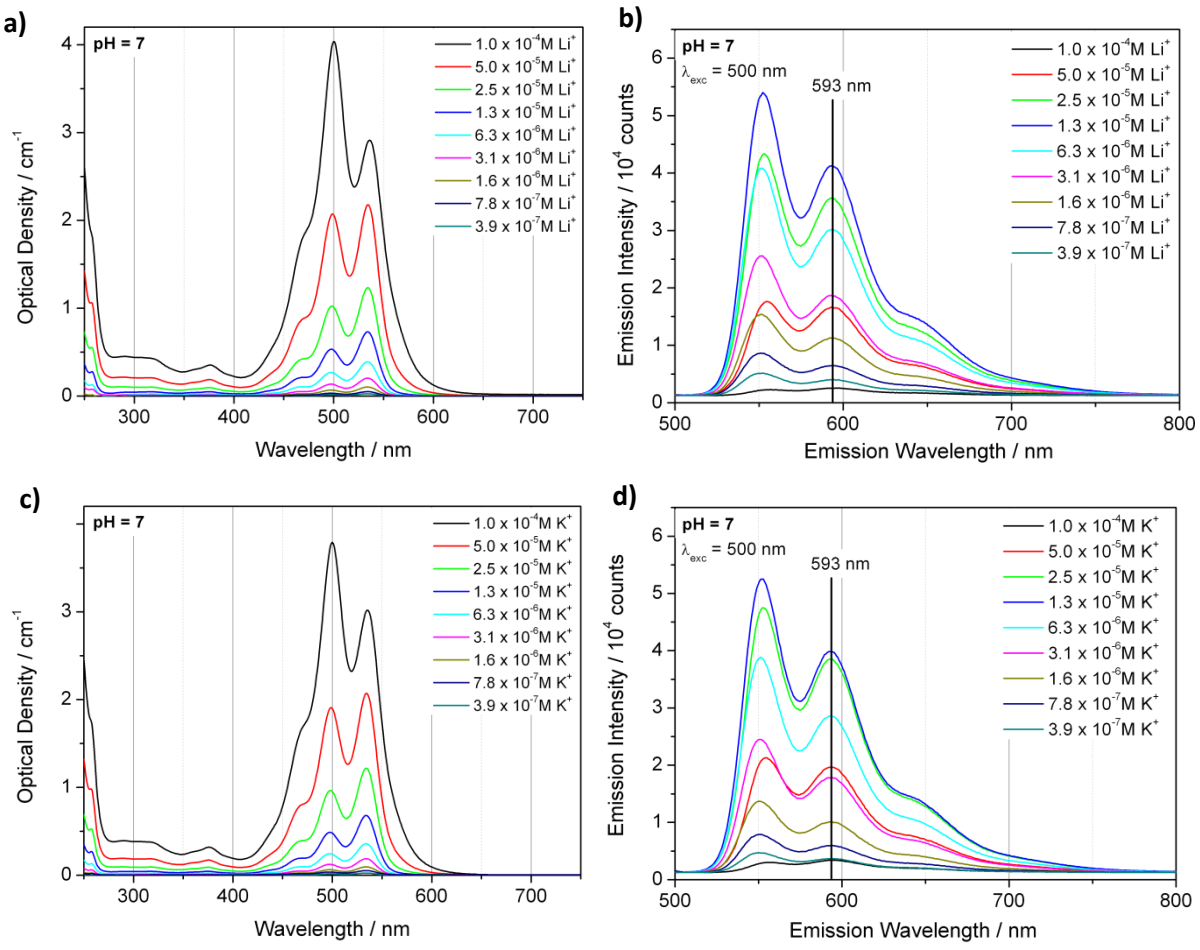

Figure S1: a,c) Absorption and b,d) emission spectra (λ_{exc} = 500 nm) of **1** at different concentrations with a, b) Li^+ and c,d) K^+ as counterion at pH = 7.

