Supplementary information

Tunable emission in dye-doped truxene-based organogels through RET

Juan F. Galisteo-López†, Sandra Gómez-Esteban, Berta Gómez-Lor*, Cefe López*

Instituto de Ciencia de Materiales de Madrid, c/Sor Juana Inés de la Cruz 3, 28049 Cantoblanco (Madrid). Spain

*juan.galisteo@csic.es, bgl@icmm.csic.es

† Present address: Instituto de Ciencia de Materiales de Sevilla (ICMSe-CSIC), c/Américo Vespucio 49, 49092 (Sevilla). Spain

Lifetime measurements:

Time resolved PL decays were collected at wavelengths corresponding to the monomer (grey) and excimer bands (black circles) of a gel corresponding to λ=427 and 540 nm respectively. Data were best fit with a double exponential model:

$$I(t) = I_0 + A_1 \cdot e^{-t/\tau_1} + A_2 \cdot e^{-t/\tau_2}$$

with the following parameters for the monomer and the excimer species.

	A_1	τ_1	A_2	τ_2
Monomer	0.82	0.7 ns	0.14	4.05 ns
Excimer	0.66	0.95 ns	0.34	4.35 ns

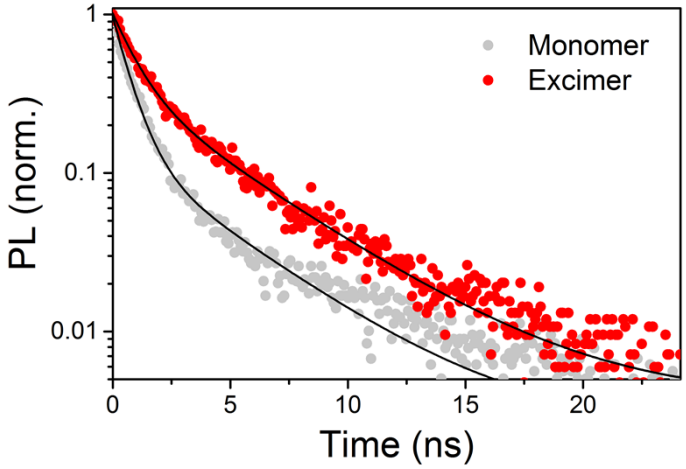

Fig. S1: Time resolved PL decays for the monomer (grey) and excimer (red dots) together with fits to a bi-exponential model (lines).

Photoluminescence spectra:

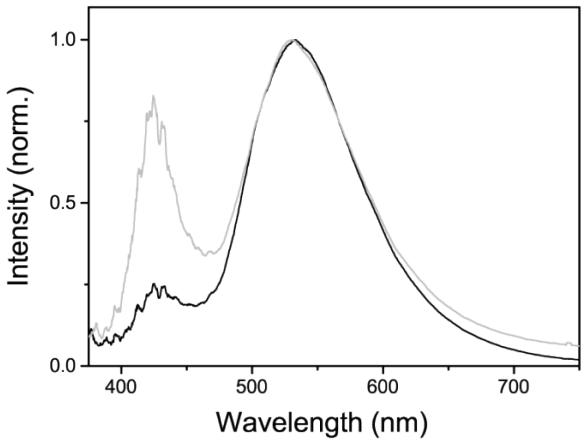

Fig. S2: Normalized PL spectra of a truxene based organogel (grey curve) and the xerogel resulting from room temperature evaporation of the solvent (black curve).

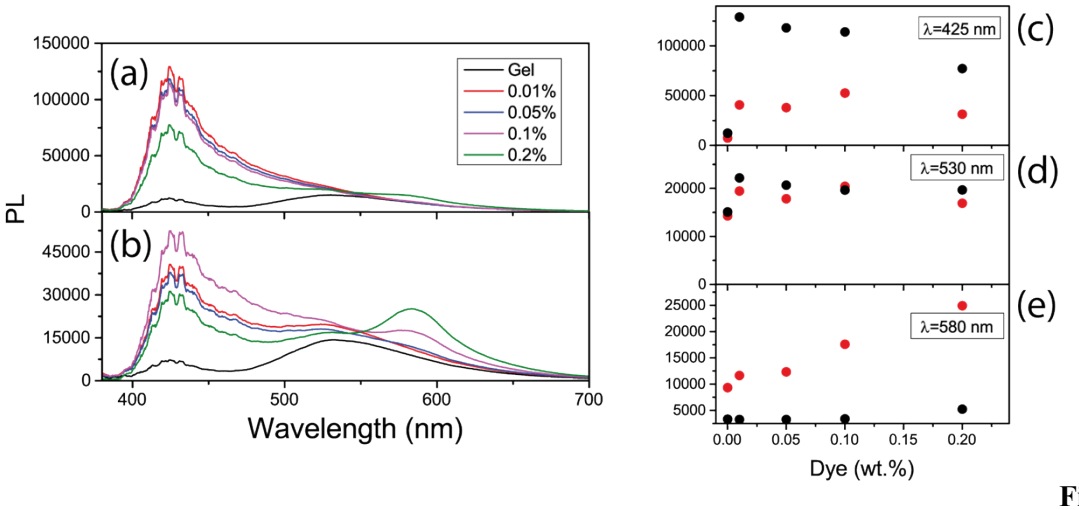

Fig. S3: PL spectra of gels containing different amounts of Rhodamine B before (a) and after (b) illumination with λ=355nm for ca. 7 minutes. (c)-(e) Shows evolution of monomer (λ=425nm), excimer (λ=530nm) and Rhodamine B (λ=580nm) PL peak intensity with Rhodamine B concentration before (black) and after (red dots) illumination.

