The **International Research Training Group** (IRTG) **"Soft Matter Science"** brings together chemists, physicists, biologists and engineers from **Freiburg, Strasbourg, Basel** and **Mulhouse** for a comprehensive PhD programme in soft matter science, aiming to develop concepts for the design of innovative materials with a high level of functionality.

The IRTG "Soft Matter Science" and its trinational roots

The Universities of Freiburg, Strasbourg, Basel and Mulhouse are all members of the European Confederation of Upper Rhine Universities (EUCOR) that created the project of the European Campus, a university network without walls and boarders but with international appeal.

This "Three Country University" aims at promoting doctoral training and scientific exchange by maximizing the cross-border potentials and skills of more than 130 academic institutions, including the IRTG.

eucor The European Campus

CONTACT

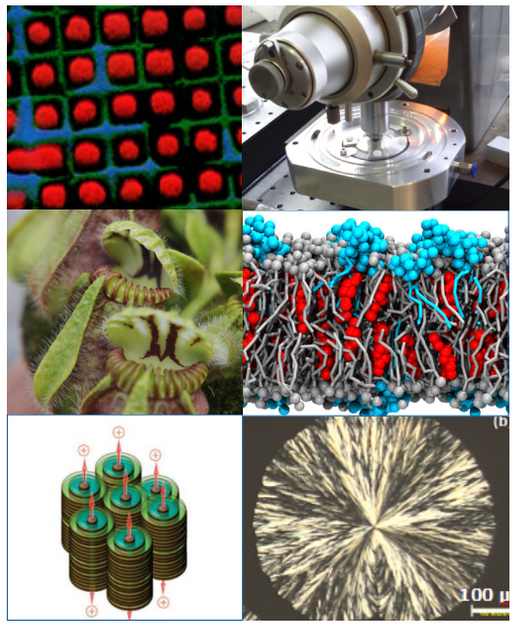
IRTG / Soft Matter Science
Freiburger Materialforschungszentrum
Stefan-Meier-Str. 21, D-79104 Freiburg
Phone +49 (0) 761 203 678 34

Institut Charles Sadron
23, rue de Loess, BP 84047, F-67034 Strasbourg
Phone +33 (0) 388 41 40 97

softmattergraduate@uni-freiburg.de
www.softmattergraduate.uni-freiburg.de

IRTG SoMaS Soft Matter Science

International Research Training Group
Freiburg/Strasbourg/Basel/Mulhouse



Soft Matter Science

Concepts for the Design of Functional Materials

OUR RESEARCH PROJECTS

Soft matter interfaces: From membranes to tribology

- Influence of oxidation on translocation across membranes
- Membrane active peptides and complexes for nucleic acid delivery
- Controlled deformation & modification of membranes
- Interactions between bio-systems & micro-structured surfaces
- From insect-plant interactions to friction on textured surfaces
- Adhesion and friction on nano/micro-structured surfaces

From design to multifunctional materials and devices

- Graphene-induced crystallization of conjugated polymers
- Structural models of semiconducting polymers
- Graphene solution exfoliation by conjugated polymers
- Self-assembled nanotubes sheathing semiconducting wires
- Compartmentalized polymer ionic liquids for responsive systems
- Multifunctional hybrid polymers for adaptive nanocrystalline multilayer composites

From physical concepts to material properties

- Colloid stabilization by unattached polymers in solution
- Influence of shear history & particle attractions on the relaxation from non-equilibrium to colloidal glassy states
- Viscoelastic properties of glassy polymer films
- Polymer ordering & crystallisation in quasi-2 dimensions
- Thermodynamics of membranes with complex compositions
- Long-range ordering of conducting nanowires & heterojunctions
- Recognition of synthetic polymers by biological nanopores

+ ongoing projects from the first funding period
+ various associated projects

OUR RESEARCH NETWORK

University of Strasbourg

Institut de Physique et Chimie des Matériaux de Strasbourg
Institut de Science et d'Ingénierie Supramoléculaires
Laboratory of Biophotonics and Pharmacology
Charles Sadron Institute
Insitute of Chemistry

University of Freiburg

Freiburg Center for Interactive Materials and Bioinspired Techonologies
Department of Microsystems Engineering
Institute for Macromolecular Chemistry
Center for Biological Signalling Studies
Institute of Pharmaceutical Sciences
Freiburg Materials Research Center
Department of Physical Chemistry
Institute of Physiology
Institute of Physics
Botanical Garden

University of Mulhouse

Institute of Materials Science of Muhouse

University of Basel

Department of Chemistry

OUR RESEARCH TEAM

K. Anselme
G. Baaken
E. Bartsch
J. Baschnagel
B. Bechinger
J. Behrends
A. Blumen
H. Bohn
M. Brinkmann
G. Decher
M. Dolgushev
C. Gauthier
N. Giuseppone
P. Hébraud
V.Knecht
V. Le Houérou
J.-F. Lutz
P. Lutz
M. Maaloum
C. Marques
W. Meier
H. Meyer
Y. Mély
P. Mésini
E. Moulin
R. Mülhaupt
I. Nyrkova
G. Reiter
W.Römer
A. Rubin
J. Rühe
P. Samorí
P. Schaaf
S. Schiller
T. Schmatko
A. Schröder
A. Semenov
M. Sommer
R. Süss
F. Thalmann
J. Wittmer
E. Zaitseva
F. Ziebert

FACTS AND FIGURES

Our interdisciplinary and structured research and qualification programme on Soft Matter Science comprises more than

- 25 doctoral researchers who discuss their research projects together and share intercultural moments in and outside the laboratories
- 40 scientists who share their experience
- 20 bilateral research projects between French, German and Swiss groups
- 15 laboratories located within one hour of travelling time from each other

Postdoctoral researchers, student assistants and associated scientists complete our International Research Training Group. Our multi-component and international qualification concept that aims at optimizing the career perspectives of the IRTG graduates, comprises four key elements:

Moreover, dedicated seminars and contributions by international visitors, as well as an extensive exchange programme and an elaborate supervisory concept, establish a platform for the training of soft matter scientists who will be highly qualified for the international job market.