



# THE SOCIETY OF RHEOLOGY

## 72<sup>ND</sup> ANNUAL MEETING PROGRAM

**Westin Resort  
Hilton Head Island, South Carolina  
February 11-15, 2001**

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**Donald G. Baird, Virginia Tech.**

### Abstract Book Editor and Webmaster:

**Albert Co, University of Maine**

# Meeting Schedule

Monday, February 12, 2001					Tuesday, February 13, 2001					Wednesday, February 14, 2001					Thursday, February 15, 2001				
8:30	L. Leibler (PL1)				8:30	L. G. Leal (PL2)				8:30	R. K. Prud'homme (PL3)				8:05	LC1	AS18	MS9	MR1
9:20	Coffee				9:20	Coffee				9:20	Coffee				8:30	LC2	AS19	MS10	MR2
9:45	PF1	RT1	CG1	BC1	9:45	PF6	RT14	FD1	SC5	9:45	FB1	AS5	FD14	SC18	8:55	LC3	AS20	MS11	MR3
10:10	PF2	RT2	CG2	BC2	10:10	PF7	RT15	FD2	SC6	10:10	FB2	AS6	FD15	SC19	9:20	LC4	AS21	MS12	MR4
10:35	PF3	RT3	CG3	BC3	10:35	PF8	RT16	FD3	SC7	10:35	FB3	AS7	FD16	SC20	9:45	Coffee			
11:00	PF4	RT4	CG4	BC4	11:00	PF9	RT17	FD4	SC8	11:00	FB4	AS8	FD17	SC21	10:10	LC5	AS22	MS13	MR5
11:25	PF5	RT5	CG5	BC5	11:25	PF10	RT18	FD5	SC9	11:25	FB5	AS9	FD18	SC22	10:35	LC6	AS23	MS14	MR6
11:50	Lunch				11:50	Lunch				11:50	Lunch				11:00	LC7	AS24	MS15	MR7
1:30	EF1	RT6	CG6	BC6	1:30	EA1	RT19	FD6	SC10	1:30	FB6	AS10	MS1	SC23	11:25	LC8	AS25	MS16	MR8
1:55	EF2	RT7	CG7	BC7	1:55	EA2	RT20	FD7	SC11	1:55	FB7	AS11	MS2	SC24	11:50	LC9	AS26	MS17	MR9
2:20	EF3	RT8	CG8	BC8	2:20	EA3	RT21	FD8	SC12	2:20	FB8	AS12	MS3	SC25	12:15	End			
2:45	EF4	RT9	CG9	BC9	2:45	EA4	RT22	FD9	SC13	2:45	FB9	AS13	MS4	SC26					
3:10	Coffee				3:10	Coffee				3:10	Coffee								
3:35	EF5	RT10	CG10	SC1	3:35	EA5	AS1	FD10	SC14	3:35	FB10	AS14	MS5	SC27					
4:00	EF6	RT11	CG11	SC2	4:00	EA6	AS2	FD11	SC15	4:00	FB11	AS15	MS6	SC28					
4:25	EF7	RT12	CG12	SC3	4:25	EA7	AS3	FD12	SC16	4:25	FB12	AS16	MS7	SC29					
4:50	EF8	RT13	CG13	SC4	4:50	EA8	AS4	FD13	SC17	4:50	FB13	AS17	MS8	SC30					
5:15	End				5:15	End				5:15	End								
5:30	Poster Session & Refreshments				5:30	Business Meeting													
7:00	Society Reception				7:00	Awards Reception													
					8:00	Awards Banquet													

## Session Codes

AS = Associating Polymers and Surfactant Systems

BC = Blends and Co-polymers

CG = Rheology in Confined Geometries and Microfluidic Applications

EA = Elastomers, Adhesives & Soft Solids

EF = Extensional Flow & Extensional Rheometry

FB = Food and Biopolymers

FD = Non-Newtonian Fluid Dynamics & Flow Stability

LC = Liquid Crystalline Systems

MR = Microscopic Rheology & Single Chain Dynamics: Experiments & Analysis

MS = Polymer Melts and Solutions

PF = Rheology in Processing Flows

PL = Plenary Lectures

RT = Rheology & Topology

SC = Suspensions and Colloidal Systems

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## Plenary Lectures

8:30 AM Barnwell

- Monday, February 12**      **Yield, slip & aging: The fate of soft dispersions**  
Ludwik Leibler  
*CNRS/ATOFINA Joint Research Center*
- Tuesday, February 13**      **The microdynamics of drop breakup and coalescence in flow**  
*Bingham Lecture*  
L. Gary Leal  
*Chemical Engineering, University of California, Santa Barbara*
- Wednesday, February 14**      **Structure and dynamics of surfactant mesophases**  
Robert K. Prud'homme  
*Chemical Engineering, Princeton University*

## Social Program

- Sunday, February 11**      **Welcoming Reception**  
6:30 PM - 9:00 PM      Archer/Barnwell  
*Sponsored partly by TA Instruments*
- Monday, February 12**      **Poster Session Refreshments**  
5:30 PM – 8:00 PM      Savannah Foyer North
- Society Reception**  
7:00 PM - 9:00 PM      Pool Terrace  
*Sponsored partly by Rheometric Scientific, Inc.*
- Tuesday, February 13**      **Business Meeting**  
5:30 PM      Lady Davis/Sampson
- Awards Reception**  
7:00 PM      Savannah Foyer North  
*Sponsored partly by Paar Physica*
- Awards Banquet**  
8:00 PM      Calibogue

## Updates of Abstract Book

- The **Plenary Lectures** will be held in **Barnwell**.
- The **Poster Session** and **Student Poster Competition** will be held on **February 12 (Monday)** from 5:30 PM to 8:00 PM. at Savannah Foyer North.

