

Supporting Information for:

Confined fast and ultrafast dynamics of a photochromic proton-transfer dye within a zeolite nanocage

Michał Gil ¹, Marcin Ziółek ^{1,2}, Juan Angel Organero ¹ and Abderrazzak Douhal ^{1 *}

¹ *Departamento de Química Física, Sección de Químicas, Facultad de Ciencias del Medio Ambiente, Universidad de Castilla-La Mancha, Avda. Carlos III, S.N., 45071 Toledo, Spain*

² *Quantum Electronics Laboratory, Faculty of Physics, Adam Mickiewicz University, Umultowska 85, 61-614 Poznan, Poland*

Corresponding author.: Abderrazzak.douhal@uclm.es, fax: +34 926 268840.

Table S1. Values of the emission decay time constants (τ_i) and their normalized amplitudes (A_i) at different emission wavelengths obtained from a global fit (3-exponential, $\chi^2 < 1.1$) of the fluorescence decays of SAA in DCM solution upon excitation at 371 nm.

$\lambda_{\text{emiss.}} / \text{nm}$	$\tau_1 < 10 \text{ ps}$	$\tau_2 = 58 \text{ ps}$	$\tau_3 = 1.2 \text{ ns}$
	$A_1 / \%$	$A_2 / \%$	$A_3 / \%$
450	97	2	1
490	70	29	1
520		100	
550		100	
600		100	
650		100	
690		100	

Table S2. Effect of the initial SAA concentration in the synthesis of the SAA/NaX composite on the ps - ns fluorescence decays after excitation at 433 nm and observed at 480 nm. The values of decay times (τ_i) and normalized (to 100) fractional contributions ($C_i = \tau_i \times A_i$; where A_i is pre-exponential factor) are from the multiexponential fit.

dilution / 1:X	τ_1 / ns	C_1 / %	τ_2 / ns	C_2 / %	τ_3 / ns	C_3 / %
1	0.18	16	0.9	42	2.7	42
10^2	0.18	10	1.0	37	3.1	53
10^3	0.18	4	1.3	29	4.2	67
10^4	0.17	2	1.2	28	4.4	69
10^5	0.23	3	1.4	25	4.8	72

Figure S1. Changes in the relative diffuse transmittance intensities of SAA zwitterion and enol bands during consecutive cleaning of SAA/NaX composite with pure DCM. The absorption spectrum of SAA in DCM solution (—•—) is shown for reference.

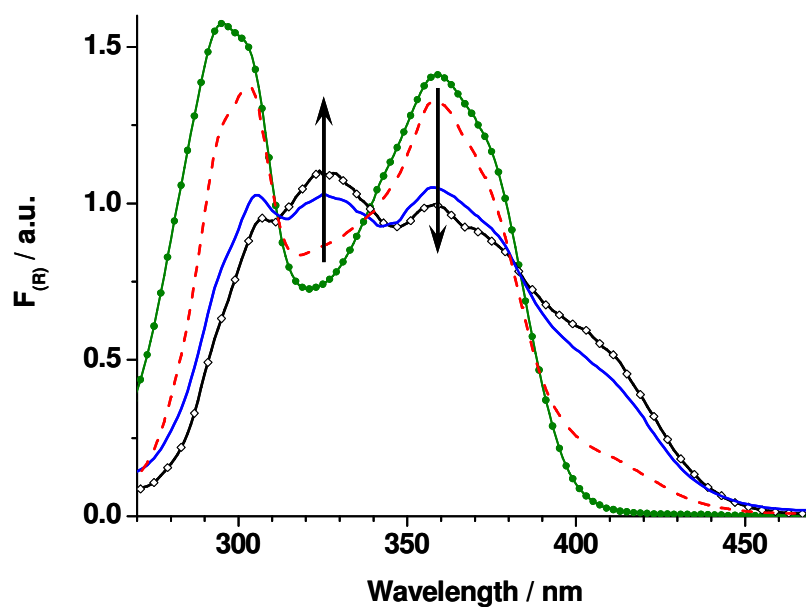


Figure S2. Emission spectra of SAA/NaX composite in DCM suspension upon excitation at 330 (---), 370 (—) and 410 (—○—) nm.

