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Editorial: Viscoplastic Fluids: From theory to application 2013

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This issue of the Journal of Non-Newtonian Fluid Mechanics includes a series of papers based on work presented at the international workshop on Viscoplastic fluids: from theory to application, held Nov. 18-21, 2013 in Rueil Malmaison, France. A list of participants is provided in Table 1. This was the fifth biannual meeting on this subject. The previous meetings were held in Banff (Alberta, Canada), Monte Verita (Ascona, Switzerland), Limassol (Cyprus) and Rio de Janeiro (Brasil).

Like previous editions, the aim of the workshop was to bring together leading researchers in the field of viscoplastic fluids across several disciplines to foster the awareness and the transfer of ideas, both from academic research and industry. The program consisted in a single technical session and three invited keynote lectures. A total of 49 talks and 9 posters were presented, spanning fascinating topics from the coating of viscoplastic fluid on a plate to the numerical simulation of the transition of viscoplastic fluid flows to turbulence. The workshop enjoyed an unprecedented number of 80 participants, a popularity that emphasizes that viscoplastic fluids are a "hot" topic in the field of non-Newtonian Fluid Mechanics.

Invited speakers were John Tsamopoulos (University of Patras, Greece), Guillaume Olvarez (Laboratoire Navier, Université Paris-Est, France) and Fabrice Toussaint (Lafarge Centre de Recherche, France). John Tsamopoulos opened the meeting with an invited talk on the numerical simulation of yield stress fluid flows and its applications to the problem of the rising of a single bubble. He both elaborated on the technical details of the numerical tools available nowadays for the simulation of this class of flows and provided insight on the effect of elasticity and pressure oscillations. On the second day of the workshop, Guillaume Olvarez gave an overview on the rheological behavior of suspensions of particles and bubbles in yield stress fluid, illustrating his findings with a large number of experimental results.

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On the third day, Fabrice Toussaint bridged academic reseaach and industrial concerns in the field of concrete rheometry, ranging from the fundamental behavior of concrete slurry and their characterization in rheometers to the fascinating last i-Phone application designed to tell the truck driver how quick the concrete slurry properties are evolving in the truck's rotating drum while driving to the construction site. Standard talks ranged from experiments, theory to numerical simulations, with an emphasis on the rheological behavior of carbopol gels and the more general question of how to experimentally characterize yield stress materials with thixotropy, a question that has been mobilizing the attention of the yield stress community for a few decades. The realistic and accurate modelling of the behavior of viscoplastic and thixotropic still remains an unsolved question in the field, as already underlined two years ago in Rio de Janeiro, but also progress has been made, with new measurement techniques as, e.g., low amplitude oscillatory shear (LAOS). In particular, the workshop featured intense discussion on thixotropy and its mathematical modelling. Efforts in designing new numerical approaches with enhanced accuracy and fast convergence has seemed to slow down and the workshop was an occasion to collectively acknowledge that this research direction should be revived.

The workshop took place at IFPEN-Rueil Malmaison, in the suburb of Paris, France. IFPEN is a large national research center in the field of energy, with nice facilities and well designed services. The social program started with an ice-breaking cocktail in a French-style coffee shop named "Café Leffe" in the heart of Rueil Malmaison, which was a casual occasion to chat with long-term colleagues and enables new participants to VPF to immerse into the yield (no) stress community and yield to the pleasure of enjoying French wines and the warm and friendly atmosphere of the place. The grand dinner was organized in the magnificent "Chateau de la Malmaison", a genuine castle from the Napoleon era (early 18th century) now home to the Tuck Foundation since 1992. This year the organizers had decided not to deliver any "best talk" or "best poster" prices, in an attempt not to discriminate the contributions, and also because all were of equal amazing quality ! However, the grand dinner was the opportunity to give the "Bingham chocolate medal" to a long-term and high-level contributor to the field of viscoplastic fluids. The spirit of this prize is towfold: serious and casual, serious means that the organizing committee strongly believes that the scientific contribution of the laureate is outstanding, while the "chocolate" adjective reminds everyone that giving a prize to someone in particular is a highly subjective choice and should be considered with a certain degree of detachment. The prize was given to Prof. Ian Wilson for his work of the viscoplasticity of fluids in forming

and extrusion process over the grand dinner and the audience had the privilege to listen to an amazing and hilarious speech from Prof. Ian Frigaard, which fitted the spirit of the prize, i.e., a combination of sincere credit to Ian Wilson's scientific contribution to the field as well as both genuine and imaginary stories about his career. As in Rio two years before, participants could compete in a rheology contest which consisted in guessing the plastic viscosity and yield stress of four materials including chocolate paste, mustard, cancoillotte (french chesse from eastern France) and xxx. Thibault Chevalier won the contest and was awarded a box of chocolate sweets.

The Rueil Malmaison meeting was organized by Philippe Coussot and Xavier Chateau, from Laboratoire Navier, IFFSTAR, Marne-La-Vallée, France and Guillaume Vinay, Benjamin Herzhaft and Anthony Wachs, IFPEN-Rueil Malmaison, France. The conference gratefully acknowledges the sponsorship of the Labex MMCD of University Paris-Est, The Chair Lafarge-ENPC "Materials Science for Sustainable Construction" supported by Lafarge, and Total. We are also grateful to the editors-in-chief of the Journal of non-Newtonian Fluid Mechanics for agreeing to publish the proceedings of the workshop in this special issue. The sixth conference in this series will be back to Banff, Canada, in the fall 2015, where it started in 2005.

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Workshop website: http://www.rs-viscoplastic2013.com

A. Ahuja	G. Georgiou	L. Muravleva
A. Alexandrou	B. Geraud	M. Naccache
D. Andrade	S. Gonzalez-andrade	C. Negrao
C. Anglade	E. Gouillard	N. Nernabeu
C. Barentin	I. Hénaut	A. Nir
F. Bertails-descoubes	B. Herzhaft	G. Ovarlez
M. Briceno	R. Holm	T. Palermo
M. Bryan	S. Hormozi	Y. Peysson
T. Burghelea	R. Huilgol	R. Phillips
C. Castelain	I. Ionescu	T. Pringuey
X. Chateau	L. Jossic	J. Quignon
G. Chambon	L. Jorgensen	F. Rasschaert
T. Chevalier	I. Karimfazli	S. Rosales anzola
R. Chhabra	Z. Kebiche	M. Rukhadze
M.-F. Chirac	E. Lac	E. Sanchez
P. Coussot	M. Lambert	P. Saramito
Y. Damianou	F. Link	V. Shelukhin
A. Davaille	Y. Liu	A. Syrakos
G. Daviet	S. Lovett	L. Talon
J. De bruyn	L.-H. Luu	F. Toussaint
M. Denn	M. Maillard	J. Tsamopoulos
P. De souza mendes	R. Mendes	O. Thual
B. Dollet	G. Moises	G. Vinay
J. Ferec	M. Moyers gonzalez	A. Wachs
S. Frey	M. Mouzouri	I. Wilson
I. Frigaard	E. Muravleva	N. Zeraibi

Table 1 Participants to the 5th workshop on Viscoplastic fluids: from theory to application



Figure 1 Group photo in the park at IFPEN-Rueil Malmaison



Figure 2 The "Bingham chocolate medal" awarded to Ian Wilson by Ian Frigaard and Anthony Wachs over the grand dinner at Chateau de Vert-Mont