# Monday, February 12

## Morning

8:30

**PL1.** Yield, slip & aging: The fate of soft dispersions. L. Leibler Barnwell

9:20

COFFEE

**Lady Davis/Sampson**

**Rheology in Processing Flows**

9:45 **PF1.** Making microporous semicrystalline polymers by a melt extrusion process. M. Johnson, J. Xu and G. L. Wilkes

10:10 **PF2.** Shear induced PE alignment in the TLCP/PE blend system. C.-K. Chan and P. Gao

10:35 **PF3.** Flow visualization of drop deformation in a 3D mixing cavity. D. J. Ternet, O. S. Galaktionov, P. Anderson, G. Peters and H. Meijer

11:00 **PF4.** Parallel viscoelastic simulations of cylindrical dough mixing flows. A. Baloch, P. W. Grant and M. F. Webster

11:25 **PF5.** Pressure drop of viscoelastic fluids flowing through porous media. W. Gleissle

11:50

**Drayton**

**Rheology & Topology**

**RT1.** Influence of long-chain branching on linear viscoelastic properties of polyethylene melts. C. Gabriel and H. Münstedt

**RT2.** Microrheology of star/linear polymer blends. J.-H. Lee and L. A. Archer

**RT3.** Shear and extentional properties of star polystyrene solutions. X. Ye and T. Sridhar

**RT4.** Stress relaxation in star polymer melts. D. A. Vega, J. M. Sebastian, W. B. Russel and R. A. Register

**RT5.** Rheology of three-arm asymmetric star polymers. A. Frischknecht, S. T. Milner, R. M. Hawkins, T. McLeish, R. N. Young and A. Pryke

**Elliott**

**Confined Geometries**

**CG1.** Lateral dispersion of particles and mammalian cells in microchannels. B. Wang, A. W. Chow and M. Spaid

**CG2.** Microchannels for the study of polymer solutions. B. B. Caswell, K. S. Breuer and P. D. Richardson

**CG3.** Rheology of perfluoropolyethers with polar end groups. T. E. Karis and B. Marchon

**CG4.** Surface rheology of monolayers of physical network-forming PEG lipopolymers at the air-water interface: A study about molecular weight and time dependence of rheological properties. J. P. Coffman and C. A. Naumann

**CG5.** Direct measurement of apparent slip in shear-thickening wormy micelle solutions. H. Hu and R. G. Larson

**Heyward**

**Blends and Co-polymers**

**BC1.** Rheological behavior of model immiscible polymer blends. Prediction of component and interfacial contributions. T. Jansseune, P. Moldenaers and J. Mewis

**BC2.** Measurements of the interfacial tension in non-Newtonian blends by rheo-optical techniques. F. Greco, M. Tassieri and N. Grizzuti

**BC3.** Applications of a constitutive model for dispersive mixtures. P. Anderson, R. Schiek, G. Peters and H. Meijer

**BC4.** The influence of elasticity on the dispersed-phase droplet size of HDPE/PS blends. W. Lerdwijitjarud, A. Sirivat and R. G. Larson

**BC5.** Coalescence in compatibilized polymer blends. P. Van Puyvelde, S. Velankar, J. Mewis and P. Moldenaers

LUNCH

## Afternoon

**Lady Davis/Sampson**

**Extensional Flow & Extensional Rheometry**

1:30 **EF1.** Transient extensional rheology and elongational flow instabilities of polymer solutions: Role of polymer concentration and molecular weight. O. F. Brauner and G. H. McKinley

**Drayton**

**Rheology & Topology**

**RT6.** Comparison of rheological properties of long-chain branched polyethylenes and long-chain branched polystyrenes. H. Münstedt, C. Gabriel and J. Hepperle

**Elliott**

**Confined Geometries**

**CG6.** 2D electrophoresis and flow of DNA chains. G. G. Fuller, D. J. Olson and E. Stancik

**Heyward**

**Blends and Co-polymers**

**BC6.** Rheology and phase behavior of a bicontinuous polymer microemulsion under shear. W. R. Burghardt, K. Krishnan, T. P. Lodge, F. S. Bates and F. E. Caputo

