Electronic Supplementary Information for:

Fluorescence Modulation by Fast Photochromism of [2.2]Paracyclophane-Bridged Imidazole Dimer Possessing a Perylene Bisimide Moiety

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1. ¹H NMR Spectra



















2. HR-ESI-TOF-MS



Fig. S10 HR-ESI-TOF MS spectra of 12.



Fig. S11 HR-ESI-TOF MS spectra of 1.

3. HPLC Chromatograms



Fig. S12 HPLC chromatograms of **1**; 95 % purity. HPLC analysis was performed using a normal phase analytical column (Mightysil Si, 25 cm \times 4.6 mm, 5 μ m particle) from Kanto Chemical Industries, equipped with a PDA detector (JASCO, MD-2018); the mobile phase was CH₂Cl₂:AcOEt:MeOH = 5:1:0.06 with a flow rate of 1.0 mL/min, inject volume; 1 μ L.

4. Fluorescence Excitation Spectra



Fig. S13 Fluorescence excitation spectra of 1 and 2 in benzene.

5. Fluorescence Lifetime Measurement



Fig. S14 Fluorescence lifetime of (a) **1** and (b) **2** excited at 540 nm in several solvents at ambient temperature.



Fig. S15 Fluorescence lifetime of (a) 1 and (b) 2 excited at 365 nm in benzene at ambient temperature.



Fig. S16 Non-radiative rate constant of 1 vs dielectric constant plots.

6. Solvent Dependence



Fig. S17 Solvent dependence of the UV-vis absorption spectra of 1.



Fig. S18 Solvent dependence of the UV-vis absorption spectra of 2.



Fig. S19 Time profile of the transient absorbance at 400 nm of **1** after 355 nm laser excitation in polar solvents at 298 K.



Fig. S20 Time profile of the fluorescent intensity at 605 nm of **1** after 355 nm laser excitation in polar solvents at 298 K.

7. Kinetics of Thermal Back Reaction

izene		
T / °C	k / s^{-1}	
5	6.57	
10	9.50	
15	14.53	
20	25.08	
25	33.06	
30	53.28	
35	80.48	
40	121.09	

 Table S1 First Order Rate Constants for the Thermal Back Reaction of 1

 in Benzene



Fig. S21 First order kinetic profiles of the biradical species **1R** monitored at 400 nm in degassed benzene (**1**: 6×10^{-6} M, light path length: 10 mm). The measurements were performed in the temperature range from 5 °C to 40 °C.



Fig. S22 Eyring plot for the thermal back-reaction of the colored species 1R.



Fig. S23 Decay kinetic profiles of the biradical species of **1** doped in the polymer film (poly(methyl metacrylate) (PMMA)/tricresyl phosphate (TCP) = 2/3) at 298 K.