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Exploring the ultrafast dynamics of a diarylethene derivative DMP using ultrafast pulses

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Abstract:

Designed and fabricated liquid crystals of photochromic diarylethene , 1,2-bis(2-methoxy-5-phenyl3-thienyl) perfluorocyclopentene (DMP), which exhibits photochromic reactions up to high conversion in high efficiency because the diarylethene molecule has extremely small photocycloreversion quantum yield. The liquid crystals prepared underwent photochromism upon alternating irradiation with ultraviolet and visible light. The intermolecular interaction between the photogenerated closed-ring isomers plays a significant role in deforming the Molecular structure. We investigate the origin of this behavior utilizing ultrafast transient absorption spectroscopy utilizing sub-10 fs pulses, which is an invaluable tool for simultaneously studying both the electronic and the vibrational molecular dynamics.

Biography:

Walid Tawfik did PhD at Cairo University, Egypt