1:55	<b>EF2.</b> A technique for characterizing complex polymer solutions in extensional flows. <u>G. Braithwaite and S. H. Spiegelberg</u>	<b>RT7.</b> Dynamics of topological mixtures. <u>E. Stiakakis, D. Vlassopoulos, G. Fytas and J. Roovers</u>	<b>CG7.</b> Magnetosensitive self-organizing arrays for DNA separations. <u>P. S. Doyle, J. Bibette, B. Deminiere and J.-L. Viovy</u>	<b>BC7.</b> Polymer surface functionalization by field-induced migration of copolymer additives. <u>H.-J. Lee and L. A. Archer</u>
2:20	<b>EF3.</b> Elongational relaxation times of elastic fluids measured by micro-filament rheometry and axisymmetric contraction flows. <u>G. M. Wise and G. W. Reynolds</u>	<b>RT8.</b> Linear and nonlinear relaxation dynamics of entangled multiarm polymers. <u>J. Juliani, M. T. Islam and L. A. Archer</u>	<b>CG8.</b> Brownian dynamics simulations of polymer molecules in shear flow confined between parallel adsorbing walls. <u>M. Chopra and R. G. Larson</u>	<b>BC8.</b> Orientational proliferation and successive twinning from thermoreversible HEX-BCC transitions. <u>H. H. Lee, J. A. Kornfield, Z.-G. Wang, J. K. Kim and S. Qi</u>
2:45	<b>EF4.</b> Spray drop breakup and elongational viscosity measurements of dilute polymer solutions. <u>R. K. Prud'homme, V. Smith-Romanogli and R. Dexter</u>	<b>RT9.</b> Influence of the chain length between branch points on randomly branched polymer structure and rheology. <u>C. P. Lusignea, T. H. Mourey, J. C. Wilson and R. H. Colby</u>	<b>CG9.</b> The conformations of a DNA molecule near a glass surface. <u>L. Li, H. Hu and R. G. Larson</u>	<b>BC9.</b> Double reptation predictions of the linear viscoelasticity of miscible polymer blends. <u>J. A. Pathak, S. K. Kumar and R. H. Colby</u>
3:10			COFFEE	
3:35	<b>EF5.</b> Steady uniaxial elongational flows: The roles of intramolecular potentials. <u>A. S. Bhandar and J. M. Wiest</u>	<b>RT10.</b> Detecting long-chain branching using linear viscoelasticity. <u>R. G. Larson and C. Pattamaprom</u>	<b>CG10.</b> "Superstrings" in sheared polymer blends: The influence of coalescence, breakup and finite size. <u>K. B. Migler</u>	<b>Suspensions and Colloidal Systems</b>
4:00	<b>EF6.</b> Polymer dynamics in semi-dilute DNA solutions in a planar extensional flow. <u>C. M. Schroeder, H. Babcock, J. S. Hur, S. Chu and E. G. Shaqfeh</u>	<b>RT11.</b> Characterization of long-chain branching effects in linear rheology. <u>W. B. Thimm, C. Friedrich, T. Roths, S. Trinkle and J. Honerkamp</u>	<b>CG11.</b> Dispersion visualization under high shear rate in a transparent couette flow cell. <u>F. Mighri and M. A. Huneault</u>	<b>SC1.</b> The role of repulsive interparticle forces on suspension rheology. <u>J. Bergenholtz, J. F. Brady and M. Vivic</u>
4:25	<b>EF7.</b> Birefringence measurements on polymer melts in an axisymmetric flowcell. <u>P. Harrison, L. J. Janssen, V. Navez, G. Peters and F. Baaijens</u>	<b>RT12.</b> The rheology of branched polyisobutylene and 1,4-polyisoprene. <u>P. G. Santangelo, C. G. Robertson, C. M. Roland and J. E. Puskas</u>	<b>CG12.</b> Virtual gap rheometry: Determining the relaxation spectrum from wave dispersion data. <u>R. Davies, D. Morgan and R. Williams</u>	<b>SC2.</b> The theory underlying the rheology of colloidal dispersions: A GENERIC approach. <u>N. J. Wagner</u>
4:50	<b>EF8.</b> Synergistic effect of strain hardening in HDPE/PS blends. <u>K. H. Ahn, J. S. Hong, S. J. Baik and S. J. Lee</u>	<b>RT13.</b> Entangled solution rheology detection of LCB. <u>T. McLeish, B. J. Crosby, R. Daniels, M. Mangnus and S. de Vries</u>	<b>CG13.</b> Nano-scale and macro-scale studies of the dynamic tensile strength of complex fluids. <u>R. Williams, N. Hilal and R. Bowen</u>	<b>SC3.</b> Dynamic simulation of concentrated colloidal suspensions. <u>K. R. Hase and R. L. Powell</u>
5:15			END	<b>SC4.</b> Shear flow of a monolayer of rough spheres. <u>H. J. Wilson</u>
5:30			POSTER SESSION & REFRESHMENTS Savannah Foyer North	
7:00			SOCIETY RECEPTION Pool Terrace	

# Tuesday, February 13

## Morning

8:30 **PL2.** The microdynamics of drop breakup and coalescence in flow. L. G. Leal Barnwell

9:20

COFFEE

**Lady Davis/Sampson**

**Rheology in Processing Flows**

9:45 **PF6.** The mystery of the mechanism of sharkskin: Case closed? K. B. Migler, F. Qiao and K. Flynn

10:10 **PF7.** Numerical stability analysis of injection molding flow. A. Grillet, A. Bogaerds, G. Peters and F. Baaijens

10:35 **PF8.** An investigation of the causes of surface roughness and haze in polyethylene blown films. A. Sukhadia, D. C. Rohlfiing, M. Johnson and G. L. Wilkes

11:00 **PF9.** Forced wetting of nematic fluids on fibers. J. O. Park, M. Srinivasarao and A. D. Rey

11:25 **PF10.** Film: "Non-Newtonian Fluids". K. Walters, M. F. Webster and R. Williams

11:50

**Drayton**

**Rheology & Topology**

**RT14.** The extended pom-pom constitutive equation for complex polymer melt flows: A quantitative description. W. Verbeeten, G. Peters and F. Baaijens

**RT15.** Using the pom-pom equations to analyze polymer melts in exponential shear. R. S. Graham, T. McLeish and O. G. Harlen

