

Electronic Supplementary Information

Competing adiabatic and nonadiabatic pathways in the cis-trans photoisomerization of *cis*-1,2-di(1-methyl-2-naphthyl)ethene

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Electronic Supplementary Information Available: Figures giving the T dependence of MCH density (Fig. 1S, Table 1S), the typical fluorescence intensity dependence of emission from *c*-D-1-MNE solutions on excitation intensity (Fig. 2S), typical fluorescence decay profiles following pulsed excitation (Fig. 3S) and the dependence of the *t*-D-1-MNE fluorescence spectrum on excitation wavelength (Fig. 4S).

Table 1S: MCH Density Dependence on T^a

$t, ^\circ\text{C}$	d^a	$t, ^\circ\text{C}$	d^a
-95.1	0.86893	25	0.764697
-63.5	0.84144	29.95	0.76046
-45.2	0.82561	45.2	0.74702
-22.9	0.80638	60.7	0.7336
0	0.78658	79.75	0.7166
15	0.773465	99.5	0.69825

^a Egloff, G. *Physical Properties of Hydrocarbons*, Reinhold: New York, 1939 Vol. 1.

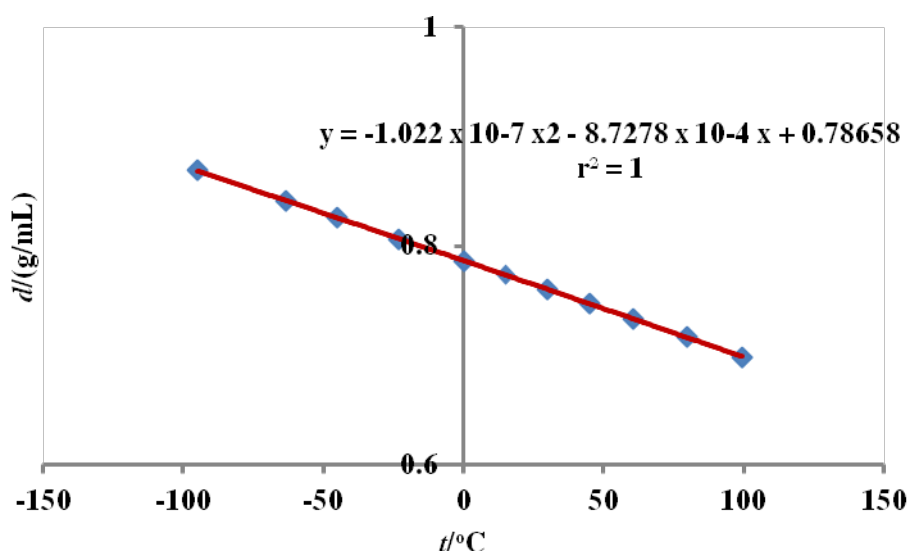
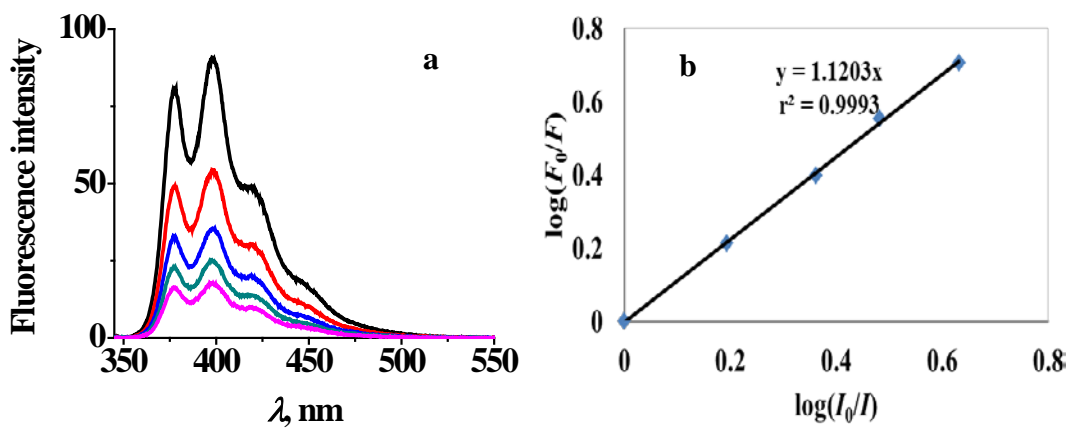


Figure 1S. Quadratic fit of MCH density dependence on T (data from Table 2S).



