# German Society of Rheology (DRG)

## Flow-induced Structures in Complex Fluids (Joint DRG & DPG Symposium 2015) Berlin, Germany, March 18 – 19, 2015

In order to foster the existing close cooperation of the German Rheological Society (DRG) and the German Physical Society (DPG), a joint symposium of the DRG and the section "Chemical Physics and Polymer Physics" (CPP) of the DPG was organized in March in Berlin. The symposium was devoted to "Flow-Induced Structures in Complex Fluids" and was part of the annual spring conference of the Condensed Matter Division of the DPG. It took place at the Technical University of Berlin. Around 50 participants joined the symposium in one of the historical buildings of TU Berlin (Institute of Chemistry).

After the opening of the symposium an invited lecture was given by Kyung Hyun Ahn of the Seoul National University. He presented in a very illustrative lecture new perspectives in materials processing and thoroughly discussed the rheology of complex suspensions in microscopic geometries. In the second lecture of the symposium, Rick Dannert (University of Luxembourg) discussed the rheology of semi-dilute and concentrated colloidal suspensions in oscillatory flows. Yielding of a microstructural colloidal gel was the topic of the lecture of Dimitri Merger (Karlsruhe Institute of Technology) and was investigated in large amplitude oscillatory shear flows in combination with neutron scattering experiments. The rheological behavior of highly concentrated colloidal dispersions was discussed in the lecture of Clara Weis (Karlsruhe Institute of Technology) using multi particle tracking and mechanical rheometry. Markus Gruber (University of Konstanz) applied the mode coupling theory in order to analyze the dynamics of a colloidal probe particle in a colloidal glass. Sarah Demand (Technical University of Dortmund) investigated the deformation behavior of temporarily cross-linked microcapsules in shear flow. Several lectures were devoted to complex biofluids. Othmane Aouane (Saarland University) convincingly discussed results of a numerical study on the formation of clusters in blood cells in microchannels. The theoretical work of Achim Guckenberger (University of Bayreuth) was devoted to the application of the boundary integral method in order to study the agglomeration of erythrocytes. Viviane Lutz Bueno (ETH Zürich) reported on the flow of wormlike micelles through porous media. In the following lecture, Natalie Germann (Technical University of Munich) presented the results of a computational study on the formation of shear bands in polymer solutions. Annekathrin Mütze (ETH Zürich) reported on her analysis of shear-banding using time-resolved Rheo-SANS and laser light transmittance investigations. In the last lecture of the day, Hans Henning Winter (University of Amherst) discussed several aspects of physical and chemical gelation in a very illustrative lecture.

The second day of the symposium was devoted to the rheological properties of polymer melts and solutions. In the first lecture of the second day, Sara Wingstrand (Technical University of Denmark) discussed in detail the rheological behavior of PMMA solutions and melts in shear and elongational flows and the application of the tube model to the description of these fluids. The flow properties of carboxymethyl hydroxypropyl guar gum were investigated using oscillatory rheometry and capillary breakup extensional rheometry and thoroughly analyzed in the lecture of Daniel Szopinski (University of Hamburg). Víctor Hugo

*Figure 1: Conference site at Technical University Berlin.*

*Figure 2: Board and advisory board members of the DRG (from left to right: Christian Wagner, Anke Lindner, Norbert Willenbacher, and Ulrich Handge).*





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Rolón-Garrido (Technical University of Berlin) convincingly discussed the elongational properties of photo-oxidated LDPE melts. The experimental data were interpreted by relating rheological data to gel permeation chromatography measurements and by applying the molecular stress function model. Matthias Kruse (Technical University of Berlin) elucidated the rheological properties of long-chain branched poly(ethylene terephthalate). The degree of long-chain branched was tailored using a chain extender. Dietmar Auhl (University of Maastricht) analyzed the flow-induced crystallization behavior of polylactides. The influence of molecular composition on the foaming behavior of polystyrene-block-poly(4-vinylpyridine) block copolymers was the subject of the lecture of Ulrich Handge (Helmholtz-Zentrum Geesthacht). Jörg Läuger (Anton Paar Germany GmbH) presented several techniques in order to investigate the flow behavior of complex fluids using a counter rotation mode in combination with scattering techniques. The final lecture of the symposium was given by Dietmar Auhl (University of Maastricht) and was devoted to a combined rheo-optics and rheo-scattering study of biobased liquid-crystalline polymers.

After the symposium, the general assembly of the German Rheological Society took place. It was announced that the next annual meeting will be organized jointly with the VDI ProcessNet group "Rheology" in Berlin (March 2016).

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## Slovenian Society of Rheology (SSR)

### MTDM Journal

Mechanics of Time-Dependent Materials (MTDM) is an international journal devoted to the time-dependent behavior of materials and structures. A quarterly journal is published through a joint arrangement between the Society of Experimental Mechanics and (SEM) and the Society of Plastic Engineers (SPE) since 1996. MTDM promotes the transfer of knowledge between various disciplines that deal with properties of time-dependent materials, approaching from different angles. Professor Igor Emri is elected Editor-in-Chief (for Europe, Asia and Africa) of MTDM, published by Springer Science + Business Media Dordrecht.

### The XVII International Congress on Rheology (ICR2016)

International Congress on Rheology (ICR2016) will be held in August 8 – 13, 2016 in Kyoto, Japan. It is co-organized by the Society of Rheology (Japan), Japanese Society of Biorheology, the Japan Society of Polymer Processing in collaboration with Institute for Chemical Research (Kyoto University, Japan), Department of Macromolecular Science (Osaka University, Japan), Graduate School of Science and Engineering (Yamagata University, Japan) and Kyoto Convention Bureau. Within this biannual congress Session on Mechanics of Time-Dependent Materials will be organized by Prof. Dr. Igor Emri (Slovenian Society of Rheology, Slovenia) together with Prof. Dr. Masayuki Nakada (Kanazawa Institute of Technology, Japan) and Prof. Dr. Kenneth M. Liechti (University of Texas at Austin, USA).

We are cordially inviting you to participate at the Symposium with your oral or poster contributions! More information can be found at http://icr2016.com/.





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