

# HSR Newsletter, 2008

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## 1 HSR in 2008

HSR wishes you a happy and productive new year, 2009. The year that has just ended did not witness an enhanced activity in terms of organising meetings and events, but it showed a greater than usual participation of our members in international conferences. Very few of us have paid our HSR membership dues and we would like to ask everybody to do so together with the dues for 2009.

Some of the meetings and our member's participation in 2008 are listed below. Please forgive me if I missed some of your papers. If you find errors or omissions, please send me an email ([gotsis@science.tuc.gr](mailto:gotsis@science.tuc.gr)) and I will rectify.

## 2 the XVth International Congress on Rheology

**The XVth International Congress on Rheology** took place in August 3 - 8, 2008, in Monterey, California, USA. It was organised by G. Fuller (Stanford U) and R. Powell (UC Davis). Symposia topics included: Polymer melts; polymer solutions; computational rheology; suspensions and colloids; foams, emulsions and surfactants; intrf. rheology, microfluids and single molecule methods; granular materials; solid rheology and composites; non-newt. fl. mechanics; rheometry; microstructural modelling; flow instabilities; pharmaceuticals, cosmetics and foods; process engineering. The participation of HSR members was impressive. Some papers that were presented by members of HRS are the following:

1. Effects of severe confinement on the structure and dynamics in polymer nanocomposites  
K. Chrissopoulou, A. Afratis, S.H. Anastasiadis (FORTH); S. Fotiadou (A.U.Th.); B. Frick (Institut Laue Langenvin)
2. Dynamic K-L analysis of the coherent structures in turbulent viscoelastic channel flows  
Gaurab Samanta, Antony N. Beris (University of Delaware); Robert A. Handler (Naval Research Laboratory); Kostas Housiadas (University of the Aegean)
3. Characterisation of large deformation behaviour of starch gels using compression and indentation techniques  
Chaiwut Gamonpilas, Maria Charalambides, Gordon J. Williams, Simon R. Gibbon (Imperial College London); Paul J. Dooling (ICI Applied Research)
4. Characterisation of fracture behaviour of starch gels using conventional fracture mechanics tests and wire cutting tests

- Chaiwut Gamonpilas, Maria Charalambides, Gordon J. Williams (Imperial College); Paul J. Dooling, and Simon R. Gibbon (ICI Applied Research)
5. Transient coating of the inner wall of a straight tube with a viscoelastic material  
Yannis Dimakopoulos, Michael Pavlidis, and John Tsamopoulos (Chemical Engineering, University of Patras)
  6. Extensional rheology of polypropylene melts: Experiments and modelling  
Antonios K. Doufas (Research & Technology, Sunoco, Inc.)
  7. Viscoelasticity of semifluorinated alkanes at the air-water interface  
Christina Christopoulou, Dimitris Vlassopoulos, George Fytas (FORTH); and Chris Clark (Max Planck Institute for Polymer Research)
  8. Stability of the annular Poiseuille flow of a Newtonian liquid with slip along the walls  
Maria Chatzimina, Georgios C. Georgiou (U. of Cyprus); Kostas Housiadas (U. of the Aegean); and Savvas G. Hatzikiriakos (Univ. of BC)
  9. Architecturally complex polymers: Viscoelasticity and extensional rheology  
Evelyne van Ruymbeke, Dimitris Vlassopoulos (FORTH); Michael Kapnistos (DSM Research); Edward Muliawan (Univ. of BC); Akira Hirao (Tokyo Inst. of Tech.); and Nikos Hadjichristidis (University of Athens)
  10. Novel miniature-scale mixing device for deformable materials  
Martin Sentmanat (Xpansion Instruments); Savvas G. Hatzikiriakos and Edward Muliawan (Univ. of BC);
  11. From reactor to rheology in LDPE modelling  
Daniel J. Read, Chinmay Das and Tom C. McLeish (U. of Leeds); Michael Kapnistos (DSM Research); Jaap Den Doelder (Dow Benelux); Iakovos Vitorias (Basell Polyolefines)
  12. Rheology of frustrated colloidal states: Transition from a colloidal gel to an attractive glass  
Nick Koumakis and George Petekidis (FORTH)
  13. Thermodynamically-guided non-equilibrium Monte Carlo method for generating realistic shear flows in polymeric materials  
Chunggi Baig and Vlas G. Mavrantzas (FORTH-ICEHT, Patras)
  14. Rheology of short-chain branched polyethylene melts under shear: Results from NEMD simulations and comparison with linear and H-shaped analogues  
Jun M. Kim, Brian J. Edwards (University of Tennessee); Chunggi Baig, David J. Keffer and Vlas G. Mavrantzas (FORTH-ICEHT, Patras);
  15. Imaging slip and shear banding in the rheology of hard-sphere colloidal glasses.  
Rut Besseling, Pierre Ballesta, Wilson C. Poon, Lucio Isa (U. of Edinburgh); and George Petekidis (FORTH, Heraklion)
  16. Simultaneous oscillatory rheology with dynamic light scattering-echo  
George Petekidis (IESL, FORTH, Heraklion)

