LINEAR AND TWO-PHOTON ABSORPTION ACCESS TO EMISSIVE EXCITED-STATES OF 1,10-PHENANTHROLINE DERIVATIVES AND RELATED Ru(II) (Nano)EDIFICES

Our research concerns fundamental aspect as well as potential applications of photo-physical properties, of new molecular and supra-molecular edifices. We will describe, (i) the luminescent characteristics of 5-substituted-1,10-phenanthroline derivatives. A huge solvatochromism gives these ligands interesting properties for applications as optical sensors.

One gives rise to an original solvent-tuned dual emission, (ii) fluorenyl Ru(II) complexes-based MLCT excited-states ES* properties (absorption and lifetime) for applications such as two-photon excited luminescence or photodynamic therapy, optical power limiting, and (iii) multifunctional nano-edifices with novel properties. A switch from two-photon absorption for Ru(II) coordination complexes to saturable absorption for the related decorated-gold nanoparticles was recently published.

**Figure.** Excited-state engineering for potential applications