Resources, cooperation, networks

COMPETENCES AND METHODS

- Polymer synthesis
- Material and surface modification
- Structure analysis and multi-scale characterization
- Colloids and nanomaterials
- Surface and interface characterization
- Processing of thermoplastics and elastomers
- Manufacture and characterization of fibre-reinforced composites
- Materials testing
- Theory, modeling and simulation
- Bioengineering and characterization of biointerface phenomena

COOPERATION WITH INDUSTRY

is possible in many different ways according to the specific needs of the respective enterprise, both within joint projects including public funding and as contract research.
In addition, the institute is committed to the transfer of results into industrial application, e.g. by means of publications and seminars, licensing of patents, and supporting spin-offs.

STUDENTS

may work at the institute within their PhD, diploma, master, or bachelor studies in the fields of chemistry, physics, and material science. Also, they may participate in research projects as student researchers or trainees. The theses work is usually performed in close cooperation with the Technische Universität Dresden and the supervisor is one of the six professors jointly appointed at the university in chemistry, physics, or engineering.

POSTDOCS

may be supported in establishing their own independent research groups, on the basis of grants, project funding, or resources of the institute.

POWERFUL NETWORKS

on regional, national, European or international scale are one of the fundamentals of the institute's successful work. The IPF is an active member of the local research network DRESDEN-concept.

FUNDING AND STAFF

The basic financing is provided in equal shares by the federal and state governments. The IPF has 485 employees – 241 of them are scientists. (as of 12/2021)

This institute is co-financed by tax funds on the basis of the budget approved by the Saxon State Parliament.

Organizational structure of the institute

BOARD

Chief Scientific Officer	Chief Financial Officer
Prof. Dr. Carsten Werner	Dr. Lilla Farkas

Institute of Macromolecular Chemistry
Prof. Dr. Brigitte Voit
Polymer Structures
Bioactive and Responsive Polymers
Functional Nanocomposites and Blends
Macromolecular Structure Analysis

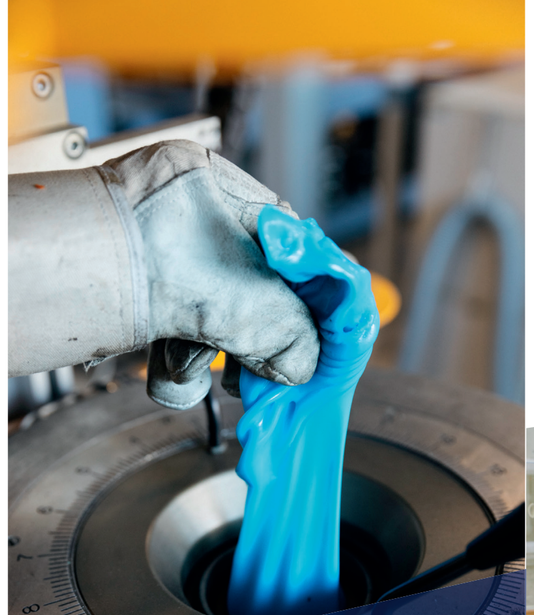
Institute of Physical Chemistry and Physics of Polymers
Prof. Dr. Andreas Fery
Functional Colloidal Materials
Polymer Interfaces
Nanostructured Materials
Multi-Scale Characterization

Institute of Polymer Materials
Prof. Dr.-Ing. Markus Stommel
Processing Technology
Materials Engineering
Elastomers

Institute of Biofunctional Polymer Materials
Prof. Dr. Carsten Werner
Biointerfaces
Matrix & Tissue Engineering

Institute Theory of Polymers
Prof. Dr. Jens-Uwe Sommer
Soft Matter Theory and Polymer Physics
Material Theory and Modeling

