

Zr-based MOFs Photochemistry: Ligand-to-Cluster Charge Transfer, Energy Transfer and Excimer Formation, What Else is There?

Mario Gutierrez,¹ Boiko Cohen,¹ Félix Sánchez,² Abderrazzak Douhal^{1*}

¹Departamento de Química Física, Facultad de Ciencias Ambientales y Bioquímica, and INAMOL,
Universidad de Castilla-La Mancha, Avenida Carlos III, S.N., 45071 Toledo, Spain.

²Instituto de Química Orgánica, CSIC, Juan de la Cierva, 3, 28006 Madrid, Spain.

*Corresponding author at Universidad de Castilla-La Mancha.

Tel.: +34 925 265717; E-mail address: abderrazzak.douhal@uclm.es

Figure S1. Room temperature μ s-transient absorption decays of NDC linker in solutions of A) DCM, B) DMF, under normal, N_2 and O_2 saturated conditions. The excitation and observation wavelengths were 355 nm, and 420 nm, respectively. The solid lines are from the best multiexponential fits.

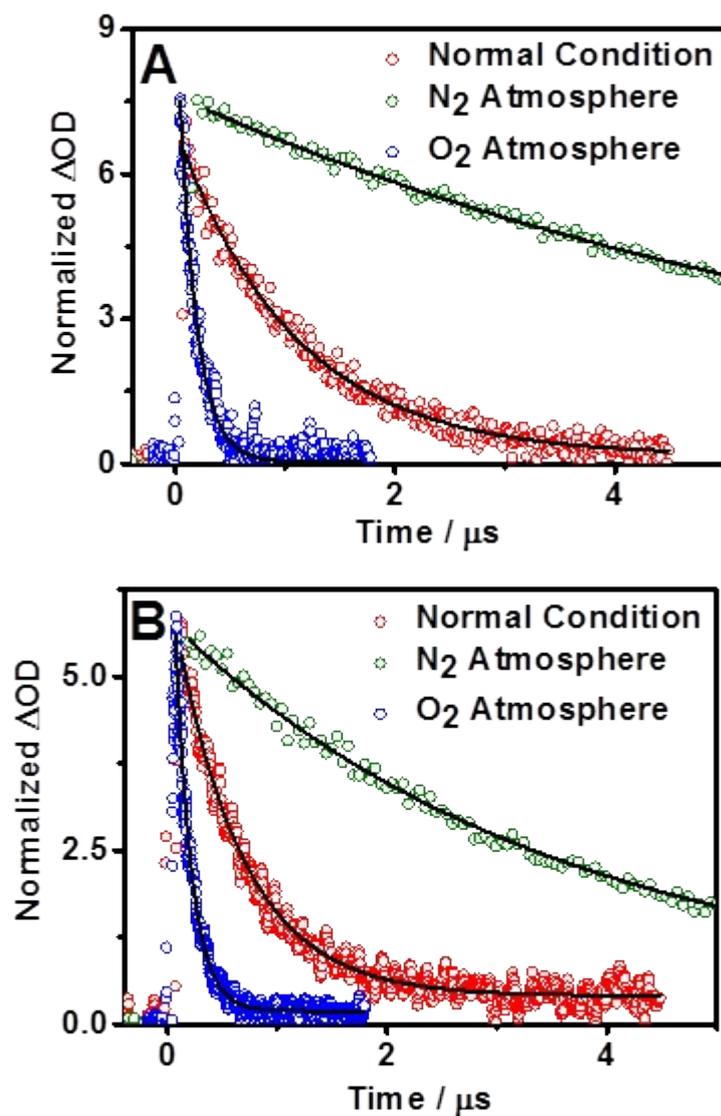


Figure S2. μ s-transient absorption decays of NADC linker in DCM solutions under A) normal, B) and C) N_2 and O_2 saturated conditions, respectively. The excitation wavelength was 410 nm, while the observation ones are indicated in the inset. The solid lines are from the best multiexponential fits.

