



HSR 2007



HELLENIC SOCIETY OF RHEOLOGY



Rhodes, Greece

June 5-10, 2007



Programme



CHAIRS' MESSAGE

It is with great pleasure that we welcome all delegates and accompanying persons to the 5th Meeting of the Hellenic Society of Rheology, HSR 2007, in Rhodes, Greece. HSR meetings are rotated every 3 years among various locations around Greece and Cyprus. This is the 5th meeting since the foundation of the Society in 1996, when its 1st meeting was held in Nicosia, Cyprus. The 2nd meeting was held in 1998 in Herakleion, Crete, the 3rd meeting in 2001 in Patras, and the 4th meeting in 2004 in Athens. Rhodes has been chosen for this meeting, as it is the capital of Dodecanese Islands, and boasts many historic sites as well as sun, sea, excellent facilities, etc., and it has been a place of tourism and holidays since antiquity.

The HSR 2007 Meeting is a very special meeting as it is combined with the XVth International Workshop on Numerical Methods for Non-Newtonian Flows (XVth IWNMNNF). The HSR meeting starts with sessions on experimental rheology and rheometry and continues with computational rheology, where many Greek rheologists contribute. The combined Conference includes 2 plenary and 55 oral lectures and 10 posters. The scientific papers will be presented under 8 major themes. We hope that this Conference will promote and facilitate scientific exchange, collaboration and interactions between participants as well as their organisations in advancing science and technology based on rheology.

Rhodes is reputed as the “Island of the Sun” and boasts some terrific beaches together with ancient and medieval sights that attract people from around the world. We hope all international delegates will experience the important attractions that Rhodes has to offer during their stay on the island.

We thank all the sponsors of this Meeting for their generous support. We are indebted to the members of the Organising and Scientific Committees and other individuals for their commitment and hard work in order to make this Meeting a successful event.

Prof. Evan Mitsoulis
Conference Chair

Prof. Vlas Mavrantzas
Conference Vice-Chair

HSR 2007 Organising Committee

E. Mitsoulis (Chair), Athens
V. Mavrantzas (Co-Chair), Patras
A. Payatakes, Patras
N. Pelekasis, Volos
D. Theodorou, Athens
J. Tsamopoulos, Patras
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D. Theodorou, Greece
J. Tsamopoulos, Greece
Ch. Tsenoglou, Greece
D. Vlassopoulos, Greece

HELLENIC SOCIETY OF RHEOLOGY

The *Hellenic Society of Rheology (HSR)* was officially formed on June 16th, 1996, in Athens, Greece, by the Greek judicial authorities having the necessary core of the first 20 founding members. Thus came into fruition the original attempts by the late Professor Tasos Papanastasiou to organize the Greek Rheological community and the many scientists and engineers who practice rheology in their professional careers.

Rheology enters in some form into almost every study of material properties. Many physicists, chemists, engineers, biologists and mathematicians find a common meeting ground in the Society's meetings and publications. It is a small society compared to many others, membership currently being about 40. Membership in HSR is open to all researchers in the field, and to all persons who feel the activities of the Society advance their professional development. The membership represents a wide spectrum of individuals from academic, industrial, and governmental institutions whose activities include both phenomenological and molecular theories, instrumentation, the study of many types of materials such as polymers, metals, petroleum products, rubber, paint, printing ink, ceramics and glass, foods, biological materials, floor preparations and cosmetics, and a wide range of practical applications.

The Hellenic Society of Rheology is one of the fifteen (15) founding members of the *European Society of Rheology*. By virtue of this affiliation, all Members of the Society receive the ESR's Newsletter. The Society is also a member of the International Committee on Rheology, which organizes the *International Congress on Rheology*, held every four years.