**RT16.** Branching structure and rheological behavior of metallocene polyethylene. S. Costeux, P. M. Wood-Adams and D. Beigzede

**RT17.** Molecular rheology and statistics of long-chain-branched metallocene-catalysed polyolefins. D. J. Read and T. McLeish

**RT18.** The effects of entanglement on attempts to obtain molecular architecture information from polyethylene viscosities. D. C. Rohlfiing

**Elliott**

**Fluid Dynamics & Flow Stability**

**FD1.** The effect of viscous heating on elastic instabilities in torsional flows of polymeric liquids. J. P. Rothstein and G. H. McKinley

**FD2.** Time scales and destabilization of Newtonian and viscoelastic Taylor-Couette flows caused by viscous heating. J. M. White and S. J. Muller

**FD3.** Energetic effects on the stability and dynamics of viscous and viscoelastic Taylor-Couette flows. U. A. Al-Mubaiyeh, R. Sureshkumar and B. Khomami

**FD4.** Polymer/surfactant-induced effects on the stability of wall-bounded shear flows. B. Sadanandan and R. Sureshkumar

**FD5.** Stability analysis of polymer melt flows using the pom-pom model. A. Bogaerds, A. Grillet, G. Peters and F. Baaijens

**Heyward**

**Suspensions and Colloidal Systems**

**SC5.** Shear response of layered silicate nanocomposites. R. Krishnamoorti and J. Ren

**SC6.** Rheological swing test to predict the temperature stability of cosmetic emulsions. R. Brummer, M. Griebenow, F. Hetzel and R. Uhlmann

**SC7.** Rheology of colloidal particles in concentrated polymer solutions. E. E. Pashkovski, L. Szeles and J. G. Masters

**SC8.** A model relating structure of colloidal gels to their elastic properties. H. Wu and M. Morbidelli

**SC9.** Rheological simple behaviour: The stress equivalent shear rate, a concept to solve complex flow problems. W. Gleissle

LUNCH

## Afternoon

**Lady Davis/Sampson**

**Elastomers, Adhesives & Soft Solids**

1:30 **EA1.** Structuring during hot-melt processing of block-copolymer-based pressure-sensitive adhesives. A. E. O'Connor and C. W. Macosko

1:55 **EA2.** Theory and analysis of PSA peeling. J.-M. Piau and C. Verdier

**Drayton**

**Rheology & Topology**

**RT19.** The effect of random branching on the balance between flow and mechanical properties of polyamide-6. P. Steeman and A. Nijenhuis

**RT20.** The effect of branching on the rheological properties of concentrated solutions of AB/AB<sub>2</sub> etherimide copolymers. I. Sendjarevic and A. J. McHugh

**Elliott**

**Fluid Dynamics & Flow Stability**

**FD6.** Breaking up is hard to do. Y. Renardy

**FD7.** Making breaking up harder to do. M. Renardy

**Heyward**

**Suspensions and Colloidal Systems**

**SC10.** Dynamics of concentrated colloidal suspensions and gels. S. Romer, H. Bissig, A. Stradner, F. Scheffold, V. Lobaskin, V. Trappe and P. Schurtenberger

**SC11.** Mechanical deformation of 2D aggregated colloids. S. Promkotra and K. T. Miller



2:20	<b>EA3.</b> Finite element modeling of PSA peel using a stored elastic energy density failure criterion. <i>D. D. Lindeman and D. J. Yarusso</i>	<b>RT21.</b> Rheology and microstructure of PDMS-POSS copolymers. <i>A. Lee, T. S. Haddad and S. H. Phillips</i>	<b>FD8.</b> Dynamics of formation of non-Newtonian drops from capillaries: Comparison of predictions made with generalized Newtonian and viscoelastic constitutive equations. <i>O. E. Yildirim and O. A. Basaran</i>	<b>SC12.</b> The E-FiRST effect: Electro-rheology of shear thickening colloidal suspensions. <i>S. S. Shenoy, N. J. Wagner and J. W. Bender</i>
2:45	<b>EA4.</b> A visco-elasto-plastic model for materials with yield stress characteristics. <i>G. H. McKinley</i>	<b>RT22.</b> The flow and thermodynamic properties of dendritic polymers. <i>M. E. Mackay, M. Jeong, G. Hay and C. J. Hawker</i>	<b>FD9.</b> Orientation of symmetric bodies in a second-order liquid at small and nonzero Reynolds number. <i>G. Galdi</i>	<b>SC13.</b> Characterization of ER fluids with dynamic drop viscometry. <i>L. J. Kecskes</i>
3:10	COFFEE			
	<b>Associating Polymers and Surfactants</b>			
3:35	<b>EA5.</b> Viscoelasticity of epoxy nanocomposite glasses. <i>A. Lee, R. L. Blanski and S. H. Phillips</i>	<b>AS1.</b> Dynamics of associating polymers. <i>M. Rubinstein and A. N. Semenov</i>	<b>FD10.</b> Swirling flow of viscoelastic fluids. <i>D. V. Boger</i>	<b>SC14.</b> Probing mobility of magnetic particles inside drying coatings. <i>A. Potanin</i>
4:00	<b>EA6.</b> Energy release rate for a crack in a tilted block. <i>A. N. Gent and M. Razzaghi-Kashani</i>	<b>AS2.</b> A model for the viscoelastic response of micellar solutions of telechelic polymers. <i>X. X. Meng and W. B. Russel</i>	<b>FD11.</b> Axisymmetric flow birefringence: Extension to a time-dependent stagnation flow. <i>J. Bryant and W. R. Burghardt</i>	<b>SC15.</b> Rheological behavior and microstructure of magnetic particle dispersions diluted with nonmagnetic particles. <i>Y. S. Lee, B. S. Chae and A. M. Lane</i>
4:25	<b>EA7.</b> Force transmission of a constrained polymeric gel cylinder. <i>J.-H. Yu, D. A. Dillard and D. R. Lefebvre</i>	<b>AS3.</b> Gelation in physically associating polymer solutions. <i>S. K. Kumar and J. Douglas</i>	<b>FD12.</b> Dynamic response of a shear stress transducer. <i>C. Kolitawong and A. J. Giacomin</i>	<b>SC16.</b> A slotted plate device for measuring static yield stress. <i>D. De Kee, L. Zhu and K. Papadopoulos</i>
4:50	<b>EA8.</b> Dynamic nanoscale contacts to adhesive viscoelastic materials. <i>M. Giri, D. Bousfield and W. N. Unertl</i>	<b>AS4.</b> Rheology and dynamics of associative polymers in shear and extension: Theory and experiments. <i>A. Tripathi, G. H. McKinley, M. K. C. Tam and R. D. Jenkins</i>	<b>FD13.</b> Contraction flow behavior of metallocene-catalyzed polyethylenes. <i>P. J. Doerpinghaus and D. G. Baird</i>	<b>SC17.</b> Direct measurement of strongly attractive particle-particle interactions. <i>K. L. Eccleston and K. T. Miller</i>
5:15	END			
5:30	BUSINESS MEETING Lady Davis/Sampson			
7:00	AWARDS RECEPTION Savannah Foyer North			
8:00	AWARDS BANQUET Calibogue			

