Development of Small Organic Molecules and Monomers

Materials Center:

- Established in 2018 at the Institute of Technology and Business in České Budějovice.
- Vast experience in design, functionalization and synthesis of small organic molecules.
- Tailoring of organic compounds towards desired function and application.
- Qualitative and quantitative analysis and determination of organic substances.
- Fundamental research with wide application potential.
- Scientific activities directed towards articles, patents, and industrial applications/needs.
- Contracting research and commercial analyses.
- Well-experienced and internationally recognized research team.

Technical Equipment

- Fully equipped laboratory of organic synthesis.
- Bench-top NMR.
- GC/MS system equipped with several columns (both quality and quantity).
- Absorption and emission spectroscopy.
- Thermogravimetric analysis.
- A unique interconnection of TGA and GC/MS systems (combustion products detection and determination).

Projects Involved:

- "New scintillation systems for ionizing radiation detection", OPPIK/ERDF.
- "Non-hazardous surfaces based on recycled rubber granulate ", Technology agency of the Czech Republic.
- "Development of anti-static agents". OPPIK/ERDF.

Collaborators and Industrial Partners:

- University of Pardubice, University of Defence, Czech Technical University in Prague, Masaryk University
- Nuvia Czech Republic, EKAZ Praha, PPO Group Znojmo,

Representative Publications:

- Bureš F. Quaternary Ammonium Compounds: Simple in Structure, Complex in Application. *Top. Curr. Chem.* **2019**, *377*, 14.
- Podlesný J., Jelínková V., Pytela O., Klikar M., Bureš F. Acceptor-induced photoisomerization in small thienothiophene push-pull chromophores. *Dyes Pigm.* **2020**, *179*, 108398.
- Charvot J., Zazpe R., Krumpolec R., Rodriguez-Pereira J., Pavliňák D., Pokorný D., Klikar M., Jelínková V., Macak J. M., Bureš F. Deposition of $MoSe_2$ Flakes Using Cyclic Selenides. *RSC Adv.* **2021**, *11*, 22140.

Topic: HORIZON-CL4-2022-RESILIENCE-01-23: Safe- and sustainable-by-design organic and hybrid coatings (RIA)

Ideas for the Project:

- Development of new monomers for polymeric coatings.
- Tailoring of small organic molecules and solvent systems.
- Detection and determination of organic substances.

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