Warsaw Doctoral School in Natural and Biomedical Sciences and the Institute of Organic Chemistry PAS cordially invites you to **Advanced Lecture Series:**

Organic diradicaloids: The basics of their electronic structure and a few examples of their photochemical and thermal reactivity

given by

Prof. Tomáš Šolomek

Van 't Hoff Institute for Molecular Sciences, University of Amsterdam, The Netherlands

Tomáš Šolomek was born in Slovakia and chose chemistry as a career due to a passionate chemistry teacher that he had in the high-school. He obtained his Bachelor and Master's degrees in organic photochemistry at the Masaryk University, Czechia. In 2014, he completed his PhD degree in chemistry under co-tutorship at the Masaryk University (Prof. Petr Klán) and the University of Fribourg (Prof. Thomas Bally), Switzerland, combining experiments and theory to understand the nature of reactive intermediates generated by light or heat. He then became an Experientia Foundation postdoctoral fellow at the University of Basel with Prof. Michal Juríček. From 2015-2017, he was a Swiss National Science Foundation postdoctoral fellow at Northwestern University (USA) in the group of Prof. Michael Wasielewski.

Dr. Šolomek founded his independent research group at the University of Basel as a fellow of the Ambizione program of the Swiss National Science Foundation (2018), exploring porous covalent organic cages with built-in photo- and redox-active units. After receiving an ERC Starting grant TOPOCLIP (2021), he became a non-tenure track assistant professor at the University of Bern, where his team worked on the stable molecular representations of topologically complex carbon nanostructures. From January 2023, Dr Šolomek became a tenure-track assistant professor at Van 't Hoff Institute for Molecular Sciences in Amsterdam.

In his research, Tomáš Šolomek aims to improve the design of more efficient and sustainable organic optoelectronic materials and organic photocages. To accomplish this, he blends the synthesis of organic molecules with the use of spectroscopy and computational chemistry.

LECTURE SERIES: October 17, 2024 (Thursday) – conference room IOC PAS, Warsaw, Kasprzaka 44/52

14:30 – 16:00 The basics of the electronic structure of organic diradicaloids

16:15 – 17:45 Selected examples of their reactivity accessed by using light or heat

Registration at aleksandra.butkiewicz@icho.edu.pl

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OPEN LECTURE:

"Topography and Topology: Unusual Playground for Chromophores"

Prof. Tomáš Šolomek

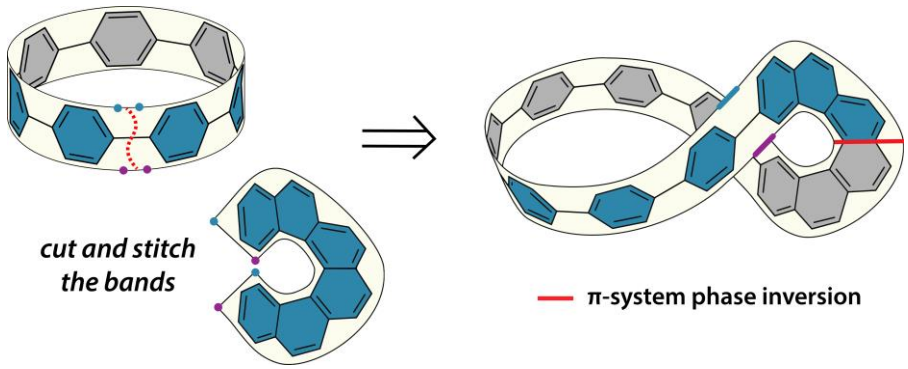
Van 't Hoff Institute for Molecular Sciences, University of Amsterdam, The Netherlands

October 18, 2024 (Friday) – 10 a.m.

aula IOC/ICP PAS, Warsaw, Kasprzaka 44/52

When chemists think about the synthesis of functional organic molecules with tailor-made properties, they typically start with an established structure and add substituents to achieve the desired outcome. However, materials made of carbon allotropes, such as fullerenes or carbon nanotubes, can achieve a variety of properties without installing substituents. Inspired by the different shapes and topologies one can find among carbon allotropes, I will share a few recent examples[1–4] form my lab's research to demonstrate that concepts like symmetry, curvature, and topology (see the Figure below) could be used to accomplish new types of materials with emerging properties that we wish to use in light energy conversion, molecular separations, or catalysis. The talk will thus provide a blend of organic synthesis, crystal structures, spectroscopy, and calculations.

I will conclude the talk discussing a recent work[5] in which we developed a protocol that allows to manipulate charge in molecular beams of biomolecules in high vacuum using green laser light. It will showcase a simple and general strategy how caged compounds[6,7] known to photoactivate biologically important molecules in aqueous environment can be repurposed for a use in the gas phase.



References:

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4. J. Malinčík, C. M. Cruz, A. G. Campaña, T. Šolomek ChemRxiv 2024 (submitted).
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