Please visit the HSR website at:

<http://esperia.iesl.forth.gr/~hsr/HSR.html>

HSR Executive Committee (2006-2008)

President	A. Alexandrou
President-Elect	A. Gotsis
Secretary/Treasurer	S.G. Hatzikiriakos
President-Past	V. Mavrantzas
Members-at-large	E. Mitsoulis
	Ch. Tsenoglou
Webmaster	A. Gotsis

HSR 2007 Program Summary

Tuesday, June 5, 2007

17:00-19:00 *Registration, Hotel Rodos Palace*
20:30-22:30 *Cocktail Party by the Hotel Rodos Palace Pool*

Wednesday, June 6, 2007

08:00-08:30 *Registration for HSR*
08:30-08:40 *Welcome remarks for HSR*
08:40-09:20 Plenary presentation by Prof. Dimitris Vlassopoulos
 09:25-10:15 2 presentations
 10:15-10:45 *Coffee break*
 10:45-11:35 2 presentations
11:35-11:55 *Discussion*
12:00-14:00 *Lunch*

14:00-18:00 *Free time*

18:00-18:30 *Registration for Workshop*
18:30-18:40 *Welcome remarks – Motivation – Organizational details*
18:40-19:20 Plenary presentation by Prof. Roger Tanner
 19:25-21:00 4 presentations
21:00-22:30 *Welcome Buffet*

Thursday, June 7, 2007

08:00-10:00 5 presentations
10:05-10:20 *Coffee break*
 10:20-12:00 4 presentations (1 from HSR)
12:05-14:00 *Lunch*
 14:00-15:35 4 presentations (3 from HSR)
15:40-15:55 *Coffee break*
 15:55-16:15 2 presentations (1 from HSR)
17:00 *Free Evening*

Friday, June 8, 2007

08:00-10:00 5 presentations (2 from HSR)
10:05-10:20 *Coffee break*
 10:20-12:00 4 presentations (1 from HSR)
12:05-14:00 *Lunch*
 14:00-15:35 Poster Session – 10 posters (7 from HSR)
15:40-15:55 *Coffee break*

16:00-20:30 *Excursion to Lindos*

Saturday, June 9, 2007

08:00-10:00 **5 presentations (1 from HSR)**
10:05-10:20 *Coffee break*
10:20-12:00 **4 presentations (1 from HSR)**
12:05-14:00 *Lunch*
14:00-15:35 **4 presentations**
15:40-15:55 *Coffee break*
15:55-16:15 **2 presentations**
16:45-20:30 *Free Evening*
20:30-22:30 *Conference Dinner*

Sunday, June 10, 2007

09:00-10:35 **4 presentations (2 from HSR)**
10:35-11:00 *Coffee break*
11:00-11:20 **1 presentation**
11:25-11:55 **Discussion – Closing Remarks**
12:00-14:00 *Lunch*
End of Workshop

Total:

1 Plenary presentation by Prof. D. Vlassopoulos (45 min)
1 Plenary presentation by Prof. R. Tanner (45 min)
55 oral presentations (16 from HSR) (25 minutes each)
10 Posters (7 from HSR)

Day 1: Wednesday Morning, June 6, 2007

- 08:00-08:30 *Registration*
08:30-08:40 Welcome remarks – Motivation – Organizational details
 Evan Mitsoulis, National Technical University of Athens, Greece

Plenary Lecture

Chair: E. Mitsoulis

- 08:40-09:20 (A83) Yielding mechanisms in colloidal glasses
 Dimitris Vlassopoulos, G. Petekidis, FORTH & University of Crete, Herakleion, Greece
 M.E. Helgeson, N.J. Wagner, University of Delaware, USA
 S. Rogers, P. Callaghan, Victoria University, Wellington, New Zealand

Session 1: Experimental Rheology

Chair: V.G. Mavrantzas

- 09:25-09:45 (A40a) Rheology and microscopic rearrangements of colloidal glasses and shear-induced crystals
 N. Koumakis, G. Petekidis, FORTH & University of Crete, Herakleion, Greece
- 09:50-10:10 (A40b) Rheology of attractive hard sphere glasses and gels
 N. Koumakis, G. Petekidis, D. Vlassopoulos, FORTH & University of Crete, Herakleion, Greece
 K.N. Pham, S.U. Egelhaaf, W.C.K. Poon, P.N. Pusey, University of Edinburgh, UK
- 10:15-10:45 *Coffee break*
- 10:45-11:05 (A84) Ageing and yielding in a soft colloidal glass
 C. Christopoulou, G. Petekidis, D. Vlassopoulos, FORTH & University of Crete, Herakleion, Greece
- 11:10-11:30 (A80) Rheological characterization of foodstuff used in rolling experiments and modeling via integral constitutive equations
 E. Muliawan, S.G. Hatzikiriakos, University of British Columbia, Vancouver, Canada
 S. Sofou and E. Mitsoulis, National Technical University of Athens, Greece
- 11:35-11:55 *Discussion*
- 12:10-14:00 *Lunch*

