



HSR 2004

**HELLENIC SOCIETY
OF RHEOLOGY**



Athens, Greece

June 27-29, 2004

Programme

HSR 2004 Program Summary

Sunday, June 27, 2004

17:00-19:00 *Registration, Hotel Armonia*
20:30-22:30 *Cocktail Party and Buffet by the Hotel Armonia Pool*

Monday, June 28, 2004

08:30-09:00 *Registration*
09:00-09:05 *Welcome remarks*
09:05-09:50 Plenary presentation by Prof. Kirk Valanis
09:50-10:30 2 presentations
10:30-11:00 *Coffee break*
11:00-13:00 6 presentations
13:00-15:00 *free for lunch*
15:00-16:40 5 presentations
16:40-17:00 *Coffee break*
17:00-18:00 2 presentations + HSR Business Meeting
18:00-20:30 *Break*
20:00-23:00 *Banquet*

Tuesday, June 29, 2004

08:45-09:30 Plenary presentation by Prof. A. Beris
09:30-10:30 3 presentations
10:30-11:00 *Coffee break*
11:00-13:00 6 presentations
13:00-15:00 *free for lunch*
15:00-16:40 5 presentations
16:40-17:00 *Coffee break*
17:00-18:00 2 presentations
18:00 *End of Conference*

Total:

1 Plenary presentation by Prof. K. Valanis (45 min)
1 Plenary presentation by Prof. A. Beris (45 min)
31 oral presentations (20 minutes each)
17 Posters

Monday, June 28, 2004

08:30 Registration

09:00 Welcome Remarks

Morning session I: Rheology and Rheometry

Plenary Talk: Chair: G.C. Georgiou, J. Vlachopoulos

09:05-9:50 Kirk Valanis

09:50-10:10 A.D. Gotsis, C. Tsenoglou
Long chain branches and the rheology of polypropylene

10:10-10:30 E. Mitsoulis, S.G. Hatzikiriakos
The effect of slip in the flow of a branched PP melt: simulations and experiments

10:30-11:00 *Coffee break*

Morning session II: Rheology and Rheometry

Chair: Ch. Tsenoglou, A. Alexandrou

11:00-11:20 E. Kaliviotis, S.H.D. Jackson, E. Ouldred, A. Kamp, X.-F. Yuan
Quantitative characterisation of human bloods under rheometric flows

11:20-11:40 G. Gotzamanis, C. Tsitsilianis
Hydrophobically end-capped cationic polyelectrolytes and their rheological properties in salt-free aqueous solutions

11:40-12:00 N. Miskolczi, L. Bartha, Gy. Deak, Sz. Biro, A. Geiger, B. Jover
The change of rheological properties of waste polymers in thermal degradation

12:00-12:20 A. Guštin, E. Mitsoulis, A. Zupančič
Polyamide-6: pressure drop estimation through wire mesh filters and spinnerets

12:20-12:40 W.M. Holmes, P.T. Callaghan, D. Vlassopoulos, J. Roovers
Observation of shear banding in ultrasoft colloidal gels

12:40-13:00 G. Petekidis, V. Carrier, D. Vlassopoulos, P.N. Pusey, M. Ballauff
Rearrangements and yielding in glasses of hard and soft colloids

13:00-15:00 *Free for lunch*

Afternoon session I: Structure and Dynamics of Polymers

Chair: A. Gotsis, G. Petekidis

15:00-15:20 C. Tsitsilianis, F. Bossard, N. Stavrouli, V. Sfika
The rheology of a physical gel formed by double hydrophilic triblock copolymers

15:20-15:40 N. Stavrouli, C. Tsitsilianis, A. Kiriy, G. Gorodyska, S. Minko, M. Stamm
Rheology and morphology of associative telechelic polyelectrolytes

15:40-16:00 H. Mendil, P. Baroni, L. Noirez

Analysis of shear-induced nematic-isotropic transition in side-chain liquid crystal polymer

16:00-16:20 **A. Geiger**, Sz. Biro, N. Miskolczi, L. Bartha, Gy. Deak
Changing of viscosity of rubber bitumen in storage time

16:20-16:40 **Sz. Biro**, X. Lukacs, A. Geiger, N. Miskolczi, L. Bartha, Gy. Deak
Performance of asphalt rubber versus shear stress

16:40-17:00 **Coffee break**

Afternoon session II: Colloids and Suspensions

Chair: D. Vlassopoulos, C. Tsitsilianis

17:00-17:20 G.E. Yakubov, V. Michailidou, **B. Loppinet**, G. Fytas, J. Ruhe
Dynamics of end-grafted polymer brushes: an evanescent wave dynamic light scattering study

17:20-17:40 T.B. Goudoulas, E.G. Kastrinakis, **S.G. Nychas**
Characteristic viscosities and a stress model fitting on consecutive flow curves of dense lignite-water suspensions

17:40-18:00 **HSR Business Meeting**

18:00 *End*

20:00-23:00 *Banquet*

Tuesday, June 29, 2004

Morning Session I: Numerical Simulations

Plenary Talk Chair: J. Tsamopoulos, V. Mavrantzas

- 08:45-9:30 **A.N. Beris**
*Recent advances in DNS of turbulent viscoelastic channel flows:
Understanding polymer-induced drag reduction*
- 09:30-09:50 **K.D. Housiadas, A.N. Beris**
*An efficient spectral technique for direct numerical simulations of viscoelastic turbulent
channel flow*
- 09:50-10:10 **K. Foteinopoulou, V.G. Mavrantzas, J. Tsamopoulos**
*Numerical simulation of bubble growth during filament stretching of Newtonian and
viscoelastic fluids*
- 10:10-10:30 **Y. Dimakopoulos, J. Tsamopoulos**
Transient displacement of viscoelastic liquid by air
- 10:30-11:00 **Coffee break**

