Electronic Supplementary Information

Excimer and exciplex emissions of 1,8-naphthalimdes caused by aggregation in extremely polar or nonpolar solvents

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Experimental section

Materials

Details of the synthesis of the NI molecule (N-heptyl-1,8-naphthalimide (NI-C7)) and the dyads (N-(8-phenothiazinyloctyl)-1,8-naphthalimide (NI–C8–PTZ) and N-(11-phenothiazinylundecyl)-1,8-naphthalimide (NI–C11–PTZ)) are reported elsewhere.[1,2] The acetonitrile (CH3CN) used as a solvent was of fluorescence spectroscopic grade. Deionized water was used. b-CD and g-CD were purchased from TCI and used as received.

Measurements

Steady-state absorption and fluorescence spectra were measured using a UV-vis spectrophotometer (Shimadzu, UV-3101PC) and a fluorescence spectrophotometer (Varian, Cary Eclipse), respectively. The fluorescence quantum yields are measured by an absolute PL quantum yield spectrometer (Hamamatsu, Quantaurus-QY C11347-01). Time-resolved fluorescence spectra were measured by the single photon counting method, using a streak scope (Hama-matsu Photonics, C10627-03) equipped with a polychromator (Acton Research, SP2300). An ultrashort laser pulse was gener-ated with a Ti:sapphire oscillator (Coherent, Vitesse, FWHM 100 fs) pumped with a diode-pumped solid-state laser (Coherent, Verdi). High-power (1.5 mJ) pulses were generated with a Ti:sapphire regenerative amplifier (Coherent, Libra, 1 kHz). For excitation of the sample, the output of the Ti:sapphire regenerative amplifier was converted to 330 nm by an optical parametric amplifier (Coherent, TOPAS). The instrument response function was also determined by measuring the scattered laser light to analyze a temporal pro-file. This method gives a time resolution of about 50 ps after the deconvolution procedure. The temporal emission profiles were well-fitted into a single-exponential function. The residuals were less than 1.1 for each system.

References)

1. D. W. Cho, M. Fujitsuka, A. Sugimoto, U. C. Yoon, P. S. Mariano and T. Majima, *J. Phys. Chem. B*, 2006, **110**, 11062.

2. D. W. Cho, M. Fujitsuka, K. H. Choi, M. J. Park, U. C. Yoon and T. Majima, *J. Phys. Chem. B*, 2006, **110**, 4576.