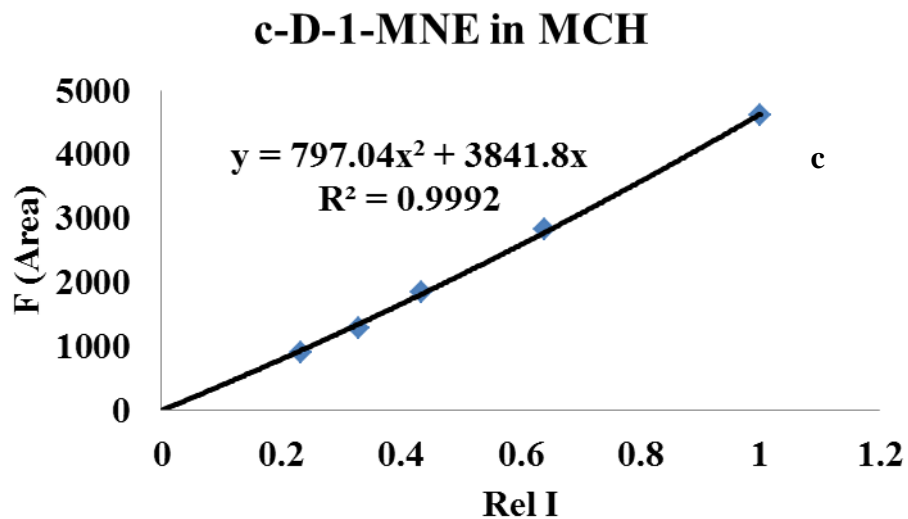


Fig. 2S. a) Typical results of fluorescence spectra from a *c*-D-1-MNE solution in MCH as a function of neutral density filter absorbance. b) The log-log plot of relative fluorescence area to relative incident light intensity (25.0 °C, $\lambda_{\text{exc}} = 313$ nm, 1.00 cm cell). c) Quadratic plot of fluorescence area vs. relative excitation intensity.