17. A phenomenological classification of colloidal glasses based on their yielding  
Christina Christopoulou, Arnaud LeGrand, George Petekidis, and Dimitris Vlassopoulos (FORTH, Heraklion)
18. Decoding the viscoelastic response of polydisperse star/linear polymer blends  
Letizia Balacca (U. di Bologna); Evelyne van Ruymbeke and Dimitris Vlassopoulos (FORTH); Salvatore Coppola, S. Righi (Polimeri Europa).
19. On the use of indexes for quantifying long-chain branching in polyethylene: Can we describe the rheology of LCB PE and correlate it to processing performance by using a single number?  
Iakovos Vittorias (Basell Polyolefines)
20. Ageing, yielding and shear banding in soft colloidal glasses  
Simon A. Rogers and Paul T. Callaghan (School of Chemical and Physical Sciences, VUW); Dimitris Vlassopoulos (FORTH, Heraklion)
21. Effect of multiple branch points on non-linear rheology  
Keith M. Kirkwood and Gary Leal (U.Cal.Sa.Ba.); Dimitris Vlassopoulos (FORTH, Heraklion)
22. Dynamics of entangled polymers  
Michael Rubinstein, David Shirvanyants (U.North Carolina); Sergey Panyukov (Lebedev Physics Institute, Moscow); Michael Lang (Leibniz Institute für Polymerforschung); and Dimitris Vlassopoulos (FORTH, Heraklion)

In 2008 there was neither SoR nor ESR meetings because of the organisation of the International Congress of Rheology in the same year.

### 3 7th Hellenic Polymer Conference



The Hellenic Polymer Conferences are organised by the Hellenic Polymer Society, their main focus being the promotion of the research on polymers in Greece. Invited oral lectures are delivered by distinguished scientists from Greek and Foreign Institutions, standard oral presentations and poster sessions are given, on both new and more conventional issues.

The 7th Conference was organised at Ioannina on 29 September-1 October, 2008, by the HSR member prof. G. Floudas. Special attention was given at the poster sessions by awarding the most prominent poster. The following scientists presented their work as invited speakers:

Prof. P. Alexandridis, SUNY - University at Buffalo  
Prof. M. Bockstaller, Carnegie Mellon University  
Prof. H. -J. Butt, Max-Planck Institute for Polymer Research  
Prof. G. Fytas, University of Crete and FORTH (**HSR member**)  
Prof. N. Hadjichristidis, University of Athens  
Prof. J. W. Mays, ORNL / University of Tennessee at Knoxville  
Prof. M. Muthukumar, University of Massachusetts at Amherst  
Prof. M. Stamm, IPF / Technische Universität Dresden  
Prof. D. Theodorou, National Technical University of Athens (**HSR member**)  
Prof. E. L. Thomas, Massachusetts Institute of Technology

Two invited lectures given by HSR members were:

- “Tailoring sound propagation by mesoscopic engineering of soft matter”  
G. Fytas  
Max Planck Institute for Polymer Research, Department of Materials Science & Technology, U. of Crete, and FO.R.T.H
- “From chemical structure to physical properties of polymers via hierarchical modelling”  
D. N. Theodorou  
School of Chemical Engineering, NTUA

#### **4 PPS Regional Meeting for the Americas, 2008**

The regional meeting for the Americas of the Polymer Processing Society took place in Charleston, SC, on 26 -29 October, 2008. It was organised by Douglas Hirt of Clemson University at the Center for Advanced Engineering Fibers and Films (CAEFF), a National Science Foundation Engineering Research Center that comprises a partnership among Clemson University, the Massachusetts Institute of Technology, and Clark Atlanta University. HSR members attended the meeting and presented the following papers:

- Simulation of Structure in Flow of Poly-Tetra-Fluoro- Ethylene (PTFE) Paste Through Contractions  
E. Mitsoulis, T. Zisis, S. G. Hatzikiriakos
- The Role of Viscosity, Elasticity and Surface Tension on Polymer Particle Coalescence  
J. Vlachopoulos, E. Takacs

#### **5 2008 annual PPS meeting in Salerno**

The 2008 Annual Meeting of the Polymer Processing Society took place in Salerno (Italy), June 15-19, 2008, at the Grand Hotel Salerno. Papers presented by HSR members include the following:

- Keynote Lecture: Simulation of Poly-Tetra-Fluoro-Ethylene (PTFE) Paste in Contraction Flows  
Evan Mitsoulis and Savvas G. Hatzikiriakos
- Keynote Lecture: A finite element based methodology for solving moving boundary problems with large deformations in complex geometries: Applications in polymer processing and rheology,  
J. Tsamopoulos, Y. Dimakopoulos.
- Linear and non-linear viscoelasticity of polydisperse star/linear polymer blends  
Salvatore Coppola; Letizia Balacca; Sandra Righi; Dimitris Vlassopoulos; Evelyn van Ruymbeke
- Rethinking the Mathematical Modeling of Film Blowing  
J. Vlachopoulos

## 6 Some 2009 meetings and their deadlines

Some of the international meetings in 2009 that may interest the Rheologists of our Society are listed below.

