

GÖTEBORG, SWEDEN

APRIL 7 – 9, 2010

The 6th Annual European Rheology Conference was held April 7-9, 2010, in the premises of Chalmers University of Technology, Göteborg, Sweden. The official organizer of the meeting was the Nordic Rheology Society. This conference is regarded as one of the most important meeting platforms for rheologists from all over the world. This was probably also reflected in the number of delegates present being 431 from 42 nations. The conference was preceded by two short courses on selected topic within the rheology field, which added to the value of the meeting. This combination with short courses is certainly something to be considered in conjunction with future conferences as well. Furthermore, the organizers included the symposium on Ultrasonic Techniques (ISUD 7) into the conference program. During the first day, the weather was typical for that of Göteborg in the early spring; rather cloudy and grey, but as the conference continued the sun appeared and contributed to a better impression of the city.

The delegates were welcomed by the vice-president of Chalmers University of Technology, Stefan Bengtsson, the president of SIK-the Swedish Institute for Food and Biotechnology, Klas Hesselman, and the chairman of the organizing committee, Mats Stading from SIK and Chalmers University. The three conference days were divided into twelve symposia organized by the appointed chairpersons. The sessions were: Applied rheology, Complex flows, Complex fluids, Dispersion rheology, Food and biorheology, Interfacial rheology, emulsions and foams, Microrheology and microfluidics, Modelling, simulation and computational rheology, Polymer melts and solutions, Rheology of solids, Rheometry and Ultrasonic techniques. Altogether about 230 contributions were presented orally and the poster sessions included about 140 papers.

Two plenary lectures were given at the meeting by two distinguished scientists, Professor David Boger, University of Melbourne, and Professor Ole Hassager, Technical University of Denmark. In the opening lecture, David Boger gave a committed talk on Environmental Rheology in which he addressed mine waste management. Much of the waste has the form of a particle suspension and simply by a concentration process a more sustainable practice could be achieved. The use and understanding of rheology

of these concentrated suspensions have paved the way for improvements in the waste disposal strategy, at least in some cases. Ole Hassager raised the important question “How big are polymers?” and answered that it depends on the probing technique. In his lecture, he concentrated on Size Exclusion Chromatography (SEC) and suggested that the mean span dimension determines the retention time in SEC. A method for calculating the mean span dimension was presented and comparisons with SEC-measurements were made.

Each of the different symposia contained keynotes. For example, in his lecture on Applied rheology, Norbert Willenbacher addressed the issue of characterizing the elongational flow properties. He described the challenges and possibilities of using capillary breakup elongational rheometry for this purpose in the case of more complex fluids. In their experimental work, they had identified three characteristic shape parameters of the stretched filament. Peter Fischer in the Food and biorheology session explained how a proper processing could improve the rheological behaviour of some polysaccharides. They had isolated galactomannans and from their experiments they had concluded that, in addition to the botanical source, the processing could have a clear effect on the thickening behavior. A proper milling step is essential for these biopolymers with regard to their efficiency as viscosifiers. In a well-attended lecture Manfred Wagner reviewed recent progresses in the modeling of polymer melt rheology. Among other things he pointed to that, in the case of monodisperse linear polymers, there is now a constitutive equation that can handle non-linear extensional and shear rheology on the basis of linear viscoelastic measurements or data. Olivier Pouliquen brought the attention to the rheology of granular pastes and its importance in geophysical situations like landslides etc. He stressed the importance of using two-phase flow models for capturing the essential mechanisms underlying the flow behaviour of such mixtures of grains and liquids. Rheology of solids might appear to be a somewhat unusual topic, but it had attracted a number of delegates. In that session, Masayuki Nakada described how a nanoindentation technique could be used in order to extract viscoelastic functions of polymers. He furthermore went on to show how a developed accelerated

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testing methodology based on time-temperature superposition could model the long-term fatigue of a polymer matrix. The lecture by Helmut Münstedt in the Rheometry session contained a clear message: Use creep-recovery experiments in order to broaden the time scale of relaxation or retardation spectra. He also touched upon a very important issue; how to describe or identify the degree of filler dispersion in a polymer matrix and indicated the possibilities provided by creep recovery experiments in this context.

An international rheology conference is expected to cover all aspects on the flow behaviour of matter and this was certainly the case also in Göteborg. It is more or less impossible to review even a fraction of the presentations given and this is not the intention in the present short summary. More details of the conference can however be found on www.rheology-esr.org/AERC/2010/. Topics covered were for instance nanocomposites, shear banding, interfacial phenomena, flow in porous media, modeling of processing, extensional flows, magnetic suspensions and medical applications. Having said this, the very entertaining lecture given by Malcolm Mackley can however be paid attention to. He lectured on the Rheology of Swallowing and introduced the “Cambridge throat”, which had a serious swallowing disorder. The latter was a model throat by which they could follow the flow of thickening fluids during swallowing. The video clips shown from their experiments were really inspiring and research along these lines is intended to help people with swallowing disorders.

The social events during the conference were well received by the delegates. The City of Göteborg hosted a reception in the evening of the first conference day in the City Hall where the

Mayor of Göteborg welcomed all the delegates. The conference banquet took place at Park Avenue Hotel and after the well-deserved dinner, the delegates were entertained by a salsa group. Possibilities to learn salsa were also offered. During the banquet, Nils Gustavsson was awarded the “Carl Klason Rheology Award” by the Nordic Rheology Society for his excellent contributions towards promoting the rheology field in the Nordic countries.

Next year’s Annual European Rheology Conference will take place in the spring 2011 in Suzdal, Russia, and will be hosted by Professor Valery Kulichikhin.

Further information can be found by visiting the website www.rheology-esr.org/AERC/2011/.

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