

## Photo-Control of NIR Emission

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Lanthanide ion complexes display unique long-lived and narrow bandwidth luminescence ranging from the visible up to the near infra-red spectral ranges. Hence, they led to wide applications in material chemistry and biological imaging. Remote control of this luminescence is now an attractive target for the development of more elaborated optical materials.

For this purpose, our group recently focused on the development of photochromic lanthanide complexes, with a special interest in the NIR emitting ytterbium(III) ion since it is much less studied than the red emitting europium(III) ion. In particular, we achieved a photochromic  $\beta$ -diketonate ligand having a dithienylethene unit that is very efficient for the switching ON and OFF of ytterbium(III) luminescence. This system presents a dynamic response which behavior can be transferred to polymer films. We also developed a related complex displaying an additional antenna allowing non-destructive read-out and redox-switching.

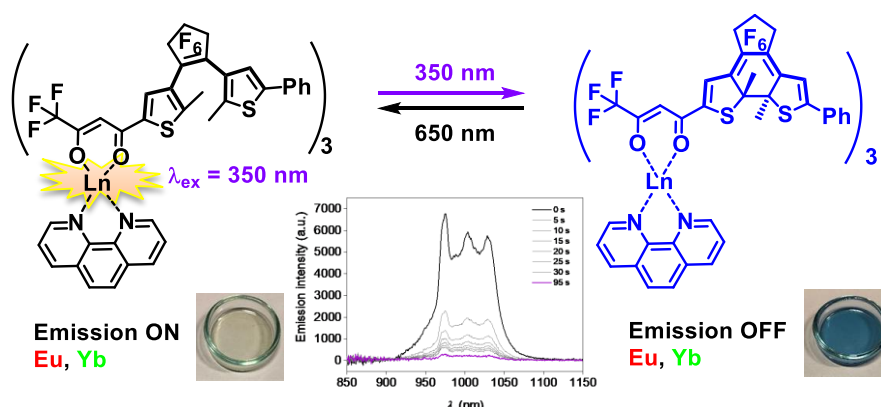


Figure 1. NIR emission photocontrol.

[1] L. Norel, O. Galangau, H. Al Sabea, S. Rigaut, *ChemPhotoChem* **2021**, *5*, 393-405

[2] H. Al Sabea, L. Norel, O. Galangau, T. Roisnel, O. Maury, F. Riobé, S. Rigaut, *Adv. Funct. Mater.* **2020**, *30*, 2002943

[3] H. Al Sabea, L. Norel, O. Galangau, H. Hijazi, R. Métivier, T. Roisnel, O. Maury, C. Bucher, F. Riobé, S. Rigaut, *J. Am. Chem. Soc.* **2019**, *141*, 20026-20030