

Projekt 2.3 Synthesis of Organic Molecular Memristors

Supervisor: Cina Foroutan-Nejad

Institute: Institute of Organic Chemistry Polish Academy of Sciences

Unit: Xc

WWW:

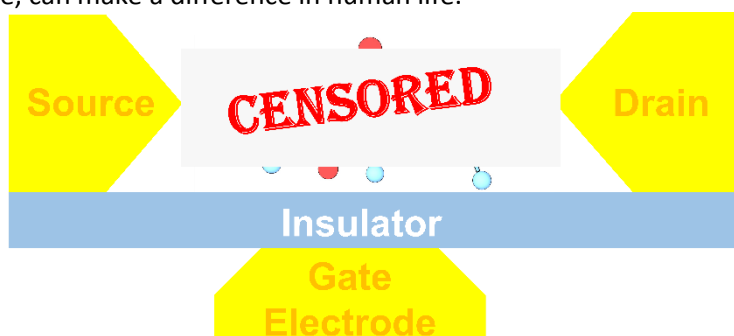
<https://www.icho.edu.pl/en/zespol/daniel-gryko-research/cina-foroutan-nejad-research/>

Background:

In recent years a novel circuit element called memristor is introduced whose conductivity in present depends on the history of electronic current passed through it in the past. A memristor is a device which can be used for in-memory processing, therefore, highly valuable for reducing the processing energy and elevating the processing speed by bypassing von Neumann bottleneck, i.e. CPU-memory data transfer. Currently, most of the known memristors are based on bulk materials, often oxides of metals. A few molecular memristors are known which are either slow to respond, built on the basis of precious metals, or too unlikely to be fabricated due to complicated preparation processes.

Aim:

We aim to design, synthesize, and perform measurements on all-organic molecular memristors. A notable part of the design is already taken care of. For now, our main goal is to synthesize these species. The successful candidate will work in close collaboration with a dynamic team of organic chemists, theoretical chemists, and solid-state physicists. In our group you witness how the molecules you make, can make a difference in human life.



Requirements:

- The successful candidate must be a devoted science enthusiast.
- Holds an MSc in organic chemistry.
- Has strong background in physical organic chemistry.
- We work with physicists (beware of them) so the candidate should have a general perspective of science.
- Be able to communicate in English.
- Your writing skills matter! You want to publish your papers!
- We look for a good team player but also an independent researcher.

Funding:

48 month contract which covers all your PhD period, accommodation in single-person studio in the institute with very low cost, and 5000 pln per month (gross salary). And don't forget if we succeed, you will have plenty of glory and time to time grill parties!