Visible light makes azobenzenes SAD

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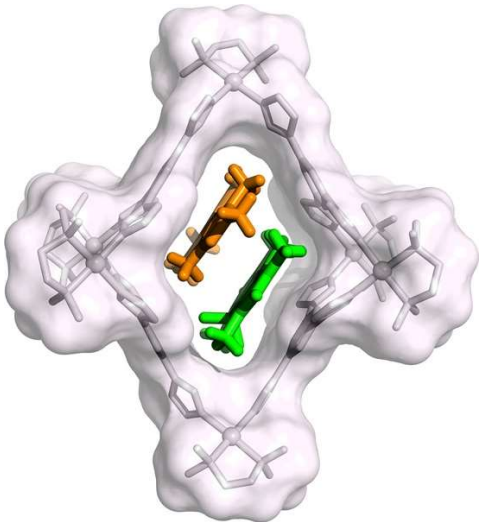
Sensitized azobenzene disequilibration (SAD) is a supramolecular approach to switch azobenzenes from the ground state (*trans*) to the metastable state (*cis*) using visible light of the desired wavelength (including red light). I will show that a combination a coordination cage and a visible-light sensitizer can act together to selectively bind and sensitize *trans*-azobenzenes. Upon switching to the metastable *cis* isomer, azobenzene loses its affinity to—and is expelled from—the cage, which can then convert additional copies of *trans* into *cis*. 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.



Biogram

Rafal Klajn completed his undergraduate education and an MSc in Chemistry at the University of Warsaw in 2004. In 2009 he obtained a PhD degree in Chemical & Biological Engineering at Northwestern University. He then joined the Weizmann Institute of Science, where he is currently a full professor. He has served on the boards of several journals, including Chem, ACS Nano, and ChemSystemsChem, and received several awards, including the Netherlands Scholar Award for Supramolecular Chemistry, the Cram Lehn Pedersen Prize in Supramolecular Chemistry, and the Sigma-Aldrich lectureship in Materials Science.