# Wednesday, February 14

## Morning

8:30		<b>PL3.</b> Structure and dynamics of surfactant mesophases. <u>R. K. Prud'homme</u> Barnwell		
9:20		COFFEE		
	<b>Lady Davis/Sampson</b>	<b>Drayton</b>	<b>Elliott</b>	<b>Heyward</b>
	<b>Food and Biopolymers</b>	<b>Associating Polymers and Surfactants</b>	<b>Fluid Dynamics &amp; Flow Stability</b>	<b>Suspensions and Colloidal Systems</b>
9:45	<b>FB1.</b> Gelation of globular proteins. <u>S. B. Ross-Murphy</u>	<b>AS5.</b> Structure and rheology of diblock polyelectrolyte gels. <u>S. R. Bhatia</u> and <u>A. Mourchid</u>	<b>FD14.</b> Numerical simulation of branched polymer melts in transient complex flow using pom-pom models. <u>P. Wapperom</u> and <u>R. Keunings</u>	<b>SC18.</b> Obtaining the compressive yield stress of suspensions from centrifuge measurements - an inverse problem. <u>Y. L. Yeow</u>
10:10	<b>FB2.</b> Microscopic determination of crosslinked starch granule stiffness. <u>J. B. Hirsch</u> , <u>J. L. Kokini</u> , <u>W. McConnoughey</u> and <u>E. Elson</u>	<b>AS6.</b> Ordering transition of PEGs modified with fluorocarbon at both ends: Rheology and SANS. <u>G. Tae</u> , <u>J. A. Kornfield</u> , <u>J. A. Hubbell</u> and <u>J. Lal</u>	<b>FD15.</b> Semi-Lagrangian finite volume methods for viscoelastic planar and axisymmetric contraction flows. <u>T. N. Phillips</u> and <u>A. J. Williams</u>	<b>SC19.</b> A new oscillation method enabling measurements at very small deflection angles and torques. <u>J. Laeuger</u> and <u>S. Huck</u>
10:35	<b>FB3.</b> Aggregation and gel formation in biopolymer solutions. <u>A. Stradner</u> , <u>S. Romer</u> , <u>C. Urban</u> and <u>P. Schurtenberger</u>	<b>AS7.</b> Nonlinear chain stretching and fracture in transient networks under shear. <u>J.-F. Berret</u> and <u>Y. S��r��ro</u>	<b>FD16.</b> A singularity method for calculating time-dependent viscoelastic flows with integral constitutive equations. <u>R. J. Phillips</u>	<b>SC20.</b> Particle settling in complex geometries: Computation and experiment. <u>R. R. Rao</u> , <u>L. A. Mondy</u> , <u>S. A. Altobelli</u> , <u>E. R. Lindgren</u> and <u>A. C. Sun</u>
11:00	<b>FB4.</b> Rheology of concentrated biopolymer systems with elastic filler particles. <u>I. Marti</u> , <u>P. Fischer</u> and <u>E. J. Windhab</u>	<b>AS8.</b> Scaling of the material functions in HASE associative polymers - Effect of macromonomer type and constitution. <u>A. Hirst</u> and <u>R. English</u>	<b>FD17.</b> Influence of closures on the eigen-spectra of elastic dumbbell based models: a multiscale modeling approach. <u>M. Somasi</u> and <u>B. Khomami</u>	<b>SC21.</b> Yield behavior of strongly aggregated colloids via computer simulation. <u>S. C. Pyett</u> and <u>R. A. Lionberger</u>
11:25	<b>FB5.</b> Enzymatic control of rheology in mixed biopolymer gels. <u>V. B. Pai</u> and <u>S. A. Khan</u>	<b>AS9.</b> Solution rheology of a model HASE polymer: Solvent quality and hydrophobic interaction. <u>A. A. Abdala</u> , <u>K. Olesen</u> , <u>D. R. Bassett</u> and <u>S. A. Khan</u>	<b>FD18.</b> Linear stability analysis of the FENE-G model for viscoelastic flow through a linear array of cylinders confined between two parallel plates. <u>Y. L. Joo</u> , <u>I. Ghosh</u> , <u>R. C. Armstrong</u> and <u>R. A. Brown</u>	<b>SC22.</b> The rheology of highly-filled and reactive suspensions using squeeze flow. <u>A. J. McHugh</u> and <u>A. Walberer</u>
11:50		LUNCH		