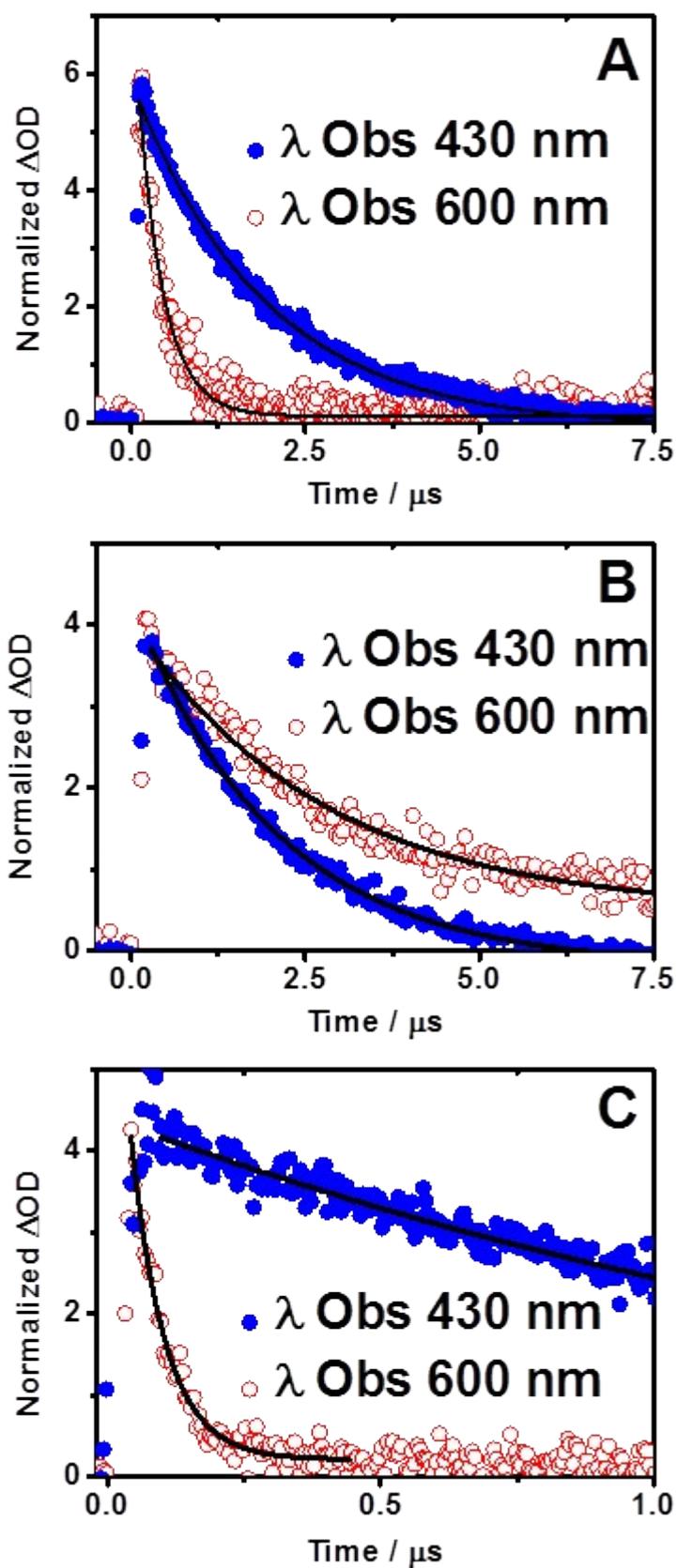


Figure S3. μ s-transient absorption decays of (A) Zr-NDC and (B), (C) Zr-NADC in DMF suspensions. Figure (C) is a logarithmic representation showing the biexponential behavior of the decays. The excitation wavelength was 355 nm, while the observation ones are indicated in the inset. The solid lines are from the best multiexponential fits.

