

International Workshop on Rheology and Structural Design of Complex Fluids 2011

Conference Report

LEUVEN, BELGIUM
FEBRUARY 7 – 8, 2011

An International Workshop on Rheology and Structural Design of Complex Fluids has taken place on February 7–8, 2011 in the Arenberg castle in Leuven (Belgium). The activity was organized by the Division of Applied Rheology and Polymer Processing of the K.U. Leuven on behalf of the Softcomp Network of Excellence and the Nanodirect Project. The objective of the workshop was to promote exchange of knowledge and discussions between scientists from academia and industry, so that people from academia focused on how rheological properties can be engineered or 'tailored' with structural design as exploiting particles shape effects, medium viscoelasticity or interfacial viscoelasticity. Speakers from industry had the opportunity to present some case studies that showed where challenges are, and how far one comes with the more traditional approaches. The workshop included 18 oral contributions related to three different themes. With respect to structural design, rheology and morphology modification in complex products such as paints, fluids used in oil recovery, drilling muds, food and cosmetic emulsions were elaborated. In addition, novel tools for the study and integration of nanoscale building blocks into complex fluids were presented. From the experimental side, the development and testing of new advanced tools to study complex fluids was discussed, including a partitioned cone geometry and a flexure-based microgap rheometer for SAXS studies. In addition, methods to interpret and extract physical relevant data from LAOS experiments were explored for different types of fluids. Several authors also showed the capabilities of mesoscale approaches in the simulation

of polymer solutions and complex polymers such as stars and telechelic polymers. In addition, more complex systems such as polymer composites and transient networks originating from supramolecular interactions were discussed. Finally, the directed self-assembly of nanostructures by flow fields and viscoelastic effects was addressed. Similar to the previous two themes, also here contributions came from both an experimental and numerical side.

During the workshop, the 40 participants had ample opportunities to discuss and meet with colleagues. The interactions between researchers from academia on the one hand and industry on the other hand as well as those between researchers focusing on experimental and those focusing on simulation techniques, were very valuable in creating new ideas and possibilities for further collaborations. In addition, the tour through the lab of the research group of Applied Rheology and Polymer Processing at the Katholieke Universiteit Leuven was highly appreciated. Apart from the scientific program, the participants also enjoyed the historic interior of the Arenberg castle and the scenic views of the castle and its park, that were covered in the first sun beams of the year. A group picture of the participants of the workshop in front of the Arenberg castle is shown in Figure 1. In the evening, discussions on scientific and other topics were vividly continued during the conference dinner, which was followed by Belgian beer tasting in downtown Leuven.

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Figure 1: Participants of the International Workshop on Rheology and Structural Design of Complex Fluids 2011.



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