

**Prof. Rafal Klajn**

**Institute of Science and Technology Austria (ISTA)**

**“Supramolecular machinery for disequilibrating azobenzenes”**

**Abstract:**

*“In this talk, I will describe the development of DESC (disequilibration by sensitization under confinement). DESC is a supramolecular approach to isomerizing photoswitchable molecules from the stable to the metastable state using visible light of the desired wavelength (including red light). I will explain how a coordination cage and a visible-light sensitizer can act together to selectively bind and sensitize the E isomer of various azobenzenes and other azo switches. Upon switching to the metastable Z isomer, the azobenzene loses its affinity to—and is expelled from—the cage can thus convert multiple copies of E into Z. In this way, the cage-sensitizer complex acts as a light-driven supramolecular machine converting light energy into chemical energy in the form of out-of-equilibrium photostationary states that cannot be accessed directly using visible light.”*