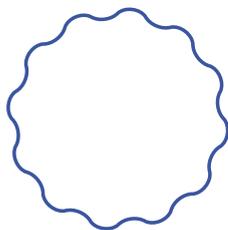


# ICRI-BioM

## *Polymer and bioparticle research supported by advanced computational methods*



The centre is implementing a project entitled: „International Centre for Research on Innovative Bio-based Materials.” Supported by advanced computer calculations, it discovers and develops new biomaterials, such as biocompatible polymers, biocatalysts, and bioparticles with transport or regulatory functions in organisms. In the next step the researchers synthesise these and propose their practical applications. This will be achieved through the synergy of computational chemistry, polymer chemistry, biochemistry, and biotechnology.



ICRI BioM – International Centre for Research on Innovative Bio-based Materials (IRAP Plus).



Prof. Piotr Paneth and Prof. Klaus Müllen



Biotechnology, biochemistry, polymers, proteins, nucleic acids, molecular complexes, organic functional materials, bio-materials, natural materials, nanomaterials, organic electronics, biosensors



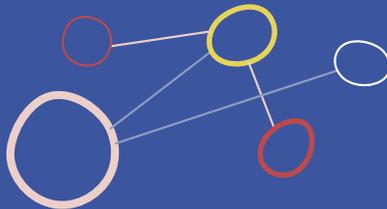
To study polymers and bioparticles using experimental and theoretical methods to discover new materials

*Biomaterials are materials obtained from renewable or biocompatible materials, or new materials inspired by nature. These are applied in such fields as medicine, agriculture, environmental protection, and electronics – Prof. Piotr Paneth.*



Quotes

*Biomaterials can include natural substances, such as proteins, peptides, and polysaccharides, or synthetic products, such as polymers, ceramics and composite ceramic materials. The range of potential applications of biomaterials is extensive – Prof. Piotr Paneth.*





**Prof. Klaus Müllen** – served as Director at Max Planck Institute for Polymer Research, and continues his research at the Heidelberg and Cologne Universities. His broad research interest include new polymer creation reactions, chemistry and physics of individual particles, and graphene, dendrimers, and biosynthetic hybrids. He has published about 2,000 articles. He received multiple awards, honorary degrees and professor titles; he is a member of Polish and international academies. In 2008-2009, he was the President of the German Chemical Society (GDCh). In 2013-2014, he served as the President of the German Association for the Advancement of Science and Medicine. In 2010, he was granted a ERBN scholarship for advanced scholars for his work on nanographens. He is editor of the Journal of the American Chemical Society.

**Prof. Piotr Paneth** – formerly the Dean of the Faculty of Chemistry and Vice Rector for Science at the Lodz University of Technology, and President of the Łódź branch of the Polish Chemical Society. Now he serves as Director for Science Organisation at ICRI-BioM, and Deputy President of the Scientific Board, Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences (PAN). Member of the Scientific Board, Polish Mother's Memorial Hospital Research Institute (ICZMP), and Chemistry Committee, Polish Academy of Sciences. His main research interests focus around the study of mechanisms of chemical and biochemical reactions using isotope effects, computational chemistry, chemometrics, and bioinformatics. He has published about 200 scientific articles and monograph chapters.



Usually associated with medical applications, such as scaffolds for tissue or organ cultures, artificial tendons or ligaments, bone cements, heart valves or by-passes, biomaterials can also be successfully used in environmental protection, e.g. as biosorbents for efficient absorption of toxic substances from water or soil, or easily biodegradable polymers. Such applications of biomaterials are the focus of researchers at ICRI-BioM.



Interesting facts



International Strategic Partner:

Max Planck Institute for Polymer Research in Mainz

Scientific Partner:

University of Łódź, Medical University of Łódź, Centre of Molecular and Macromolecular Studies, PAN, and Bionanopark

Other Partners:

Adamed Pharma S.A., Grupa Maspex, Grupa Pietrucha

[www.icri-biom.p.lodz.pl](http://www.icri-biom.p.lodz.pl)



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