

## DISPERSE POLYMER SYSTEMS

March 28, 2006  
Dresden, Germany

## Conference Report

For the first time since 1999 the German Rheological Society (DRG) and the Division Chemical Physics and Polymer Physics of the German Physical Society (DPG) organized a joint symposium which was devoted to disperse polymer systems. The symposium was organized by Prof. Helmut Münstedt (University of Erlangen-Nürnberg), Prof. Norbert Willenbacher (University of Karlsruhe) and Dr. Ulrich Handge (ETH Zürich), and took place on March 28 in the Zeuner building of the Technical University of Dresden. It was part of the 21st General Conference of the Condensed Matter Division of the European Physical Society (EPS) and the Spring Meeting of the DPG (Division Condensed Matter) which in this year was a joint event of the EPS and the DPG. Consequently, the symposium was embedded in a multifarious scientific atmosphere of this EPS conference spanning topics from solid state physics over biological physics to polymer science.

The rheology of complex fluids such as polymers and multi-component polymeric fluids is a field where theory, experiments and computer simulations meet and mutually stimulate. Disperse polymer systems occur in many applications ranging from multiphase polymer blends to cosmetic and food products. Many scientific studies on disperse systems are presently undertaken in order to promote understanding of the properties of these systems. In order to bring together scientists from academia and industry working in this field and to exchange ideas, a symposium on disperse polymer systems was organized.

More than 100 participants attended the symposium with 4 invited and 13 contributed talks. The invited lectures were given by Prof. Jan Vermant (Catholic University of Leuven), Prof. Matthias Fuchs (University of Konstanz), Prof. Gert Heinrich (Leibniz Institute of Polymer Research Dresden) and Dr. Bettina Wolf (Unilever, Colworth). The sessions with the oral presentations were followed by a poster session with more than 45 posters.

After the opening of the symposium by Prof. Helmut Münstedt, in an illustrative lecture Prof. Jan Vermant reported on the structure and interfacial rheology of aggregated two-dimensional suspensions. His talk focused on the kinetics of aggregated structures and the application of a magnetic needle interfacial rheometer to the rheological characterisation of particle monolayers.



*Prof. Helmut Münstedt opens the symposium "Disperse Polymer Systems" in the Zeuner building.*

The progress in the theoretical description of the nonlinear rheological properties of glassy colloidal dispersions was presented in the inspiring lecture of Prof. Matthias Fuchs. The mode coupling theory forms the basis of an approach to the nonlinear rheology of dense colloidal suspensions which describes the structural relaxations in quiescent suspensions. The comprehensive and stimulating lecture of Prof. Gert Heinrich reviewed the rheology and structure kinetics of filled polymer nanocomposites and networks, such as the Payne effect in filled elastomers and the kinetics and recovery of nanoplatelets suspended in polymer matrices in shear step-strain experiments. The relevance of the microstructure of food products was elucidated by Dr. Bettina Wolf in her stimulating talk "Microstructure design for food applications". Stability and morphology control is of great importance for food products which was demonstrated with the gelation of deformed particles.

The stimulating morning and afternoon sessions with the oral presentations were followed by many living discussions in the poster session. The lectures and poster presentations equally addressed fundamental and applied questions with theoretical, numerical and experimental methods and attracted much attention of the rheological and physical communities. The resonance from both communities was very positive, and therefore it is planned to initiate again a joint meeting of the German Rheological Society and the German Physical Society at the Annual Spring Meeting of the DPG in 2008.

Ulrich Handge for AR  
(Photograph by Christian Sailer)

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