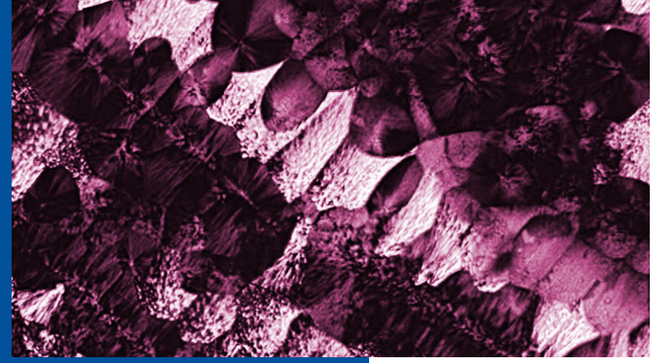

SOFT MATTER

Soft matter science is an interdisciplinary field of research, attracting attention from chemists, physicists, biologists and engineers. To some extent, this appeal comes from the amazing properties of “soft materials” e.g., from their unique capability to respond to external stimuli. Even weak stimuli may induce significant changes in behaviour due to softness and mesoscopic structuring of these materials. While softness results from weak interactions between the constituents, mesoscopic structuring is often a consequence of spontaneous self-assembly into ordered arrangements much larger in size than the constituent molecules.

SOFT MATERIALS UNDER EXTERNAL CONSTRAINTS

Many of today’s interesting systems consist of multiple components, have various interfaces, and exhibit complex effective interactions. Understanding the synergies between the regulating factors, thus predicting and controlling their impact on material properties, is a great scientific challenge. Advances in this direction should enable the creation of novel materials with a high level of functionality similar to those existing in nature.

PROGRAMME

The SoMaS Summer School 2014 aims to give attendees a broad exposure to fundamental concepts and recent advances in **Soft Materials under External Constraints**. The school integrates knowledge from chemistry, materials science, biology and physics.

The SoMaS School 2014 consists of:

- Introductory courses
- Research and rework seminars
- Master classes
- Poster sessions
- Career seminars

MASTER CLASSES

The main aim of these classes is to give enthusiastic young researchers the opportunity to share ideas about their project with two distinguished scientists chairing the classes:

Mark Ediger and **Matthias Fuchs**

The concept underlying the Master Classes is that of “passing the torch” from the chairs, who contribute their experience, to the young generation of researchers, who present their project and contribute their ideas. The audience is invited to participate in these discussions.

INVITED SPEAKERS

Mark Edinger
University of Wisconsin, Madison, USA

Matthias Fuchs
Universiät Konstanz, Germany

Simone Napolitano
Université Libre de Bruxelles, Belgium

Stephan Förster
Universität Bayreuth, Germany

Eckhard Bartsch
Universität Freiburg, Germany

Daniele Cangialosi
Centro de Física de Materiales, San Sebastián, Spain

Dominik Wöll
Universität Konstanz, Germany

Matthias Ballauff
Helmholtz-Zentrum Berlin, Germany

Stefan Egelhaaf
Heinrich-Heine-Universität Düsseldorf, Germany

Friederike Schmid
Johannes-Gutenberg-Universität Mainz, Germany

Luca Cipelletti
Université Montpellier 2, France

ORGANIZERS

Pursuing the tradition of **Soft Matter Science** in the Rhine Valley by introducing the young generation of researchers to this field, the **International Research Training Group (IRTG) "Soft Matter Science: Design of Functional Materials"** organizes a series of annual summer schools in Alsace, France.

Strasbourg
Freiburg
IRTG SoMaS Soft Matter Science
Mulhouse
Basel

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INTRODUCTORY COURSES

Glass-forming polymer films ***(Simone Napolitano)***

- Introduction to the glassy dynamics
- Dielectric Spectroscopy - principles and applications
- Glass transition under 1D confinement
- Segmental dynamics of thin films of soft matter-packing frustration vs interparticle correlations

Structure formation in soft matter hybrid materials ***(Stephan Förster)***

- Basics of self-assembly
- Classical and non-classical nucleation and growth, biomineralization
- Frustration and defects in soft matter: para-, meso- and quasicrystals
- (Ultra)fast time-resolved experiments to follow nano- and mesoscale structure formation in-situ

Quiescent and sheared colloidal suspension ***(Eckhard Bartsch)***

- Introduction to the Physics of Colloidal Suspensions
- Light Scattering Methods – Basic Concepts and Simple Applications
- Quiescent Colloidal Suspensions – Phase behaviour, Structure & Dynamics
- Colloidal Suspensions under Shear – Application of Special Light Scattering Methods

GENERAL INFORMATION

Centre de Mittelwihr
16 rue du Bouxhof
68630 Mittelwihr, France
+ 33 (0) 3 89 47 93 09
www.mittelwihr.com

Duration of the Summer School
Beginning: Sunday 6th July (afternoon)
End: Friday 11th July (after lunch)

Participation Fee
(including accommodation): 200,– €

Deadline for Registration and Abstract
May 25th, 2014

Further Information and Registration
www.softmattergraduate.uni-freiburg.de/summerschool2014

CONTACT

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IRTG SoMaS
International Research Training Group

ANNUAL SUMMER SCHOOL JULY 6-11, 2014

SOFT MATERIALS UNDER EXTERNAL CONSTRAINTS