5th Annual European Rheology Conference (AERC 2009), Cardiff, Wales, United Kingdom, 15–17 April 2009

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Received: 14 April 2010 / Accepted: 20 April 2010 / Published online: 12 May 2010
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The Fifth Annual European Rheology Conference (AERC 2009) was held at Cardiff University, Wales, United Kingdom. It was jointly organized by the British Society of Rheology (BSR), the Wales Institute of Non-Newtonian Fluid Mechanics (INNFM), and Cardiff University, under the auspices of the European Society of Rheology (ESR). The meeting attracted about 300 participants from 33 countries. The scientific program consisted of five parallel sessions with the Weissenberg Award lecture, two BSR Gold Medal lectures and two plenary and 11 keynote presentations; 160 contributed oral presentations, and 116 contributed poster presentations.

The keynote and contributed oral and poster presentations focused on either mainstream or emerging areas of rheology as follows (the symposia chairs are given in parentheses): (1) Blends, Copolymers and Nanocomposites (João Maia and Paula Moldenaers); (2) Process Modelling (Jae Hyun and Don Baird); (3) Rheometry and Beyond: Advanced Experimental Methods (Gareth McKinley and Susan Muller); (4) Interfacial Phenomena, Surfactants and Foams (Simon Cox and Gerry Fuller); (5) Suspensions and Colloids (Richard Buscall and Geoff Maitland); (6) Viscoplasticity, Solids Rheology (Corneliu Balan, Igor

Emri, and Ian Frigaard); (7) Biopolymers, Biorheology and Food Rheology (Mats Stading and Cris Gallegos); (8) Constitutive Modelling (Alexei Likhtman and Christian Bailly); (9) Non-Newtonian Fluid Mechanics (Oliver Harlen and Malcolm Mackley); (10) Computational Modelling (Paco Chinesta and Paulo Oliveira); (11) Flow-Induced Phase Transitions and Instabilities (Helen Wilson and Pier Luca Maffettone); (12) Industrial Rheology and Processing (Erik Wassner, Adam Burbidge, and Jason Stokes).

The conference began with a welcome from Peter Townsend (Deputy Chairman of INNFM). Manfred Wagner (President of the ESR) introduced Ole Hassager as the Weissenberg Awardee for 2009. The laudation, given by Gareth McKinley, was followed by the Weissenberg Award Lecture, “Polymeric liquids in extension: Fluid mechanics or rheometry?” The BSR Gold Medal lectures were given by Mike Cates (“Constitutive Equations for Colloidal Glasses From Statistical Mechanics”) and Tom McLeish (“The Microscale Polymer Processing Project: A Cornucopia of Collaboration”). The plenary lectures were given by Jae Hyun (“Successes in Simulation Efforts on Film Blowing Process Exhibiting Various Intriguing Characteristics in its Nonlinear Dynamics and Stability”) and Gareth McKinley (“Microfluidic Rheometry of Complex Fluids”). The keynote lectures were given by Patrick Anderson (“Length Scales in Mixing: From Polymer Processing to Microfluidics”), Michel Cloitre (“Surface Rheology of Soft Particle Pastes”), Thierry Coupez (“Fluid Buckling Calculation by Level Set and Adaptive Anisotropic Meshing”), Ian Frigaard (“On the Lubrication Paradox in Yield Stress Fluid Flows”), Crispulo Gallegos (“Influence of Processing on the Mechanical Properties of Controlled-

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Release Protein-Based Bioplastics”), Mike Graham (“Transport and Collective Dynamics in Suspensions of Swimming Microorganisms”), Bamin Khomami (“Modelling and Simulation of Dynamics of Polymeric Solutions: Progress and Challenges”), Kurt Kremer (“Making Coarse Grained Polymer Simulations Quantitatively Predictive for Statics and Dynamics”), Malcolm Mackley (“Extreme Rheometry: Beyond the Normal Experimental Boundary Conditions”), Mario Minale (“The Single Drop Dynamics: From the Unconfined to the Confined Newtonian Drop Passing Through the Non-Newtonian Case”), and Dave Weitz (“Rheology of Compressed Packings”).

Several exhibitors displayed their products during the conference: Anton Paar, TA Instruments, Thermo Scientific, Dynisco UK Ltd, Malvern Instruments, LS

Instruments. In addition, the Wales Institute of Non-Newtonian Fluid Mechanics and the British Society of Rheology displayed information about their activities.

We are grateful for financial support from TA Instruments, Anton Paar Ltd, Thermo Scientific, and Cardiff University. Several individuals especially contributed to the success of the conference: Phil Banfill, Peter Townsend, Mike Webster, Rhodri Williams, Ken Walters (members of the local organising committee), Leanne Munkley, and Kate Osbaldeston (AERC 2009 administrative support), Jon Harvey, and Didier Blésès (AERC 2009 website).

This special issue is devoted to AERC 2009. The assembled full-length, peer-reviewed papers are representative of the topics and scientific quality of the conference.