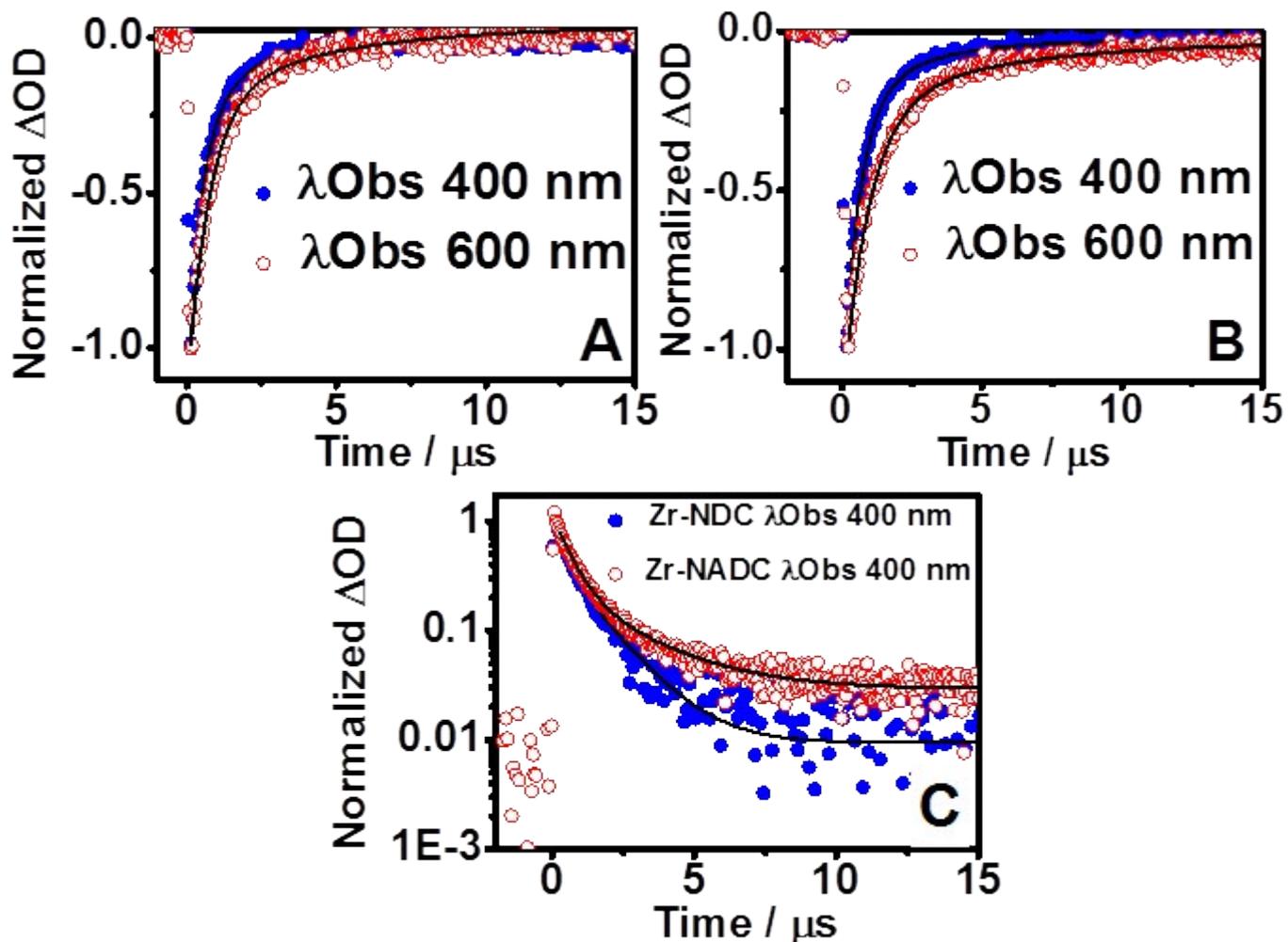


Figure S4. μ s-transient absorption decays of (A) Zr-NDC and (B) Zr-NADC in DCM suspensions. The excitation wavelength was 355 nm, while the observation ones are indicated in the inset. The solid lines are from the best multiexponential fits.