1. 5th Annual European Rheology Conference (AERC 2009) in Cardiff, UK. ([www.rheology-esr.org/AERC/2009/](http://www.rheology-esr.org/AERC/2009/)).

The aim of AERC 2009 is to contribute to the advancement of Rheology by bringing together interested researchers from Europe and the rest of the world, and bridging traditional themes with modern trends.

Following the tradition of European Rheology meetings, AERC 2009 will be a 3-day conference (15th - 17th April) split into symposia that reflect mainstream or emerging areas of Rheology.

To download the flyer click:

[http://www.rheology-esr.org/AERC/2009/UploadDir/File/AERC2009\\_2010\\_web.pdf](http://www.rheology-esr.org/AERC/2009/UploadDir/File/AERC2009_2010_web.pdf)

2. de Gennes Discussion Conference, February, 2-5, 2009.

The French Group of Rheology, under the auspices of the European Society of Rheology, organises the “de Gennes Discussion Conference”, entitled:

From reptation to glassy materials: de Gennes pioneering work in rheology and recent developments.

It will be held in February, 2-5, 2009, in Chamonix (France), a nice city nestled in the Alps, at the foot of Mont Blanc. This Conference aims at gathering a wide community involved in the fields of rheology for which de Gennes’ contributions have been decisive. The Conference will be based on invited lectures by distinguished experts in different fields. The presentations will be distributed in thematic workshops in which all the participants will have the possibility to present a poster after a short plenary oral presentation (of about 5 min.). Also, round tables will be organised.

The main topics include: Polymer melt rheology and dynamics; Polymers in solutions and specific interactions; Polymers at surfaces and interfaces; Suspensions.

3. The 4th China-Europe Symposium on Processing and Properties of Reinforced Polymers

June 8 - 12, 2009 at scenic Guilin, China.

This unique conference will focus on the achievements and recent advances in all topics on polymer technology. It also intends to enhance interactions among leading experts and promising innovators from research institutions, end-use industries and academia.

The deadline for submission is January 31, 2009. For further information please refer to the conference website:

<http://departs.gilite.edu.cn/cesp4/homepage.asp>

4. 25th Annual Meeting of PPS, Goa, March 1 - 5, 2009.

The 25th Annual meeting of The Polymer Processing Society is being organised at Panaji, Goa from March 1 to 5, 2009. Main objective of this meeting is to foster exchange of sci-tech developments and innovations in polymer processing by providing a discussion forum for the world-wide community of engineers and scientists in this field. This event will provide an erudite platform for plastic processing fraternity for sharing insights, enhancing interactions and showcasing innovations.

Important Dates:

Submission of final paper : 15th January 2009

5. 81st Annual Meeting of The Society of Rheology, October 18-22, 2009, Madison, Wisconsin

In 2009, the Rheology Research Center will host The Society of Rheology for its 81st Annual Meeting. Professor Giacomini will chair the Local Arrangements Committee. This meeting will be held October 18-22, 2009 at the Monona Terrace Convention Center. The meeting is organised in conjunction with the Conference Planning Services Department of the University of Wisconsin-Extension.

This will be the fourth time that the RRC will host an annual meeting of The Society of Rheology, previous meetings hosted in 1961, 1977 and 1999.

6. The International Symposium on Food Rheology and Structure, ETH Zürich, June 15 - 18, 2009.

<http://www.isfrs.ethz.ch/index>

The International Symposium on Food Rheology and Structure (ISFRS) is hosted by the Institute of Food Science and Nutrition at ETH Zürich. The symposium was initiated in 1997 by Erich J. Windhab and E. Dewald and since then held every three years in 2000, 2003, and 2006. The next symposium will take place in June 2009. The International Symposium on Food Rheology and Structure addresses the needs of food rheology and structure researchers. The symposium is devoted to rheology of food and related systems, to food structure and structure analysis, and to the complex relationship between food processing, structure, rheology and resulting food quality.