## Afternoon

	<b>Lady Davis/Sampson</b>	<b>Drayton</b>	<b>Elliott</b>	<b>Heyward</b>
	<b>Food and Biopolymers</b>	<b>Associating Polymers and Surfactants</b>	<b>Polymer Melts and Solutions</b>	<b>Suspensions and Colloidal Systems</b>
1:30	<b>FB6.</b> Constitutive analysis of $\beta$ -glucan/amylopectin blends. <u>J. A. Byars</u> and <u>C. J. Carriere</u>	<b>AS10.</b> Supramolecular aggregation in polysaccharide gum solutions. <u>S. B. Ross-Murphy</u> and <u>D. R. Picout</u>	<b>MS1.</b> Non-linear relaxation dynamics of highly entangled polymer liquids. <u>M. T. Islam</u> and <u>L. A. Archer</u>	<b>SC23.</b> Normal-stress transitions in a concentrated suspension of spheres. <u>V. G. Kolli</u> , <u>E. J. Pollauf</u> and <u>F. A. Gadala-Maria</u>

- 1:55 **FB7.** Molecular associations and hydrogen bonding in guar solutions. R. K. Prud'homme and Y. Cheng
- 2:20 **FB8.** Modelling mixing flows in cylindrical-shaped vessels. M. F. Webster, D. Ding and K. Sujatha
- 2:45 **FB9.** Viscoelastic effects observed during 2-D numerical simulation of flow and mixing in a model food mixer. J. L. Kokini and R. K. Connelly
- 3:10
- 3:35 **FB10.** Modeling of melt conveying in a deep-channel single screw cheese stretcher. C. Yu and S. Gunasekaran
- 4:00 **FB11.** Experimental investigation of laminar-turbulent transition in pipe flow for fruit purees. P. Perona and S. T. Sordo
- 4:25 **FB12.** Effects of post-mortem storage and freezing on the viscoelastic properties of vocal fold tissues. R. W. Chan
- 4:50 **FB13.** A non-invasive in-line viscosity measurement of concentrated opaque fluids. N. Dogan, Y. J. Choi, D. Sheen, R. Pappas, D. Pfund, M. McCarthy and R. L. Powell
- 5:15
- AS11.** Linear and non-linear rheological properties of nanofibrillar skeleton structures imbedded in various polymer melts. C. Friedrich, M. Fahrlander and W. Fraessdorf
- AS12.** Rheo-NMR investigation of shear banding and molecular ordering in wormlike micelle solutions. P. T. Callaghan and E. Fischer
- AS13.** Shear-induced structure in rheothickening surfactant solutions. V. Weber, R. Oda, E. Mendes and F. Schosseler
- AS14.** Brownian motion in viscoelastic media. S. Amin, R. M. van Zanten, K. P. Rufener, T. W. Kermis, S. J. Dees and J. H. van Zanten
- AS15.** Influence of additives on the rheology and structure of wormlike and rodlike micelles. L. M. Walker and M. H. T. Truong
- AS16.** Micellar structure changes in aqueous mixtures of nonionic surfactants. L. Guo, R. H. Colby, M. Lin and G. P. Dado
- AS17.** Synergistic enhancement of rheology in surfactant mixtures. S. R. Raghavan and E. W. Kaler
- MS2.** Constitutive equations for linear polymer melts inspired by reptation theory and non-equilibrium thermodynamics. A. Levgue, A. N. Beris and R. Keunings
- MS3.** 2-Dimensional rheology and polymer dynamics under non-linear deformations. D. van Dusschoten, M. Wilhelm and H. W. Spiess
- MS4.** Ratio of dynamic moduli and estimation of the relaxation time distribution. J. Huang and D. G. Baird
- MS5.** Constraint release effects in monodisperse and bidisperse polystyrenes in fast transient shearing flows. C. Pattamaprom and R. G. Larson
- MS6.** Use cumulative distribution functions in the fitting of discrete spectra. B. Caswell
- MS7.** Interrupted shear flow of unentangled polystyrene melts. P. G. Santangelo and C. M. Roland
- MS8.** Time-strain non-separability in polymer viscoelasticity. K. S. Cho and Y. Kwon
- SC24.** Simultaneous flotation and sedimentation in three component mixtures. S. A. Altobelli and L. A. Mondy
- SC25.** Uniform migration of concentration bands in variable-depth free-surface Couette flow of a noncolloidal suspension. B. D. Timberlake and J. F. Morris
- SC26.** The influence of walls on particle migration in suspensions. S. Feng, A. E. Kaiser, A. L. Graham, J. R. Abbott and M. S. Ingber
- SC27.** Consolidation of aggregated suspensions in drying. L. A. Brown and C. F. Zukoski
- SC28.** The rheological behavior of "structured" fibril suspensions. R. Liang, L. Han, D. Doraiswamy and R. K. Gupta
- SC29.** Rheology and filtrate properties of montmorillonite suspensions with the terpolymer of itaconic acid-acrylamide-2-acrylamido-2-methyl-propanesulfonic acid at high temperature. Y. Wu, B. Zhang, D. Sun and C. Zhang
- SC30.** Rheological properties and stabilization of magnetorheological fluids in a water in oil emulsion. J. H. Park and O. O. Park