Morning Session II: Numerical Simulations

Chair: E. Mitsoulis, S. Nychas

- 11:00-11:20 **L. Pamela Cook, R.J. Braun**
Thin films and viscoelasticity
- 11:20-11:40 **G. Karapetsas, N. Chatzidaki, M. Pavlidis, J. Tsamopoulos**
Transient squeeze flow of viscoplastic liquids
- 11:40-12:00 M. Chatzimina, **G.C. Georgiou, E. Mitsoulis, R.R. Huilgol**
Time-dependent Couette and Poiseuille cessation flows of Bingham fluids
- 12:00-12:20 **A.N. Alexandrou, G.C. Florides, G.C. Georgiou**
Simulations of Herschel-Bulkley flow in compression molding
- 12:20-12:40 E. Mitsoulis, **S. Sofou**
Simulations of Herschel-Bulkley flow in roll coating
- 12:40-13:00 **J. Vlachopoulos, D. Strutt**
Modeling challenges in plasticating screw extrusion
- 13:00-15:00 **Free for lunch**

Afternoon Session I: Molecular Modeling

Chair: A. Boudouvis, N. Pelekasis

- 15:00-15:20 **I.A. Bitsanis, A.N. Rissanou, D. Vlassopoulos**
*The origin of thermally-induced vitrification in suspensions of multi-arm star polymers:
a molecular dynamics study*
- 15:20-15:40 **N.Ch. Karayiannis, V.G. Mavrantzas**

Branch point friction and its role in the dynamics of H-shaped polyethylene melts as probed by long molecular dynamics simulations

15:40-16:00 **G. Tsolou**, V.G. Mavrantzas
Atomistic simulation of the dynamics of cis-1,4 polybutadiene and its dependence on temperature and pressure

16:00-16:20 **A. Tzavaras**
Structural properties of hyperbolic relaxation, an example from viscoelasticity with memory to polyconvex elastodynamics

16:20-16:40 **H. Pleiner**, M. Liu, H.R. Brand
A Physicist's view on constitutive equations

16:40-17:00 **Coffee break**

Afternoon Session II: Experimental, theoretical and computational fluid dynamics

Chair: A. Zupančič, K. Housiadas

17:00-17:20 K. Tsiglifis, **N. Pelekasis**
Weak viscous oscillations and collapse of laser and acoustic bubbles

17:20-17:40 A.N. Spyropoulos, **A.G. Boudouvis**
Finite element computations with parallel Newton/Krylov solvers on Beowulf clusters

17:40-18:00

18:00 *End*

Poster Session:

1. C.V. Boas, C. Tzoganakis
Rheological properties of controlled-rheology metallocene polypropylenes
2. L. Slemenik Perše, M. Žumer, A. Zupančič, A. Bouras, A. Boudouvis, E. Mitsoulis
Laminar mixing of non-Newtonian fluids in agitated vessels with baffled impellers: experiments and simulations
3. E. Mitsoulis, C. Papoulias
The effect of fiber-glass content on the rheology of semi-concentrated polymer composites
4. E. Mitsoulis, P. Kotsos
Rheological effects in wire coating
5. E. Mitsoulis, A. Matsoukas
Squeeze flow of yield-stress fluids: theory and experiments
6. E. Mitsoulis, S. Galazoulas
The effect of rheology on the drag and stability of cylinders moving in yield-stress fluids
7. E. Mitsoulis, A. Psarreas, G. Ntagas
Start-up Couette and Poiseuille flows of yield-stress fluids
8. Y.A. Altukhov, V.N. Pokrovskii
Numerical simulation of polymeric fluid flows
9. M.A. Makarova, G.V. Pyshnogray
The mesoscopic theory of linear polymer solutions and melts dynamics
10. E. Stiakakis, G. Petekidis, D. Vlassopoulos, C.N. Likos, J. Roovers, H. Iatrou, N. Hadjichristidis
Depletion attraction in mixtures of soft colloids and linear polymers in solution
11. M. Dressler, B.J. Edwards
Rheology of polymer blends with a narrow droplet size distribution
12. C. Clasen, W.-M. Kulicke
Determination of structure-property-relationship of polymers in solution
13. M. Kapnistos, D. Vlassopoulos, L.G. Leal, J. Roovers
Rheology of model branched polymers
14. P.K. Rozakeas
Electrokinetically enhanced flow of coal-water suspensions in a pipe with a helical anode-cathode design embedded in the pipe wall
15. E. Taliadorou, E. Stiakakis, G. Georgiou, D. Vlassopoulos
A structural model for thixotropic fluids exhibiting yield stress
16. I. Katsampas, C. Tsitsilianis, D. Vlassopoulos
Stimuli responsive physical gel formed by ABC telechelic polyelectrolyte
17. B. Abu-Jdayil, H.A. Mohameed
Effect of Dead Sea salt on the rheological behavior of hair shampoo