pH = 11

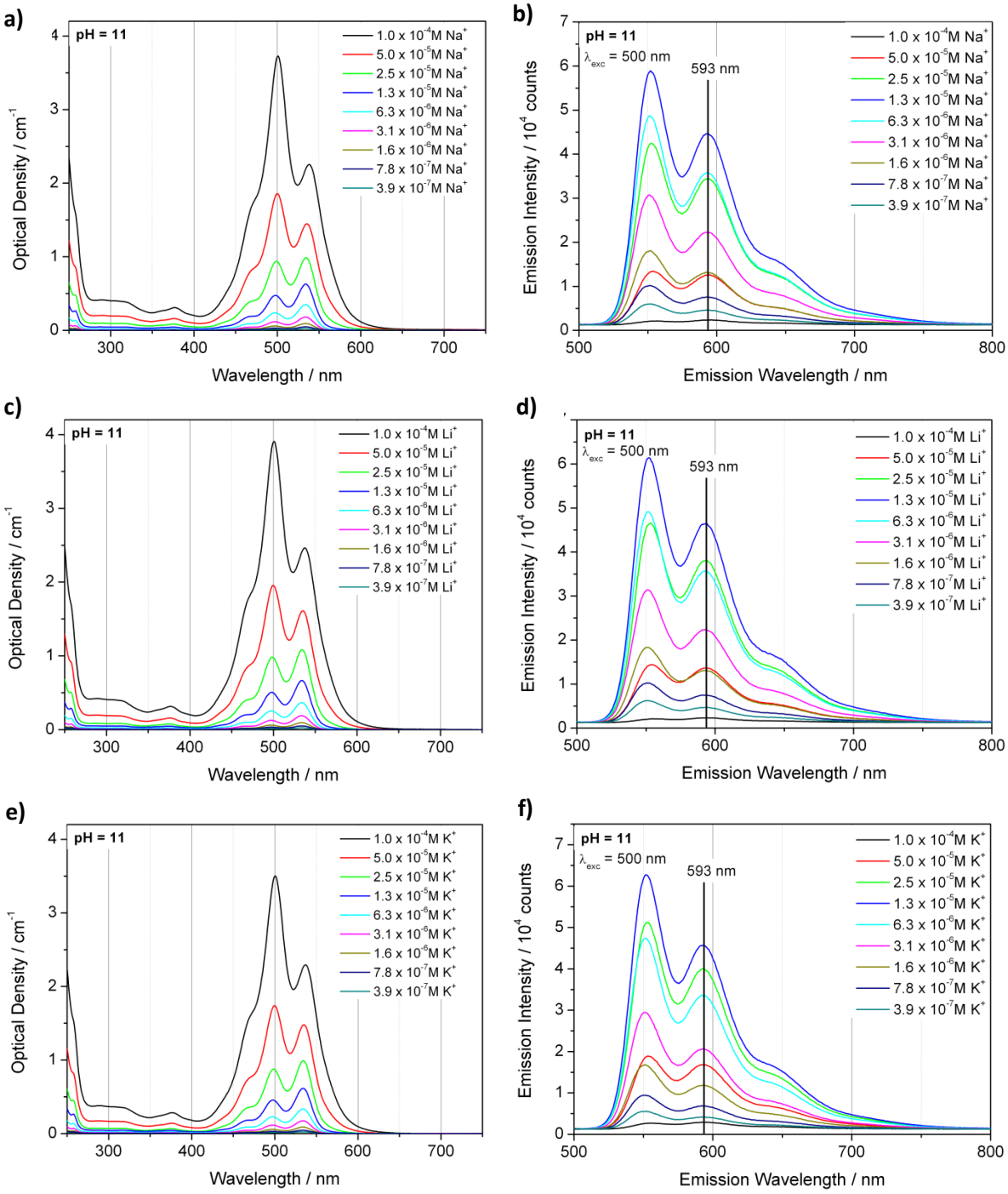

Figure S2: a,c,e) Absorption and b,d,f) emission spectra (λ_{exc} = 500 nm) of **1** at different concentrations with a, b) Na^+, c,d) Li^+ and e,f) K^+ as counterion at pH = 11.