COFFEE

END

# Thursday, February 15

## Morning

	Lady Davis/Sampson	Drayton	Elliott	Heyward
	<b>Liquid Crystalline Systems</b>	<b>Associating Polymers and Surfactants</b>	<b>Polymer Melts and Solutions</b>	<b>Microscopic Rheology</b>
8:05	<b>LC1.</b> Rheological theory for chiral liquid crystals. <u>A. D. Rey</u>	<b>AS18.</b> The rheology of charged, worm-like micelles. <u>B. A. Schubert</u> , <u>N. J. Wagner</u> and <u>E. W. Kaler</u>	<b>MS9.</b> Reptation-based modeling of flow-induced polymer crystallization. <u>P. L. Maffettone</u> , <u>S. Coppola</u> and <u>N. Grizzuti</u>	<b>MR1.</b> The physics of the actin cytoskeleton: From nonequilibrium polymer physics to nerve regeneration and cancer diagnosis. <u>J. A. Kas</u>
8:30	<b>LC2.</b> A unified hydrodynamics theory for nonhomogeneous liquid crystal polymers. <u>O. Wang</u>	<b>AS19.</b> Determination of the end cap energy of worm-like micelles. <u>M. In</u>	<b>MS10.</b> The appearance of threads during early stages of shear-induced crystallization in isotactic polypropylene. <u>H. Winter</u> and <u>N. Pogodina</u>	<b>MR2.</b> Viscoelasticity of dilute solutions of semiflexible polymers. <u>M. Pasquali</u> , <u>V. Shankar</u> and <u>D. C. Morse</u>
8:55	<b>LC3.</b> Mesostructure evolution in tumbling nematic LCPs between shearing plates. <u>G. Forest</u>	<b>AS20.</b> Unsteady motion of bubbles and spheres in wormlike micellar solutions. <u>A. L. Belmonte</u> and <u>A. Jayaraman</u>	<b>MS11.</b> Rheological studies of mesomorphic poly(diethylsiloxane). <u>H. Saxena</u> , <u>R. C. Hedden</u> and <u>C. Cohen</u>	<b>MR3.</b> Stress and conformational relaxation of dilute semiflexible polymer solutions. <u>P. Dimitrakopoulos</u> , <u>J. F. Brady</u> and <u>Z. -G. Wang</u>
9:20	<b>LC4.</b> Simulating disclinations in sheared nematic polymers. <u>J. J. Feng</u> , <u>J. Tao</u> and <u>L. G. Leal</u>	<b>AS21.</b> Dilute solutions of polymer-surfactant complexes: Extensional properties and drop impact behaviour. <u>J. J. Cooper-White</u> , <u>R. C. Crooks</u> , <u>K. Chockalingham</u> and <u>D. V. Boger</u>	<b>MS12.</b> On-line conoscopic measurement of flow induced orientation in flexible polymers. <u>B. L. Van Horn</u> and <u>H. H. Winter</u>	<b>MR4.</b> Brownian dynamics simulations of single DNA molecules in steady and transient mixed flow. <u>J. S. Hur</u> and <u>E. G. Shaqfeh</u>
9:45			COFFEE	
10:10	<b>LC5.</b> Prediction and observation of chaotic dynamics in sheared liquid crystalline polymers. <u>M. Grosso</u> , <u>J. Vermant</u> , <u>P. Moldenaers</u> and <u>P. L. Maffettone</u>	<b>AS22.</b> Microrheological investigation of the dynamics of colloidal particles dispersed in solutions of associative polymers. <u>Q. Lu</u> and <u>M. J. Solomon</u>	<b>MS13.</b> Stress-optical properties of polystyrene and polycarbonate across the dynamic glass transition. <u>H. H. Lee</u> , <u>J. A. Kornfield</u> , <u>G. Hay</u> and <u>K. Yoon</u>	<b>MR5.</b> Single-polymer dynamics in steady mixed flows. <u>H. Babcock</u> , <u>R. Teixeira</u> , <u>E. G. Shaqfeh</u> and <u>S. Chu</u>
10:35	<b>LC6.</b> Transient measurements of lyotropic LCP orientation within the 1-2 plane. <u>W. R. Burghardt</u> and <u>F. E. Caputo</u>	<b>AS23.</b> Effects of surfactant and salt addition on the rheology of HASE polymers. <u>C. Tiu</u> , <u>A. K. M. Lau</u> and <u>M. K. C. Tam</u>	<b>MS14.</b> The effect of pressure on the rheological properties of molten polyethylenes. <u>H. E. Park</u> and <u>J. M. Dealy</u>	<b>MR6.</b> Fluorescence microscopy experiments and Brownian dynamics simulations of flow behavior of DNA molecules confined to two dimensions. <u>D. J. Olson</u> , <u>P. D. Patel</u> , <u>E. G. Shaqfeh</u> , <u>S. G. Boxer</u> and <u>G. G. Fuller</u>
11:00	<b>LC7.</b> Shear-induced texture and its effect on the viscoelastic responses of a main chain thermotropic copolyester HBA/HQ/SA. <u>C.-K. Chan</u> and <u>P. Gao</u>	<b>AS24.</b> Diffusion-driven stress relaxation in dry soap foams. <u>A. M. Kraynik</u> , <u>S. Hilgenfeldt</u> , <u>D. A. Reinelt</u> and <u>F. van Swol</u>	<b>MS15.</b> High-pressure rheology of polymer melts plasticized with CO <sub>2</sub> : Experimental measurements and predictive viscoelastic scaling. <u>J. R. Royer</u> , <u>J. M. DeSimone</u> and <u>S. A. Khan</u>	<b>MR7.</b> Entanglement relaxation and release in model polymer melts. <u>J. A. McCormick</u> , <u>C. K. Hall</u> and <u>S. A. Khan</u>
11:25	<b>LC8.</b> Cure characterization of nematic bismaleimide thermosets. <u>H. Qin</u> and <u>P. T. Mather</u>	<b>AS25.</b> Association of surfactants and hydrophobically modified polyelectrolytes. <u>R. H. Colby</u> , <u>N. Plucktaeesak</u> and <u>L. E. Bromberg</u>	<b>MS16.</b> Novel couette rheometer for high pressure, high temperature systems. <u>G. Gappert</u> and <u>H. H. Winter</u>	<b>MR8.</b> Non-equilibrium brownian dynamics studies of dendrimers and hyperbranched polymers. <u>A. T. Lee</u> and <u>A. J. McHugh</u>