Scanning electron microscopy images:

Images were obtained with a Field Emission Scanning Electron Microscope (FE-SEM) FEI NOVA NANOSEM 230, with vCD detector and SIMATZU S-8000 with field emission filament.

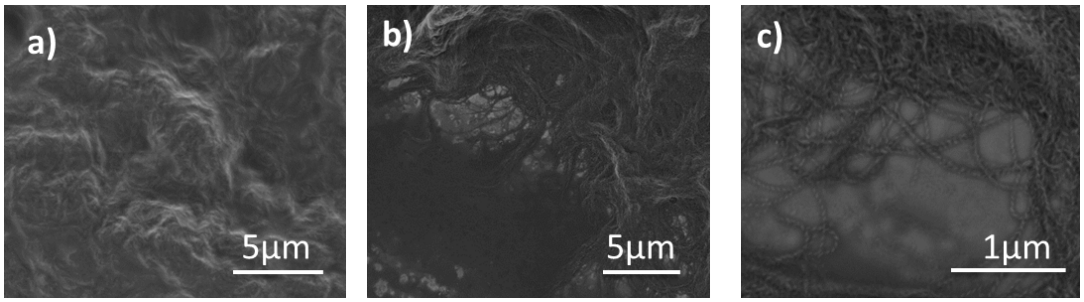

Fig. S4: SEM images of a bare xerogel (a) and a xerogel containing 0.01 mol % of RhB (b,c).

X-ray diffraction from xerogels:

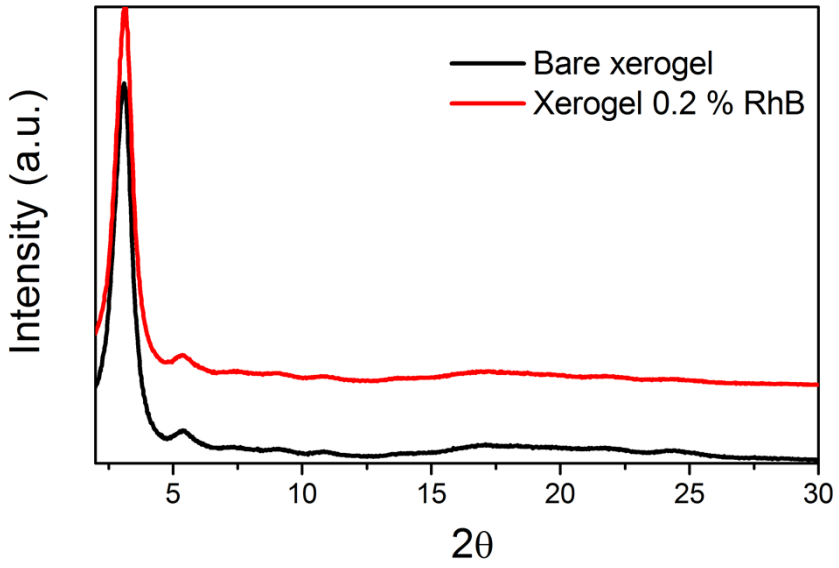

Fig. S5: X-ray diffractograms from a bare xerogel (black) and a xerogel containing 0.2% wt. RhB (red curve).

Slow dynamics of photoluminescence:

The time evolution of the organogel (bare and doped with organic dye RhB) was monitored upon UV illumination.

