

Το Τμήμα Φυσικής του Πανεπιστημίου Κύπρου

διοργανώνει σεμινάριο την

**Πέμπτη, 15 Δεκεμβρίου, Ώρα 17:00**

στην αίθουσα B228 (Κτίριο 13 Πανεπιστημιούπολη)

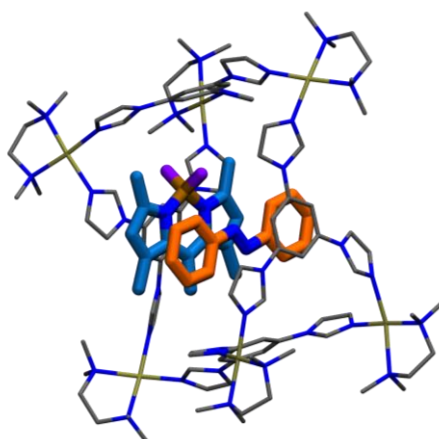
με ομιλητή τον:

Professor Igor Schapiro,  
Hebrew University of Jerusalem

**“Tuning the Photochemistry of Azobenzene by Encapsulation”**

#### **Abstract**

Azobenzene has been utilized as a photoswitch for several technical applications. However, the maximum absorption in the UV region and low yield of the isomerization reaction hinders a wider use of this molecule. To make this molecule more applicable, longer wavelength light should be able to initiate the isomerization process and the yield needs to be improved. The group of Rafal Klajn has established using flexible coordinate cages to control the isomerization process. [1–4] These cages can encapsulate heterodimers of azobenzene with a triplet energy sensitizer, such as Bodipy. The use of a sensitizer enables the isomerization process to begin with a longer wavelength of light. We have studied the photochemical mechanism since the type of energy transfer was unclear. The use of a cage has also been found to lead to an increase in the yield of the *cis* configuration. Thus, coordination cages can serve as a potential panacea to the challenges facing azobenzene as a photoswitch.



#### **References**

1. Yanshyna O, Bialek MJ, Chashchikhin O V., Klajn R (2022) Encapsulation within a coordination cage modulates the reactivity of redox-active dyes. *Commun Chem* 2022 51 5:1–12. <https://doi.org/10.1038/s42004-022-00658-8>
2. Gemen J, Ahrens J, Shimon LJW, Klajn R (2020) Modulating the Optical Properties of BODIPY Dyes by Noncovalent Dimerization within a Flexible Coordination Cage. *J Am Chem Soc* 142:17721–17729. [https://doi.org/10.1021/JACS.0C08589/SUPPL\\_FILE/JA0C08589\\_SI\\_005.CIF](https://doi.org/10.1021/JACS.0C08589/SUPPL_FILE/JA0C08589_SI_005.CIF)
3. Hanopolskyi AI, De S, Bialek MJ, et al (2019) Reversible switching of arylazopyrazole within a metal–organic cage. *Beilstein J Org Chem* 15:2398–2407. <https://doi.org/10.3762/BJOC.15.232>
4. Pesce L, Perego C, Grommet AB, et al (2020) Molecular Factors Controlling the Isomerization of Azobenzenes in the Cavity of a Flexible Coordination Cage. *J Am Chem Soc* 142:9792–9802. [https://doi.org/10.1021/JACS.0C03444/ASSET/IMAGES/LARGE/JA0C03444\\_0006.JPEG](https://doi.org/10.1021/JACS.0C03444/ASSET/IMAGES/LARGE/JA0C03444_0006.JPEG)