Determination of the cmc from the Evolution of the Emission Intensity at 593 nm

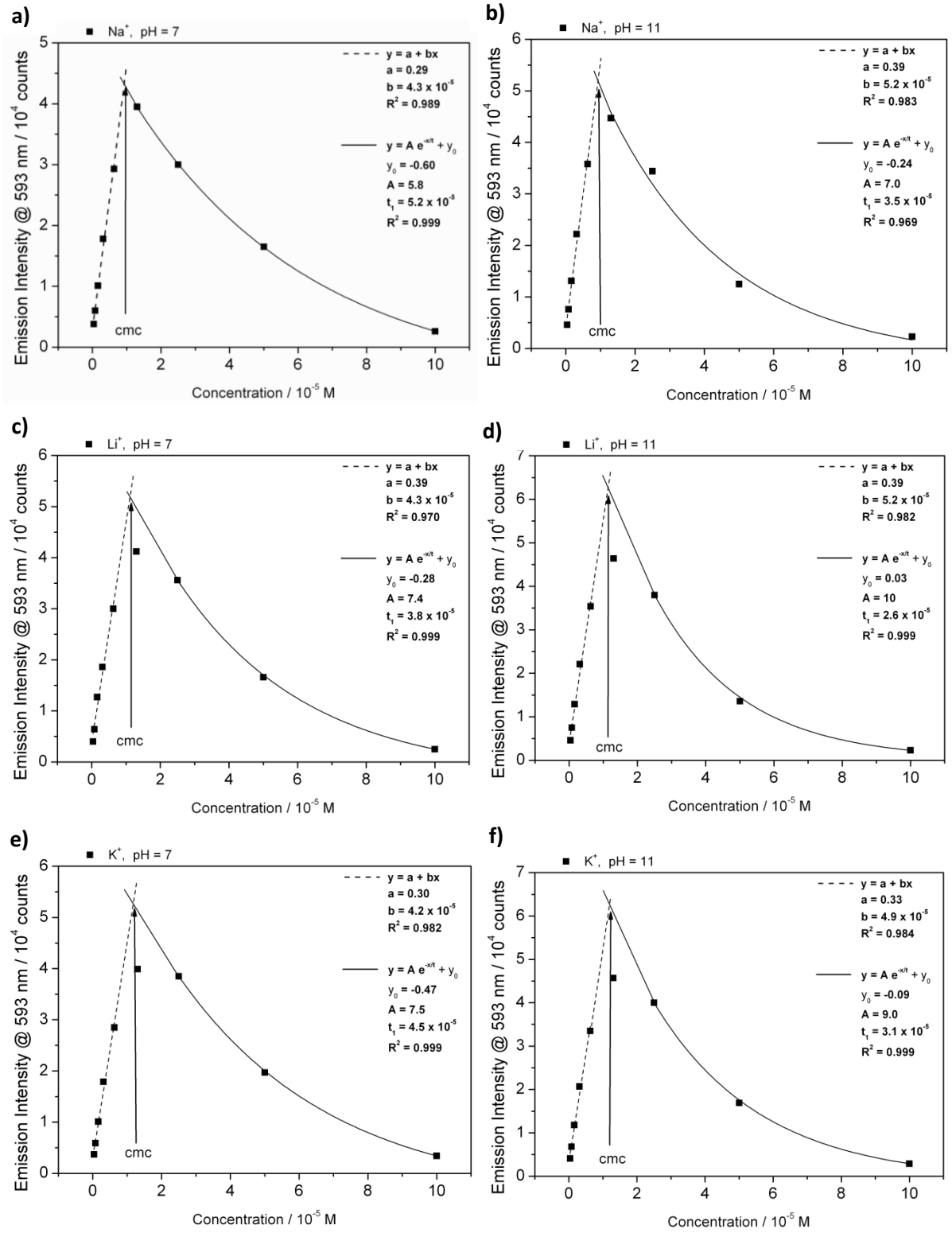

Figure S3: Determination of the critical micelle concentration (cmc) from the emission intensity at 593 nm where innerfilter effects are negligible, as outlined in the main text. a) Na^+, pH = 7, b) Na^+, pH = 11, c) Li^+, pH = 7, d) Li^+, pH = 11, e) K^+, pH = 7, f) K^+, pH = 11.