An overview of the state of the art and a detailed focus on recent problem areas are given by the opening lecture and several keynote lectures that are presented by well-known scientists. Oral and poster contributions are organised in individual symposium sessions grouped around the introduced research

topics in food rheology and structure. All papers presented during ISFRS are published in Conference Proceedings. For ISFRS 2006 special issues of the International Journal of Food Science & Technology and Applied Rheology were published.

7. 18th Nordic Rheology Conference, Reykjavik, 19-20th August, 2009

[http://www.rheo.is/docs/NR\\_flyer\\_3rd\\_edition.pdf](http://www.rheo.is/docs/NR_flyer_3rd_edition.pdf)

The 18th Nordic Rheology Conference will take place in Reykjavik Iceland 19th - 20th of August 2009 at the Grand Hotel Reykjavik. Two rheology courses will take place before the conference. The ICI Rheology Course will take place 17th - 18th of August and the NRS Rheology Course will take place after lunch at the 18th of August. Both courses will be located at Innovation Center Iceland. Two conferences will be held at the conference venue at the same time. The Rilem International Symposium on Rheology of Cement Suspension such as Fresh Concrete (19th - 21st of August 2009) and the 18th Nordic Rheology Conference of Suspension Rheology (19th - 20th of August 2009). By combining the two conferences the participant will have a unique opportunity to explore different specific subjects since the Rilem participants will have access to the NRC conference and v.v. Both conferences will share the invited lectures during the opening lectures.

8. 8th World congress in Chemical Engineering, Montréal, August, 23-27, 2009

<http://www.wcce8.org/index.html>

Canada and Montréal will welcome the international chemical engineering community to the 8th World Congress of Chemical Engineering (WCCE8), at the downtown Palais des Congrès de Montréal, August 23 to 27, 2009. WCCE8's technical program will emphasise the key role played by chemical engineers from all around the world in developing the processes and products needed by humanity in a more sustainable way—as highlighted in the Congress's overall theme “Challenges for a Changing World”.

9. Europe/Africa Regional Meeting of the Polymer Processing Society, PPS 2009, will take place at the Golden Bay Hotel, in Larnaca, Cyprus, between the 18th - 21st October, 2009. It is organised by (HSR members) Prof. Evan Mitsoulis (chair) and Prof. Georgios Georgiou (co-chair). The conference will include plenary lectures, parallel symposia and poster sections on the following topics:

1. Extrusion, Coating and Joining, 2. Films and fibers, 3. Injection Molding & Molds, 4. Blow and Rotational Molding and Thermoforming, 5. Thermosets and Reactive Processing, 6. Mixing & Compounding, 7. Rheology & Rheometry, 8. Modeling and Simulation, 9. Morphology and Structure Development, 10. Polymer Alloys and Blends, 11. Processing of Composites and Filled Systems, 12. Elastomers & Elastomer Processing, 13. Process Monitoring, Control & Sensors, 14. Green Polymers, Reprocessing & Recycling, 15. Foam Processing and Applications, 16. Precision Injection Moulding, New Moulding Technologies, 17. New Processes and Testing Methodologies, 18. Nano-Structured Materials, 19. Properties after Processing, 20. Polymers for Biomedical and Pharmaceutical Applications, 21. Electronics and Optics Related Polymers), 22. Polymers for Advanced Applications.

#### Deadlines

Abstract Submission: May 15, 2009, 200-300 words Abstract.

Notification of Acceptance: June 1, 2009 Paper due: September 11, 2009

More details can be found at <http://www.pps-2009.com>.

10. The 7th Panhellenic Scientific Chemical Engineering Conference will take place in Patras, between 4-6 June, 2009. More info (in Greek) can be found at: <http://www.pesxm7.gr/>

The conference is organised every two years successively in Patras / Thessaloniki / Athens and it is the most important scientific event in the area of Chemical Engineering in Greece. The next conference will take place from 4th to 6th June, 2009, in Patras in the facilities of the Conference & Cultural Centre of the University of Patras.

11. 3rd Viscoplastic symposium: Viscoplastic Fluids: From Theory to Applications, Limassol, Cyprus, 1-5 November, 2009. Organised by (HSR members) Prof. Andreas Alexandrou and Georgios Georgiou.

## 7 Further...

Voting should be scheduled in 2009 to elect the new executive to replace the current one. If many of us are present at the PPS-2009 meeting in Larnaca (more likely, it will be a big meeting with around 250 people), the election can take place there. Otherwise it could take place during the 3rd Viscoplastic Symposium in Limassol, in November 2009, or by electronic vote.

Dear members of HSR, please check your email addresses at the society's web page<sup>1</sup> and send any corrections to "gotsis@science.tuc.gr". Please send me any material (including, interesting links, "strange" ideas, proposals, publications, awards, announcements etc.) that you consider interesting for HSR and suitable to be published at the web page. — ADG

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<sup>1</sup><http://esperia.iesl.forth.gr/~hsr/HSRwebpage.html>