Central Services and Administration
Dr. Lilla Farkas



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Published: August 2022

Leibniz-Institut für Polymerforschung Dresden

Big Molecules – Big Ideas

Understanding polymers. Designing materials. Shaping the future

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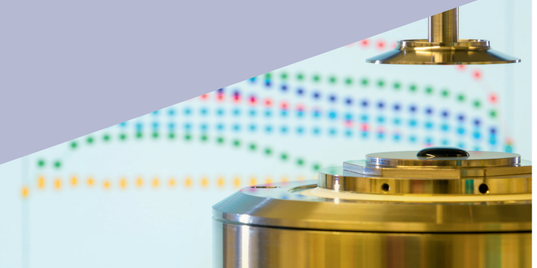
Polymers offer unique opportunities to tailor materials. They are the basis for almost all modern technologies and the key for innovations addressing the major challenges, such as energy, mobility, health, sustainability, and communication.

Polymers are nothing new; as biopolymers, they are the material basis of life, and materials developed from them, such as wood, wool, leather, or rubber, have been used by mankind for a very long time. The scientific understanding of polymers that has been gained, their targeted synthesis and efficient processing methods have enabled rational design of polymer materials. Without polymer systems, material- and energy-saving lightweight construction, information technologies, medical therapies and many other things would be inconceivable.

The polymer scientific competence of the IPF is therefore in demand in numerous research projects for many different fields of application. As a Leibniz Institute, the IPF follows its mission to develop solutions for socially and technologically relevant problems through fundamental and application-oriented research.



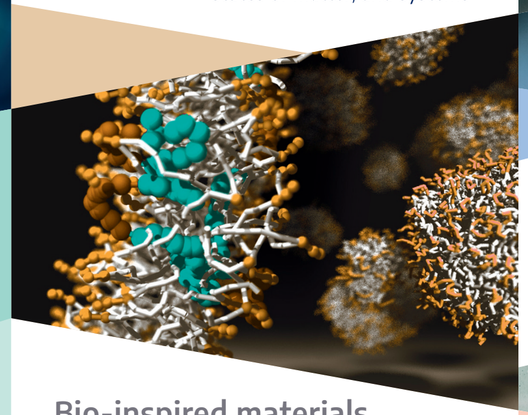
At the IPF, natural scientists (chemists, physicists, biologists) and engineers collaborate intensively. The institute has high competence and modern infrastructure for synthesis, analytics and simulation, as well as processing and testing of polymers and polymer materials. This allows excellent basic research in polymer science and diverse transdisciplinary cooperation. Through technology transfer, spin-offs and industrial cooperation, the IPF promotes the path of innovations into application.

In Dresden, the IPF is closely linked with strong partners at the university and non-university research institutions within the DRESDEN-concept network. Together, facilities and structures such as the Center for Regenerative Therapies Dresden (CRTD), the Center for Molecular Bioengineering (B CUBE), the Centre for Advancing Electronics Dresden (cfaed), the Else Kröner Fresenius Center for Digital Health (EKFZ), and the Cluster of Excellence Physics for Life (PoL) have been established.

The institute's research addresses 6 strategic topics:

1 Basic concepts of soft matter

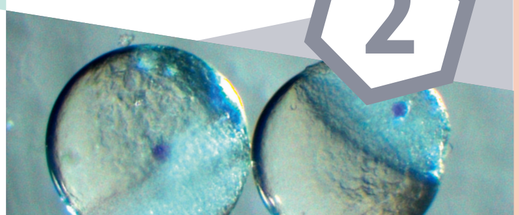
Deepening our understanding of polymers, colloids, and interfaces and search for new properties, states of matter, and systems



Bio-inspired materials

Development of rational material design concepts based on a mechanistic understanding of living matter

2



3 Functional materials and system integration

Development of advanced functional materials and innovative system solutions

Process-controlled structural materials

4

Research on process-controlled structure formation in polymer materials and composites along the entire process chain from material synthesis to component production

5 Data science-based material research

Adoption of methods and concepts of artificial intelligence and machine learning for polymer research and for generation of new findings from big data sets

Sustainability and environment protection

Sustainable design of polymer materials and development of polymers for application in environment protection

6