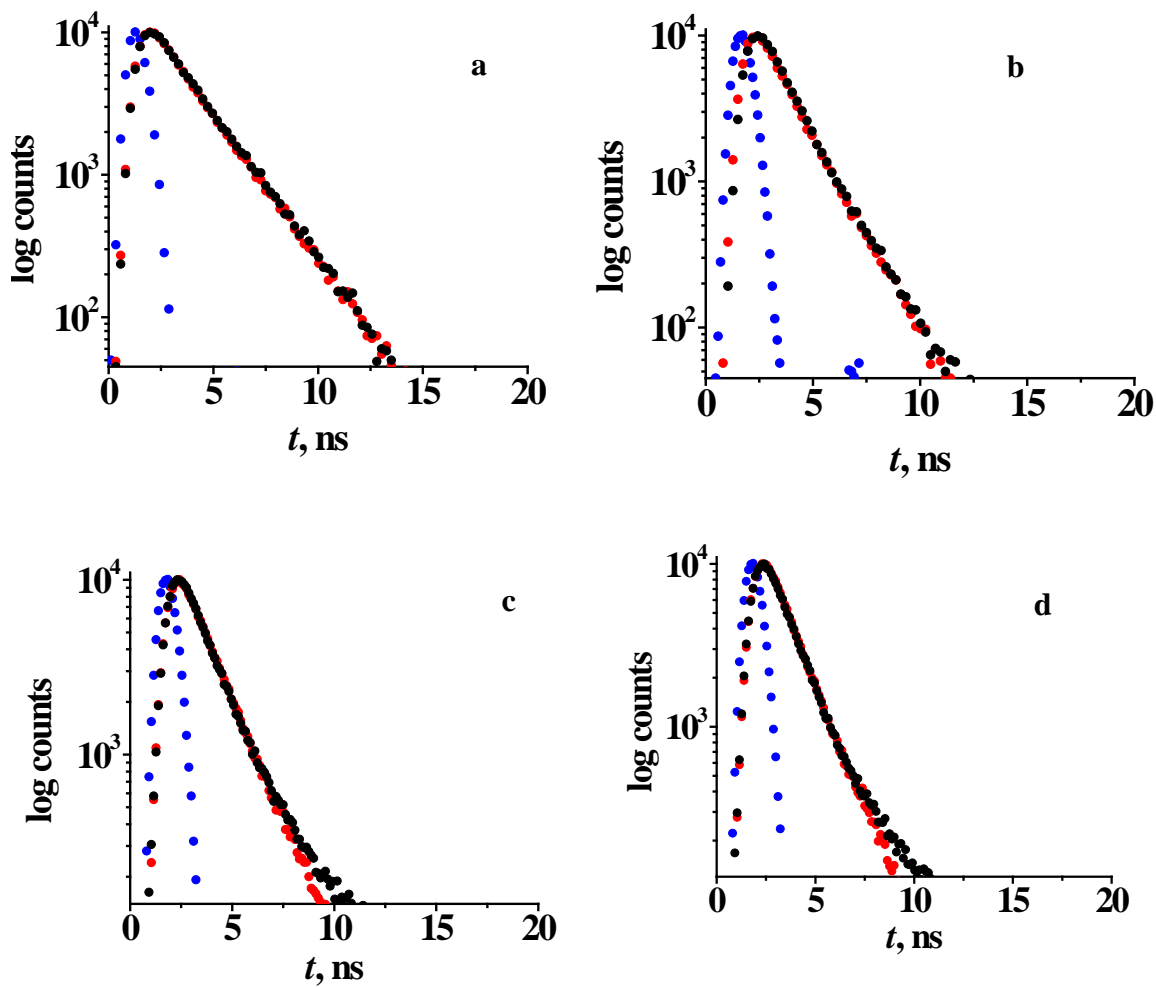


Fig. 3S. Emission decay profiles of *c*- (black) and *t*-D-1-MNE (red) in argon saturated MCH (a), TOL (b), AN (c) and DMSO (d) ($T = 23.4$ °C, $\lambda_{\text{exc}} = 295$ nm, $\lambda_{\text{mon}} = 400$ nm, prompt is shown in blue).

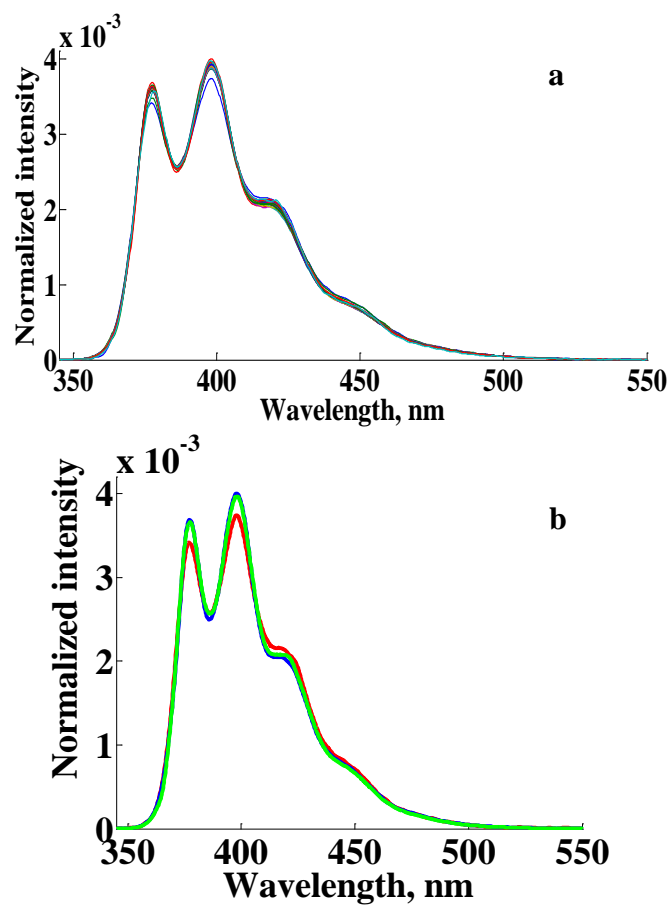


Fig. 4S. a) Normalized (with respect to area) emission spectra of *t*-D-1-MNE in MCH at different excitation wavelengths ($\lambda_{\text{exc}} = 260 - 375$ @ 5 nm interval, 25.0 °C, 1.0 cm standard quartz cell); b) Spectra for $\lambda_{\text{exc}} = 260$ nm (red), 270 nm (blue) and 365 nm (green), illustrating the maximum observed variation.