

THERMO ELECTRON CORPORATION
JULY 1-2, 2004
KARLSRUHE/GERMANY

Applying and capitalizing from rheology is becoming more and more important to manufacturing companies. Therefore, exchanging experiences and ideas between leading authorities from research and industry is being advanced not only by universities, but also by the industry.

The Material Characterization business of Thermo Electron Corporation, a leading global analytical instruments vendor, established the RheoFuture® conference in 2001 as a forum for exchanging experiences between academic and corporate users of rheometry equipment. In the meantime the 2-days conference is internationally well positioned. "We are pleased to invite rheology experts and bring them together with industrial users," said Dr. Dirk Eidam from Thermo Electron (Karlsruhe). "This unique combination makes the conference a fascinating experience. We learn about upcoming trends in instrumentation measurement, which enables us to better meet the needs of our customers." The third annual international RheoFuture® Conference took place in Karlsruhe, Germany from July 1-2, 2004. The event was held in cooperation with the German Federal Research Centre for Nutrition and Food and focused on future trends in rheology. More than 70 international attendees listened to presentations from and participated in discussions with well-known rheological experts from research and industry.

Extensional rheology was a key topic of this year's conference. Representatives from industry and universities presented on the use of HAAKE Capillary Breakup Extensional Rheometers (CaBER) for industrial research and quality control. Gavin Braithwaite from CPG Boston introduced the session with the history and an overview about the CaBER concept. Christian Clasen from the University of Hamburg presented data on

polymer standard fluids, and showed clear relationships between extensional viscosity and molecular weight distributions. Norbert Willenbacher from the BASF gave a lecture on the elongational behaviour of acrylic thickener solutions, showing the complementary information of CaBER data compared to steady shear and oscillation experiments. The last key note was given by Günter Brenn from the University of Graz. His contribution "Elongational rheometry with polymer solutions for applications in liquid atomization" dealt with the formation and stability of spray droplets in different application areas. The following lively discussion in the session "Extensional rheology" again showed the immense potential of the CaBER technique in various applications.

One of the conference highlights was the presentation of the "Young Scientists Award": Thermo Electron (Karlsruhe) is promoting outstanding achievements in the fields of Rheology and Material Characterization. The award is given for current application-related research in which material characterization methods (rheometry, extrusion, on-line measurements, etc.) are applied innovatively to solve application problems. The competition is intended for young scientists at universities and research institutes. Students, graduates and researchers just starting their careers (younger than 35) were eligible to enter.

An international jury comprised of experienced researchers from renowned universities selected the best and most innovative contributions from around the globe. The judges were Nadia El Kissi (University of Grenoble), Crispulo Gallegos (University of Huelva), Kiyohito Koyama (Yamagata University) and Manfred Wilhelm (MPI Mainz). The winners (see winner profiles) presented their papers at the conference.

The second day of the conference was dedicated to the topic "Innovations in rheometry". Here several international rheologists presented actual research trends in rheometry. For more information about the RheoFuture® Conference and the winners of the 2004 award, please visit <http://www.rheofuture.de>

Winners of the "Young Scientists Award 2004":

■ Erik Miller, University of Massachusetts, Amherst, USA: "Control of the sharkskin instability in the extrusion of polymer melts using



More than 70 international delegates were welcomed at the 2-days conference.

induced temperature gradients” The “sharkskin” effect in industrial extrusion processes of polymers leads to undesired surface properties of the final product. This effect can be minimized by applying special temperature gradients at the die end of the extruder. Additionally, the overall energy input of the process can be reduced using this technique. Erik Miller, born December 5, 1978, is working currently on his Ph.D. at the University of Massachusetts, Boston/USA.



■ Sébastien Manneville, CRPP-CNRS, Pessac, France: “The ultrasonic rheo-velocimeter: a spatio-temporal approach of nonlinear rheology” This new analytical method can be used in industrial applications to forecast and monitor flow instabilities. An ultrasonic sensor is used in combination with a standard rheometer. At the same time the rheometer provides data on the sample’s viscosity and elasticity, the sensor provides profiles that allow microscopical flow behavior



to be examined. Sébastien Manneville was born on August 3, 1973 and he is working as a permanent researcher at the Centre de Recherche Paul Pascal - CNRS, Pessac, France

■ Hong Hai Le, Universität Halle Wittenberg, Germany: “Development of an online method for characterization of homogeneity of CB filled rubber mixture using electrical conductivity” The industrial process of mixing rubber and carbon black can be optimized by measuring electrical conductivity. The level of conductivity identifies the distribution of the filling agent carbon black in the mixture. This measurement technique has high potential for the automotive and adhesives industries. Dr.-Ing. Hong Hai Le was born on December 17, 1968 did his Ph.D. at the Martin-Luther-University Halle-Wittenberg Since 2001 he is working as a Project Scientist at the Martin-Luther-University.

Petra Roth



This year’s winners of the Young Scientists Award with members of the Jury and Thermo Electron (Karlsruhe) representatives: Nadia El Kissi (University of Grenoble), Dirk Eidam (Thermo Electron, Karlsruhe), Erik Miller, Uschi Karl (Thermo Electron, Karlsruhe), Hong Hai Le, Sébastien Manneville, Crispulo Gallegos (University of Huelva).