11:50 **LC9.** Recoverable compliance and viscosity of aligned block copolymer lamellae.  
*N. P. Balsara, H. Hahn and H. Watanabe*

**AS26.** The solution properties of polyelectrolytes: A classical treatment.  
*L. C. Cerny and E. R. Cerny*

**MS17.** Standard reference materials: Non-Newtonian fluids for rheological measurements. *C. R. Schultheisz and G. B. McKenna*

**MR9.** Grabbing the cat by the tail: Manipulating polymers one by one.  
*J. C. Macosko and C. J. Bustamante*

12:15

END

## Poster Session

Monday 5:30 PM Savannah Foyer North

- PO1.** Elongational viscosity measurements of polymer melts using semihyperbolic convergent dies. P. D. Patil, S. Petrovan and J. Collier
- PO2.** Transient and steady three-dimensional drop deformation under elongational flow. Y. T. Hu
- PO3.** High pressure capillary viscometer. E. J. Paul, R. K. Prud'homme, S. P. Wesson and R. Clark
- PO4.** Kinks vs. curves: An examination of the slope discontinuity in capillary flow. M. T. Shaw and E. M. C. Cua
- PO5.** In-line rheometry of shear-thinning and shear-thickening complex fluid systems by UVP-PD method. P. Fischer, J. Skaik, B. Ouriev and E. J. Windhab
- PO6.** Shear-banding structure orientated in the vorticity direction observed for equimolar micellar solution. P. Fischer
- PO7.** Viscosity upturn in dynamic oscillatory measurements. K. Hyun, D. H. Kim, S. J. Park, K. H. Ahn and S. J. Lee
- PO8.** The orientation process of cholesteric liquid crystals with D-(+)-Mannose as chiral inductor. E. G. Fernandes Jr. and M. R. Alcantara
- PO9.** Vector chromatography: Modeling micropatterned separation devices. K. D. Dorfman and H. Brenner
- PO10.** Sedimentation of symmetric bodies in an Oldroyd-B fluid. A. Vaidya, G. Galdi and A. Sequeira
- PO11.** An experimental study of the mixing of dough. D. M. Binding and M. A. Couch
- PO12.** Preparing constant viscosity solutions by blending gelatins of different molecular weights. R. W. Connelly
- PO13.** Rheology of whey protein isolate/pectin mixed gels. M. Beaulieu and S. Turgeon
- PO14.** The relationship between rheology, application method, and final coating structure. B. G. Dimetry and D. Bousfield
- PO15.** DMA properties of sheet molding compounds (SMC). F. Parsi, B. Clark and S. Gullerud
- PO16.** Thixotropic properties of aqueous dispersions of positively charged Al/Mg mixed metal hydroxides. D. Sun, W. Hou and C. Zhang
- PO17.** Yield stress measurement of silicon nitride mixture suspensions. L. Zhu, D. De Kee and K. Papadopoulos
- PO18.** Properties of the forpolymer of N-vinyl pyrrolidone with itaconic acid, acrylamide and 2-acrylamido-2-methyl-propanesulfonic acid as fluid loss reducer for drilling fluid at high temperature. Y. Wu, D. Sun, B. Zhang and C. Zhang
- PO19.** Rheological and transport properties of suspensions. A. E. Kaiser and A. L. Graham
- PO20.** On the effect of compatibilization on interfacial slip in polymer blends. P. Van Puyvelde, Z. Oommen, G. Groeninckx, P. Moldenaers and J. Mewis
- PO21.** Preparation of rubber toughened syndiotactic polystyrene blends by reactive compatibilization. W.-M. Choi and O. O. Park