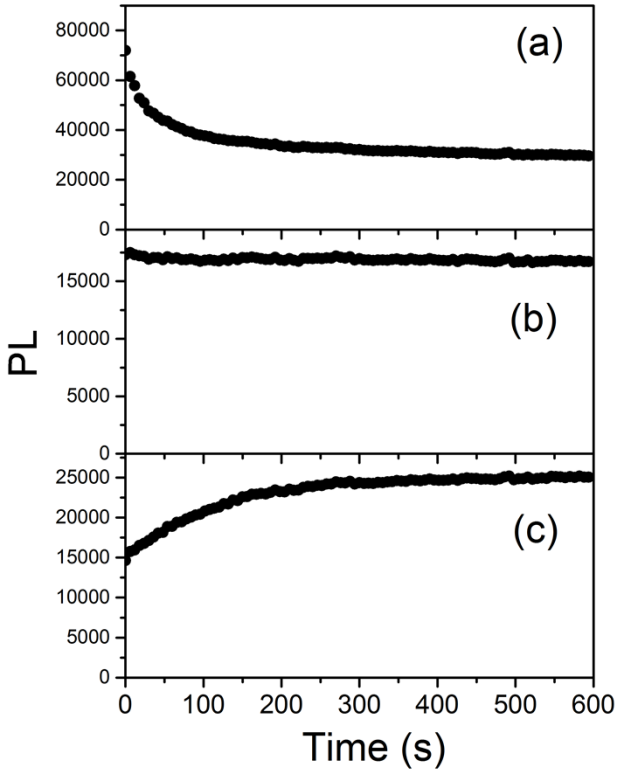

Fig. S6: Time evolution of the PL intensity of an organogel containing 0.2% wt. RhB for three wavelengths corresponding to the (a) monomer band at 428nm, (b) excimer band at 530nm and (c) RhB at 580nm.

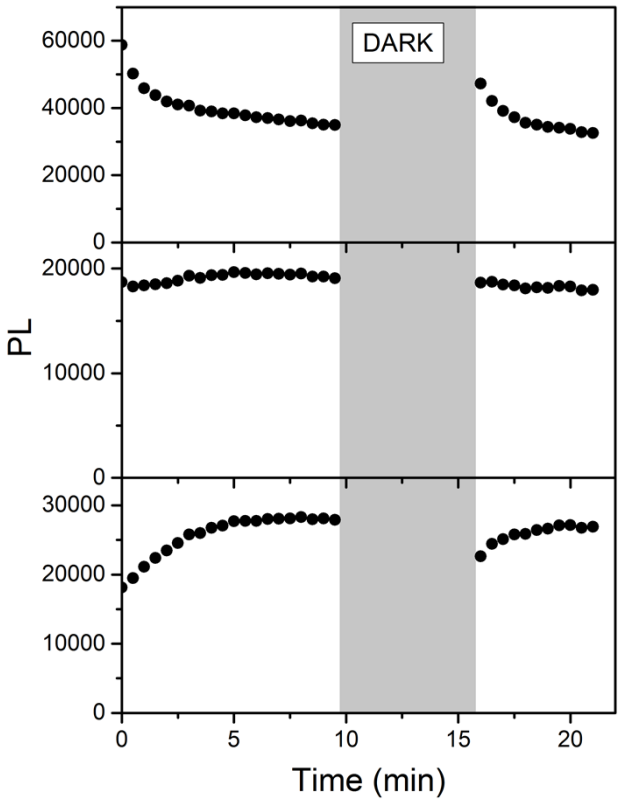

Fig. S7: Time evolution of the PL intensity of an organogel containing 0.2% wt. RhB for three wavelengths corresponding to the (a) monomer band at 428nm, (b) excimer band at 530nm and (c) Rhodamine B at 580nm. The grey band shows the time interval during which the sample was not illuminated.

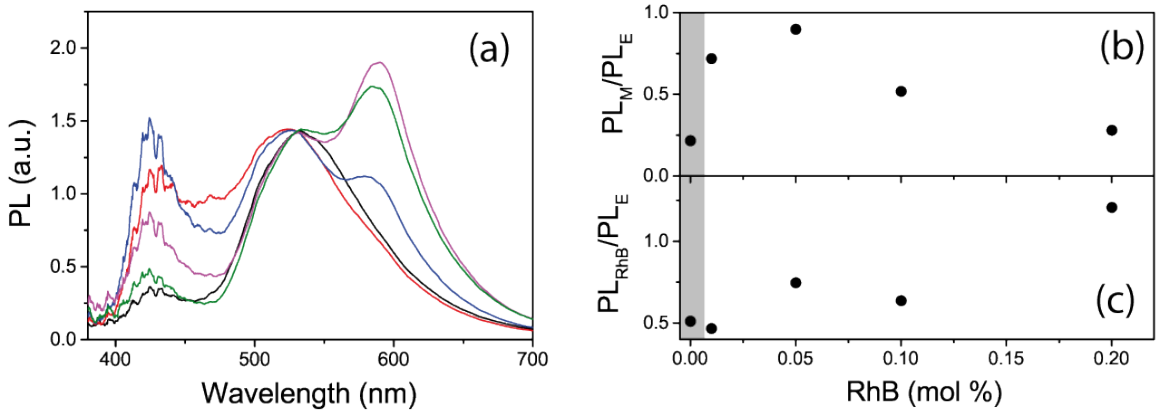

Fig. S8: (a) PL spectra of xerogels containing different amounts of RhB: 0 (black), 0.01 (red), 0.05 (blue), 0.1 (magenta) and 0.2 %wt. (green curve). All spectra have been normalized to the emission of the excimer. (b) Ratio between the PL of the monomer and excimer species. (c) Ratio between the PL of the RhB and excimer. Grey band in (b) and (c) corresponds to the bare xerogel.