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In Bold letters are contributions from HSR members

Day 1: Wednesday Evening, June 6, 2007

- 18:00-18:30 *Registration*
18:30-18:40 Welcome remarks – Motivation – Organizational details
 Evan Mitsoulis, National Technical University of Athens, Greece

Plenary Lecture

Chair: E. Mitsoulis

- 18:40-19:20 The changing face of computational rheology
 Roger Tanner, University of Sydney, Sydney, NSW, Australia

Session 1: Viscoelastic Suspensions

Chair: B. Khomami

- 19:25-19:45 (A24) Rigid rods in non-homogeneous shear flow
 M.J. Green, R.C. Armstrong, MIT, Cambridge, MA, USA
 R.A. Brown, Boston University, Boston, MA, USA
- 19:50-20:10 (A30) Numerical simulations of concentrated viscoelastic suspensions in an elongational flow
 G. D'Avino, P.L. Maffettone, University of Napoli, Italy
 M.A. Hulsen, G.W.M. Peters, Eindhoven University of Technology, The Netherlands
- 20:15-20:35 (A23) Numerical simulation of polymer melts containing short and long fibers
 P. Wapperom, D.G. Baird, G. Velez, A.P.R. Eberle, Virginia Tech, Blacksburg, VA, USA
- 20:40-21:00 (A70) Numerical simulation of suspensions of rigid and deformable particles in polymer melts
 Ahamadi Malidji, O.G. Harlen, University of Leeds, UK
- 21:05-22:30 *Welcome buffet – Registration (cont.)*

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In Bold letters are contributions from HSR members

Day 2: Thursday Morning, June 7, 2007

Session 2: Multiscale Modeling and Molecular Simulations

Chair: *V.G. Mavrantzas*

- 8:00-8:20 (A45) Realizing rheological dreams: efficient solution of highly dimensional Fokker-Planck equations
A. Ammar, Laboratoire de Rheologie, Grenoble, France
F. Chinesta, ENSAM, Paris, France
R. Keunings, Université Catholique de Louvain, Louvain-la-Neuve, Belgium
- 8:25-8:45 (A20) Optimal choices of correlation operators in Brownian simulation methods
Raz Kupferman and Yossi Shamai, The Hebrew University, Jerusalem, Israel
- 8:50-9:10 (A9) A log transformation applied to the method of Brownian configuration fields
Claude Mangoubi, and Raz Kupferman, The Hebrew University, Jerusalem, Israel
Martien A. Hulsen, Eindhoven University of Technology, The Netherlands
- 9:15-9:35 (A11) A P3M method for computation of many-body hydrodynamic interactions in a confined geometry: application to migration and apparent slip in nondilute polymer solutions
J.P. Hernandez-Ortiz, S. Anekal, M.D. Graham, University of Wisconsin-Madison, USA
- 9:40-10:00 (A78) Frictional drag properties of polymeric solution in complex kinematics flows: a multi-scale simulation approach
A.P. Koppol, R. Sureshkumar, Washington University, St. Louis, MO, USA
B. Khomami, University of Tennessee, Knoxville, TN, USA
- 10:05-10:20 *Coffee break*

Session 3: Multiscale Modeling and Molecular Simulations (Cont'd)

Chair: *R. Keunings*

- 10:20-10:40 (A34) DPD as a tool for rheological characterization
T.F. Clarke and R.C. Armstrong, MIT, Cambridge, MA, USA
- 10:45-11:05 (A73) Atomistic Monte-Carlo simulation of a polymer melt under a flow field by employing generalized ensembles**
Chunggu Baig and V.G. Mavrantzas, University of Patras, Greece; FORTH-ICE/HT, Patras, Greece
- 11:10-11:30 (A6) Rheological and Entanglement Characteristics of Linear Chain Polyethylene Liquids in Planar Couette and Planar Elongational Flows
J.M. Kim, D.J. Keffer, B.J. Edwards, University of Tennessee, USA
M. Kroeger, ETH, Zurich, Switzerland
- 11:35-12:00 (A42) Transient 3D Flow of Polymer Solutions
N.F. Morrison, J.M. Rallison, University of Cambridge, UK
- 12:05-14:00 *Lunch*

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In Bold letters are contributions from HSR members