SWCNT Dispersion

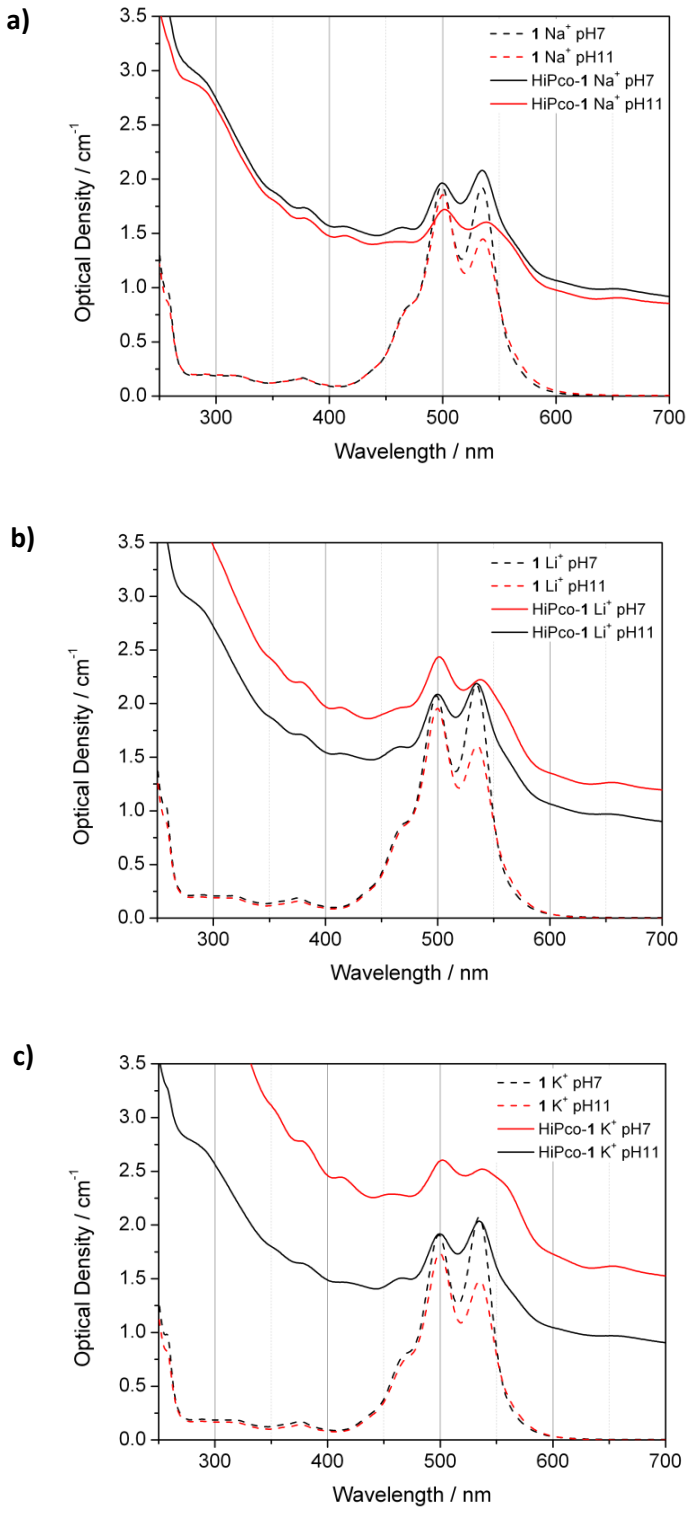

Figure S4: Absorption spectra of SWCNT dispersed by **1** ([**1**] = 5 x 10^{-5}M) at pH = 7 and pH = 11 with a) Na^+, b) Li^+ and c) K^+ as counterions (perylene transitions). All dispersions have been mildly centrifuged prior to acquisition of the spectra after sonicating SWCNTs (initial concentration of 0.1 g L^{-1}) in aqueous solutions of **1**.

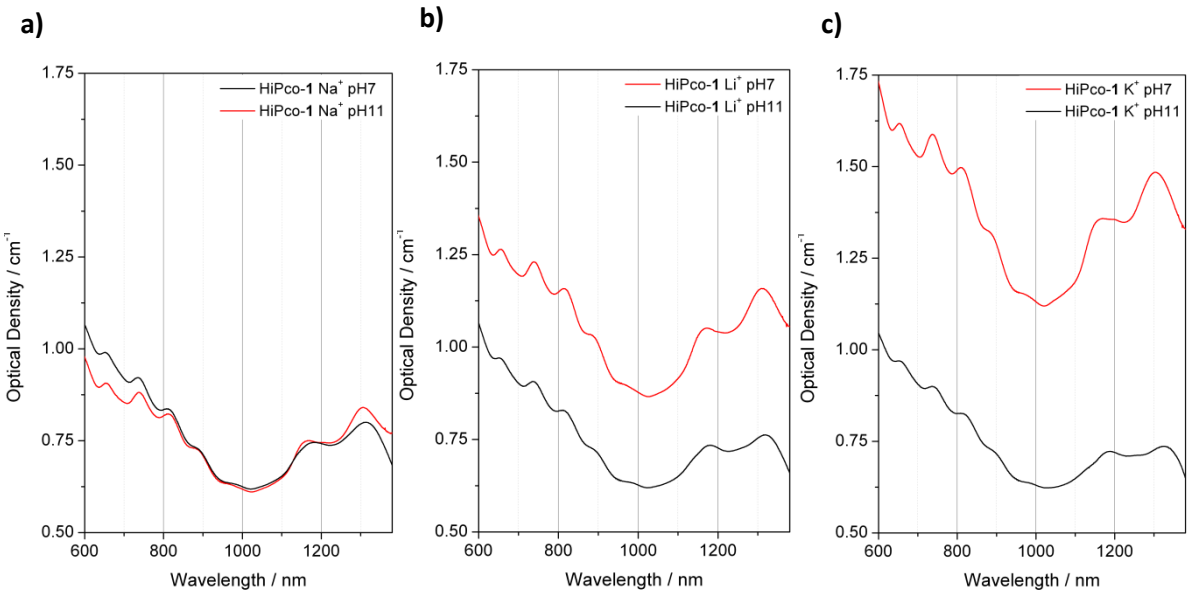

Figure S5: Absorption spectra of SWCNT dispersed by **1** ([**1**] = 5 x 10^{-5}M) at pH = 7 and pH = 11 with a) Na^+, b) Li^+ and c) K^+ as counterions (SWCNT transitions). All dispersions have been mildly centrifuged prior to acquisition of the spectra after sonicating SWCNTs (initial concentration of 0.1 g L^{-1}) in aqueous solutions of **1**.