BRNO UNIVERSITY OF TECHNOLOGY

Research group of smart materials for organic electronics, photonics and sensors

/ Centre for Materials Research / Faculty of Chemistry / Brno University of Technology

RESEARCH GROUP CONTACT

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THEMATIC RESEARCH FOCUS

RESEARCH AREA

» Organic electronics, photonics, sensors
» Small molecules, polymers and biomaterials
» Preparation of organic thin multilayered systems

EXCELLENCE

Preparation of thin organic multi-layered structures; synchronous characterization of optical and electrical properties and parameters of organic materials.

MISSION

To be excellent in Europe, be flexible in the needs of companies; development of our Centre for material research.

DEVELOPED TECHNOLOGIES

CONTENT OF RESEARCH

» Research of advanced organic materials for organic electronics, bioelectronics, photonics and sensors
» Research of biomaterials for diagnostics / applications of biomaterials
» Deposition of multilayered thin organic systems for a broad range of applications

MAIN CAPABILITIES

The potential for application is also in the use of specific properties of organic semiconductors allowing not only expensive ones to exchange inorganic semiconductors with cheaper organic ones, but also allowing the creation of fundamentally new electronic components for molecular electronics and nanotechnology.

The successful application of research results is based on wide cooperation with many industrial partners from Europe and the Czech Republic.

FIELDS OF RESEARCH RESULTS APPLICATION

Organic electronics and photonics

Others:
Automotive industry, Textile industry, Construction - civil engineering, Construction - residential building, Measuring instruments, Chemical industry, Hazard management, Renewable energy, Energy savings, Plastics, Polymers, Diagnostic, Biotechnology, Clothing, Power supply – alternative resources

ALUMNI PROFILE

Alumni are experts in:
» Material engineering
» Physics and chemistry of advanced organic materials
» Nanotechnology
» Small-scale and special chemistry

NUMBER OF RESEARCH POSITIONS

SENIOR RESEARCH STAFF

12

JUNIOR RESEARCH POSITIONS (INCL. PH.D. STUDENTS)

25

KEY RESEARCH EQUIPMENT ↘

LIST OF DEVICES

» Clean room and glove boxes for the preparation of organic multilayered systems, sensors and other devices
» Complex equipment for the characterization of optical and electrical properties and parameters of organic materials

BUDGET ↘

TOTAL (MIL. CZK/ MIL. EUR)

10 / 0.4

PART OF THE TOTAL BUDGET FROM PRIVATE RESOURCES (%)

10

PART OF THE TOTAL BUDGET FROM FOREIGN RESOURCES (%)

40

MAIN PROJECTS ↘

2009–2013: Multicomponent electronic systems based on organic materials (project FR-TI1/144, Ministry of Industry and Trade, CZ)

2008–2011: Development of Photovoltaic Textiles based on novel Fibres (project 7E09061, Ministry of Education, Youth and Sports, FP7 – NMT – SME, EU)

2006–2010: Molecular nanosystems and nanodevices: electric transport properties (project KAN401770651, Academy of Sciences of the Czech Republic)

MAIN COLLABORATING PARTNERS ↘

COLLABORATION WITH ACADEMIC PARTNERS

» Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic (Prague, CZ)
» Institute of Physics, Academy of Science of the Czech Republic (Prague, CZ)
» Julius-Maximilians-Universität Würzburg (Würzburg, DE)

COLLABORATION WITH COMPANIES

» Generi Biotech (Hradec Králové, CZ)
» Centre of Organic Chemistry (Pardubice, CZ)
» Prefa Nanocomposites (Brno, CZ)
» Centro Ricerche Fiat S.C.p.A., (IT)
» Wetenschappelijk en technisch centrum van de Belgische textielindustrie (CENTEXBEL), (BE)
» Greatcell Solar, S.A. (CH)

EXPECTATIONS ↘

REQUIREMENTS

We appreciate a clear vision of the potential collaboration including time scales, output, IPR and other relevant circumstances.

OFFERS

We offer our substantive experience in the development of different applications based on organic advanced materials. This experience allows us to effectively utilize the Centre's up-to-date complex equipment for materials research for the preparation, characterization and application of different organic systems.