

# Organic Optoelectronics

**Keywords:** Organic synthesis, device fabrication, OLED, organic laser, organic solar cells, sensors, organic light up-converting films



Vilnius  
University



## Research group activities

- Investigation of photophysics and structure-property relationship of organic semiconducting materials utilised in organic light-emitting diodes, organic lasers, solar cells, sensors etc.
- Evaluation of light amplification in organic media for lasing applications.
- Development of efficient blue singlet emitters based on thermally activated delayed fluorescence for OLEDs.
- Design of fluorescent organic nanoparticles with adjustable morphology and emission properties for sensing volatile organic vapours.
- Evaluation of exciton diffusion and light upconversion mediated by triplet-triplet annihilation in organic films for enhanced solar energy harvesting.



## Proposal

Our research team offers collaboration on all of the before-mentioned research activities. In addition, we could conduct related experiments, based on the client's needs.

Just a few examples of what our team can do for your benefit:

- Design/synthesise novel organic compounds for operating electrically driven organic laser;
- Design/synthesise emitters based on thermally activated delayed fluorescence phenomena for third generation OLEDs;
- Produce high-efficiency organic light-upconverting films for solar energy harvesting;
- Develop highly selective fluorescence sensing systems for toxic metal ions with extremely high sensitivity;
- Etc.



## Meet our team

### Prof. Habil. Dr. Saulius Juršėnas

Team leader

### Dr. Karolis Kazlauskas

Chief researcher

### Dr. Arūnas Miasojedovas

Senior researcher

### Dr. Patrik Ščajev

Senior researcher

### Dr. Tomas Serevičius

Researcher

### Dr. Saulius Miasojedovas

Researcher

### Dr. Steponas Raišys

Researcher

5 PhD students and 8  
undergraduate students.



## Research outcomes

The team has published over 100 scientific papers, participated in more than 10 international projects. We have collaborated with leading research groups from UK, Japan, USA, Spain,

France, Switzerland as well as with industrial partners "Energenas", "Ledigma", "Fine Synthesis" in developing novel organic compounds, new synthesis and purification technologies.



## Resources

The team owns organic optoelectronic technology facilities for solution processing, vacuum thermal evaporation, optical characterization of organic compounds and thin films, device testing and encapsulation. We have the third world's largest inert-atmosphere glovebox system installed by MBraun. There is an additional characterization infrastructure based on scanning probe and electron microscopes, ultrafast pump-probe spectroscopy and quantum efficiency evaluation systems.

Moreover, the research group has strong relations with the experts in organic synthesis. That relationship ensures continuous supply of high-quality organic compounds, which are necessary for studying various physical processes as well as for production of high-performance optoelectronic devices. The synergy between physics and chemist groups facilitates discovery and the in-depth understanding of the novel phenomena in organic materials, and accordingly paves the way for high impact scientific publications.



## Contacts

### Prof. Habil. Dr. Saulius Juršėnas Institute of Photonics and Nanotechnology

Phone: +370 5 2234483

E-mail: saulius.jursenas@ff.vu.lt

More about the institute: <http://www.tmi.vu.lt/en/>

### Department for Research and Innovation

Phone: +370 5 268 7006

E-mail: innovations@mid.vu.lt

More information: <http://www.innovations.vu.lt>