Day 2: Thursday Afternoon, June 7, 2007

Session 4: Viscoplastic Fluids – Modeling and Simulations

Chair: A.N. Beris

- 14:00-14:20 (A49) Steady bubble rise and deformation in Bingham fluids and conditions for their entrapment
J. Tsamopoulos, Y. Dimakopoulos, N. Chatzidai, G. Karapetsas, M. Pavlidis, University of Patras, Greece
- 14:25-14:45 (A76) Weakly compressible Poiseuille flows of a Bingham fluid
E. Taliadorou, **G. Georgiou**, A. Alexandrou, University of Cyprus, Nicosia, Cyprus
- 14:50-15:10 (A79) Numerical simulation of calendering of viscoplastic materials
E. Mitsoulis, S. Sofou, National Technical University of Athens, Greece
- 15:15-15:35 (A59) Wave evolution in two-layer pressure driven flow – Newtonian upper layer over a non-Newtonian bottom layer
P. Valluri, P.D.M. Spelt, O.K. Matar, C.J. Lawrence, Imperial College London, UK
- 15:40-15:55 *Coffee break*
- 15:55-16:15 (A85) Squeeze flow of carbopol gels
E. Mitsoulis, I. Argyropaidas, National Technical University of Athens, Greece
- 16:20-16:40 (A63) Blood hemodynamics in carotid bifurcation: influence of rheological models
P. Ternik, Z. Zunic, J. Marn, University of Maribor, Slovenia
- 16:45-17:00 Discussion

Free Evening

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In Bold letters are contributions from HSR members

Day 3: Friday Morning, June 8, 2007

Session 5: Viscoelastic Flow Instabilities

Chair: *P.J. Oliveira*

- 8:00-8:20 (A8) Using Newton-GMRES for viscoelastic flow time-steppers
Z. Anwar and R.C. Armstrong, MIT, Cambridge, MA, USA
- 8:25-8:45 (A46) On a new elastic instability: bifurcation in a cross-slot
R.J. Poole, University of Liverpool, UK
M.A. Alves, University of Porto, Portugal
P.J. Oliveira, University of Beira Interior, Covilha, Portugal
- 8:50-9:10 (A72) Bifurcation analysis of flow instabilities in polymer melts during extrusion**
M.E. Kavousanakis, C.I. Siettos, A.G. Boudouvis, National Technical University of Athens, Greece
L. Russo, University of Naples, Italy
G. Georgiou, University of Cyprus, Nicosia, Cyprus
- 9:15-9:35 (A31) Modeling of axisymmetric instabilities observed during the electrospinning of highly conducting, non-Newtonian jets
C.P. Carroll, Y.L. Joo, Cornell University, Ithaca, NY, USA
- 9:40-10:00 (A53) Cavity filling process modeling by rheological characterization and large scale computation**
K. Christodoulou, R. Mehrabi, A. Mehrabi, E. Rozenbaum, Avery Research Center, Pasadena, CA, USA
- 10:05-10:20 *Coffee break*

Session 6: Viscoelastic Flow Instabilities (Cont'd)

Chair: *G.C. Georgiou*

- 10:20-10:40 (A52) A parallel adaptive unstructured finite volume method for linear stability (normal mode) analysis of viscoelastic fluid flows
M. Sahin, H.J. Wilson, University College London, UK
- 10:45-11:05 (A9) A new stability mechanism associated with the Oldroyd-B model in creeping flow regime
Raz Kupferman, The Hebrew University, Jerusalem, Israel
- 11:10-11:30 (A54) Coil-stretch transition and the break down of continuum models
M. Bajaj, J. Ravi Prakash, Monash University, Melbourne, Australia
M. Pasquali, Rice University, Houston, TX, USA
- 11:35-11:55 (A15) On kinetic models for dilute suspensions of rigid rods**
F. Otto, University of Bonn, Germany
A. Tzavaras, University of Maryland, MD, USA
- 12:00-14:00 *Lunch*

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In Bold letters are contributions from HSR members