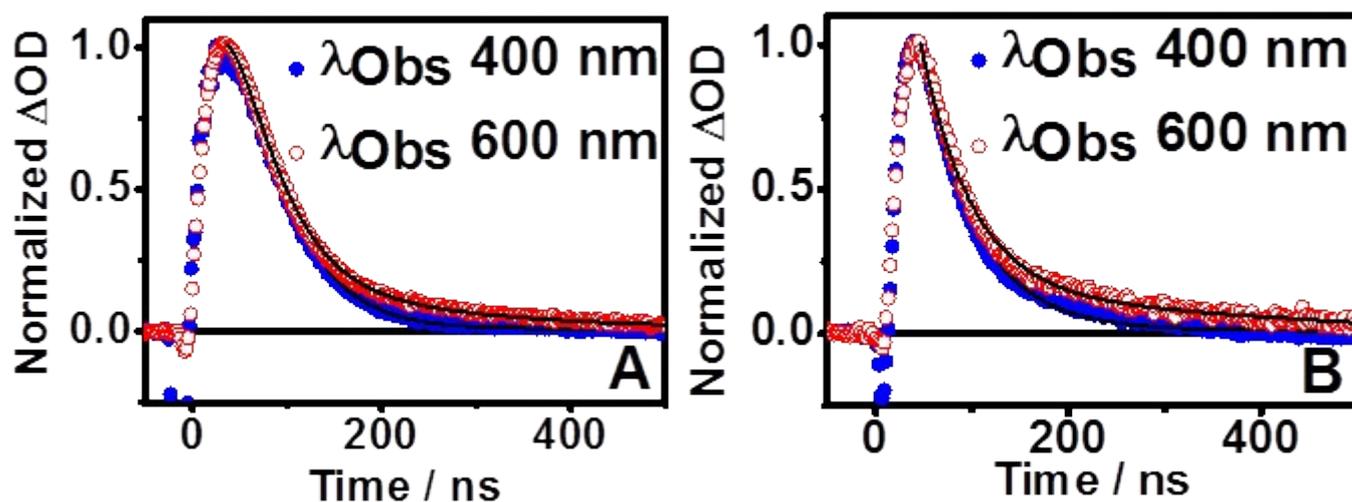
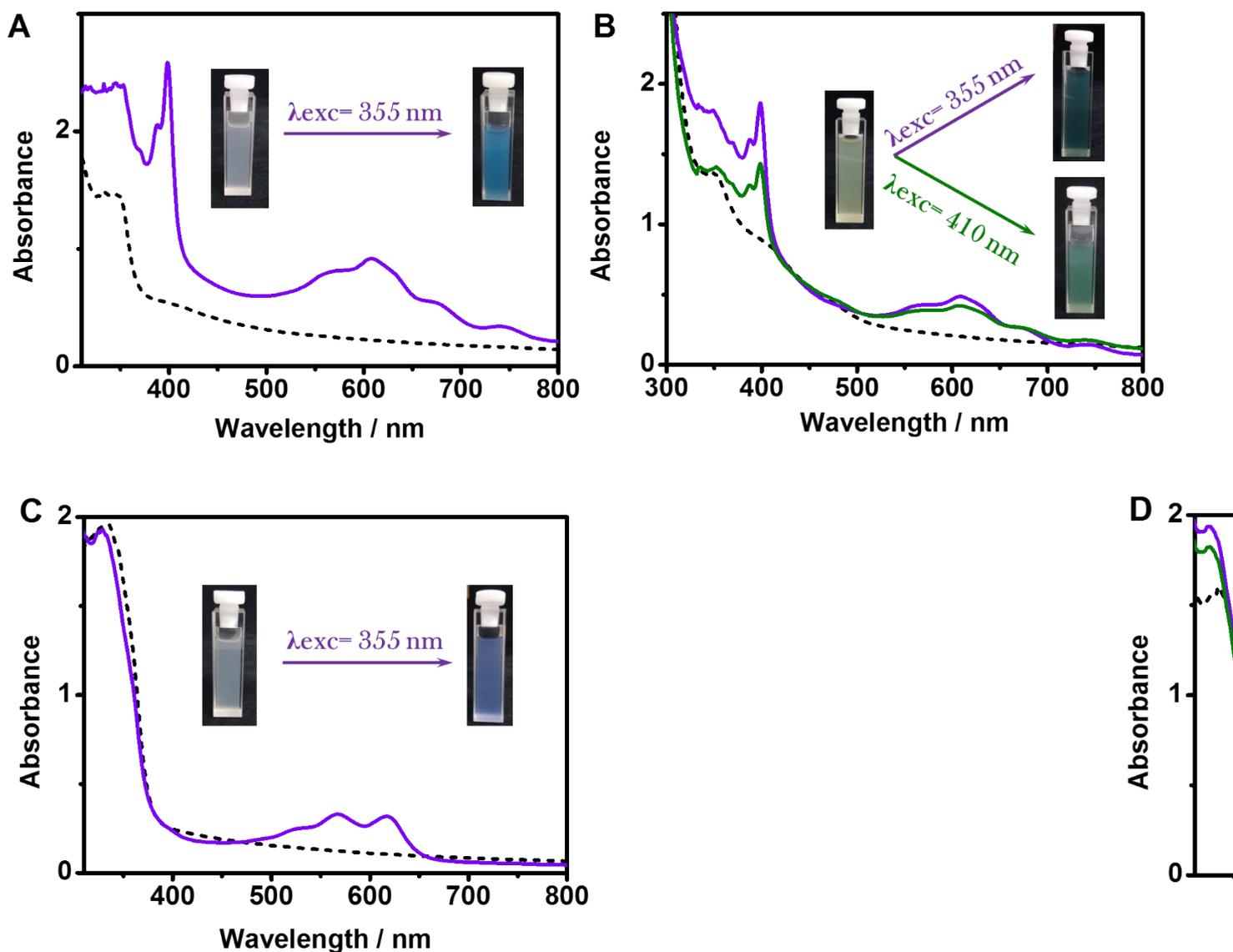


Figure S5. UV-visible absorption spectra of a saturated solution of MV^{2+} in DMF containing (A) Zr-NDC and (B) Zr-NADC MOFs, before (dashed spectrum) and after irradiation at the indicated wavelengths. (C) and (D) are the UV-visible absorption spectra of (C) Zr-NDC and (D) Zr-NADC DCM suspensions in presence of TMPD, before (dashed spectrum) and after irradiation at the indicated wavelengths.



Acknowledgments

This work was supported by the MINECO and JCCM through projects MAT2014-52085-C2-2-P, MAT2014-57646-P, Consolider Ingenio 2010 (CSD2009-0050, MULTICAT), and PEII-2014-003-P. M. Gutiérrez thanks the MINECO for the PhD Fellowship.