Day 3: Friday Afternoon, June 8, 2007

Session 7: Poster Session

- 14:00-15:40 **P1. (A74) A generalized single-conformation tensor viscoelastic model based on principles of non-equilibrium thermodynamics**
P. Stefanou, Chunggi Baig, V.G. Mavrantzas, University of Patras, Greece
- P2. (A58) Numerical simulation of complex fluid flows with non-Newtonian differential models**
O. Wuensch and M. Krebs, University of Kassel, Germany
- P3. (A57) Numerical simulations of flow in a variable speed co-rotating twin screw extruder**
C. Tzoganakis and S. Zhu, University of Waterloo, Canada
T. Shigeishi and K. Tikara, Japan Steel Works, Hiroshima, Japan
- P4. (A48) Correlating the rheology of PVC pastes with particle characteristics**
M.G. Rasteiro, L.M. Ferreira, A. Tomàs, S. Figueiredo, University of Coimbra, Portugal
- P5. (A80) Rheological characterization of foodstuff used in rolling experiments and modeling via integral constitutive equations**
E. Muliawan, S.G. Hatzikiriakos, University of British Columbia, Vancouver, Canada
S. Sofou and E. Mitsoulis, National Technical University of Athens, Greece
- P6. (A81) Predicting the behaviour of nylon-6 through industrial spin packs**
A. Gustin and A. Zupancic, University of Ljubljana, Slovenia
E. Mitsoulis, National Technical University of Athens, Greece
- P7. (A71) Numerical simulation of the extrusion of strongly compressible liquid foams**
E. Taliadorou and G. Georgiou, University of Cyprus, Nicosia, Cyprus
E. Mitsoulis, National Technical University of Athens, Greece
- P8. (A77) Annular Poiseuille flow of a Newtonian liquid with non-monotonic slip along the walls**
M. Chatzimina, G. Georgiou, University of Cyprus, Nicosia, Cyprus
K. Housiadas, University of the Aegean, Samos, Greece
S.G. Hatzikiriakos, University of British Columbia, Vancouver, Canada
- P9. (A41a) Comparative study of multi-mode constitutive equations for film blowing process**
S. Sarafrazi, F. Sharif, Amirkabir University of Technology, Tehran, Iran
- P10. (A82) The temperature dependence of the Rouse mode relaxation spectrum and zero shear rate viscosity in cis-1,4-polybutadiene: results from long atomistic molecular dynamics simulations down to the glass transition temperature T_g**
G. Tsolou, V.G. Mavrantzas, University of Patras, Greece
- 15:40-15:55 *Coffee break*
- 16:00-20:30 *Excursion to Lindos*

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In Bold letters are contributions from HSR members

Day 4: Saturday Morning, June 9, 2007

Session 8: Viscoelastic Fluids - Modeling and Simulations

Chair: J. Tsamopoulos

- 8:00-8:20 (A47) **On the gas penetration in periodically constricted circular tubes filled with viscoelastic liquids**
Y. Dimakopoulos, J. Tsamopoulos, University of Patras, Greece
- 8:25-8:45 (A27) The log-conformation tensor approach in the FVM framework: benchmark solutions and stability analysis
A. Afonso, M.A. Alves, University of Porto, Portugal
F.T. Pinho, University of Minho, Braga, Portugal
P.J. Oliveira, University of Beira Interior, Covilha, Portugal
- 8:50-9:10 (A13) Oscillating channel flows of UCM and Oldroyd-B fluids: numerical and analytical solutions
A.S.R. Duarte, A.I.P. Miranda, P.J. Oliveira, University of Beira Interior, Covilha, Portugal
- 9:15-9:35 (A39) Numerical simulation of the flow of a PTT fluid past a cylinder
H. Kamal, L. Thais, G. Mompean, H. Naji, Polytech'Lille, France
- 9:40-10:00 (A84) On the numerical treatment of integral models for elasticity in a compressible fluid
P.C Bollada, T.N. Phillips, Cardiff University, UK
- 10:05-10:20 *Coffee break*

Session 9: Viscoelastic Fluids - Modeling and Simulations (cont'd)

Chair: E. Mitsoulis

- 10:20-10:40 (A51) **Viscoelastic analysis of complex flows: from the constitutive model through the numerical simulations and their experimental validation**
I. Sirakov, University of St-Etienne, France
E. Mitsoulis, National Technical University of Athens, Greece
- 10:45-11:05 (A50) Numerical simulation of viscoelastic flows in cross-slot flow devices
M.F. Webster, F. Belblidia, B. Puangkird, University of Wales, Swansea, UK
- 11:10-11:30 (A19) Prediction of die swell in polymer melt extrusion using an Arbitrary Lagrangian Eulerian (ALE) based finite element method
V. Ganvir, A. Lele, Pune, India
R. Thaokar, IIT, Bombay, India
B.P. Gautham, NCL, Pune, India
- 11:35-11:55 (A41b) Non-isothermal simulation of the film-blowing process using the multi-mode extended pom-pom model
S. Sarafrazi, F. Sharif, Amirkabir University of Technology, Tehran, Iran
- 12:00-14:00 *Lunch*

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In Bold letters are contributions from HSR members

Day 4: Saturday Afternoon, June 9, 2007

Session 10: Complex Materials: Experiments and Modeling

Chair: *M.F. Webster*

- 14:00-14:20 (A22a) Computing with power-law viscoelastic materials
Roger Tanner, F. Qi, S.-C. Dai, University of Sydney, NSW, Australia
- 14:25-14:45 (A68) Characterization of the compressive behaviour of brain tissue and constitutive modeling
G.W.M. Peters, M. Hrapko, J.A.W. van Dommelen, J.S.H.M. Wismans, Eindhoven University of Technology, The Netherlands
- 14:50-15:10 (A43) Experimental and numerical evaluation of drop deformation and break-up in complex flow fields
R.D. Egholm, P. Szabo, Technical University of Denmark, Lyngby, Denmark
P. Fischer, ETH, Zurich, Switzerland
K. Feigl, Michigan Technological University, Houghton, MI, USA
- 15:15-15:35 (A67) Experimental and numerical study of cavitation in journal bearings
P.C. Bollada, T.N. Phillips, Cardiff University, UK
P.R. Williams, R.L. Williams, University of Wales, Swansea, UK
- 15:40-15:55 *Coffee break*

Session 11: Complex Materials: Experiments and Modeling (Cont'd)

Chair: *G.W.M. Peters*

- 15:55-16:15 (A26) Modeling of non-isothermal electrospinning of polymer melts with and without crystallization
E. Zhmayev, Y.L. Joo, Cornell University, Ithaca, NY, USA
- 16:20-16:40 (A37) Structure-property relationships for the Newtonian and the non-Newtonian flow of polymer solutions
F. Meyer, H. Storz, J. Storz, A. Binoel, W.-M. Kulicke, University of Hamburg, Germany
- 16:45-20:30 *Free time*
- 20:30-22:30 *Conference dinner*

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In Bold letters are contributions from HSR members

Day 5: Sunday Morning, June 10, 2007

Session 12: Turbulence in Complex Fluids

Chair: *G. Mompean*

- 9:00-9:20 **(A56) Dynamic K-L analysis of coherent structures based on DNS of turbulent Newtonian and viscoelastic flows**
G. Samanta, A.N. Beris, University of Delaware, Newark, DE, USA
G. Oxberry, MIT, MA, USA
R. Handler, Naval Research Laboratory, Washington, DC, USA
K. Housiadas, University of the Aegean, Samos, Greece
- 9:25-9:45 **(A55) A log-exponential mapping for the preservation of positive definiteness in the numerical integration of viscoelastic constitutive equations**
K. Housiadas, University of the Aegean, Samos, Greece
L. Wang, A.N. Beris, University of Delaware, Newark, DE, USA
- 9:50-10:10 **(A38) Direct and large eddy numerical simulations of FENE-P drag reduction flows**
L. Thais, G. Mompean, Polytech'Lille, France
A.E. Tejada-Martinez, University of South Florida, FL, USA
T.B. Gatski, University of Poitiers, ENSMA, France
- 10:15-10:35 **(A29) A turbulence closure for viscoelastic fluids based on the FENE-P model**
F.T. Pinho, University of Minho, Braga, Portugal
P.R. Resende, University of Porto, Portugal
C.F. Li, R. Sureshkumar, Washington University, St. Louis, MO, USA
B.A. Younis, University of California, Davis, CA, USA
- 10:35-11:00 *Coffee break*
- 11:00-11:20 **(A21) DNS experiments of surfactant drag reducing fluid flows**
S. Guillou, R. Makhloufi, F. Hadri, A. Besq, University of Cherbourg, France
- 11:25-11:55 Discussion – Closing remarks
- 12:00-14:00 *Lunch*

END OF WORKSHOP

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In Bold letters are contributions from HSR members