



The Society of Rheology 91st Annual Meeting

Raleigh Convention Center, Raleigh, North Carolina

Meeting Schedule

Monday, October 21, 2019

| | 305A | 304 | 201 | 305B | 306A | 306B | 306C |
|-------|------|------|--------------------------------------|------|------|------|------|
| 8:30 | | | C. F. Schmidt (PL1) - 306 | | | | |
| 9:20 | | | Coffee Break | | | | |
| 9:50 | TM1 | SC1 | SM1 | IN1 | SF1 | BB1 | GG1 |
| 10:15 | TM2 | SC2 | SM2 | IN2 | SF2 | BB2 | GG2 |
| 10:40 | TM3 | SC3 | SM3 | IN3 | SF3 | BB3 | GG3 |
| 11:05 | TM4 | SC4 | SM4 | IN4 | SF4 | BB4 | GG4 |
| 11:30 | TM5 | SC5 | SM5 | IN5 | SF5 | BB5 | GG5 |
| 11:55 | | | Lunch Break / Student-Industry Forum | | | | |
| 1:30 | TM6 | SC6 | SM6 | IN6 | SF6 | BB6 | GG6 |
| 1:55 | TM7 | SC7 | SM7 | IN7 | SF7 | BB7 | GG7 |
| 2:20 | TM8 | SC8 | SM8 | IN8 | SF8 | BB8 | GG8 |
| 2:45 | TM9 | SC9 | SM9 | IN9 | SF9 | BB9 | GG9 |
| 3:10 | | | Coffee Break | | | | |
| 3:45 | TM10 | SC10 | SM10 | IN10 | SF10 | BB10 | GG10 |
| 4:10 | TM11 | SC11 | SM11 | IN11 | SF11 | BB11 | GG11 |
| 4:35 | TM12 | SC12 | SM12 | IN12 | SF12 | BB12 | GG12 |
| 5:00 | TM13 | SC13 | SM13 | IN13 | SF13 | BB13 | GG13 |
| 5:25 | TM14 | SC14 | SM14 | IN14 | SF14 | BB14 | GG14 |
| 5:50 | | | End | | | | |
| 6:30 | | | Monday Evening Reception | | | | |

Tuesday, October 22, 2019

| | 305A | 304 | 201 | 305B | 306A | 306B | 306C |
|-------|------|------|--|------|------|------|------|
| 8:30 | | | D. Vlassopoulos (PL2) - 306 | | | | |
| 9:20 | | | Coffee Break | | | | |
| 9:50 | TM15 | SC15 | SM15 | IN15 | SF15 | BB15 | GG15 |
| 10:15 | TM16 | SC16 | SM16 | IN16 | SF16 | BB16 | GG16 |
| 10:40 | TM17 | SC17 | SM17 | IN17 | SF17 | BB17 | GG17 |
| 11:05 | TM18 | SC18 | SM18 | IN18 | SF18 | BB18 | GG18 |
| 11:30 | TM19 | SC19 | SM19 | IN19 | SF19 | BB19 | GG19 |
| 11:55 | | | Lunch Break / Society Business Meeting | | | | |
| 1:30 | TM20 | SC20 | SM20 | IN20 | SF20 | BB20 | GG20 |
| 1:55 | TM21 | SC21 | SM21 | IN21 | SF21 | BB21 | GG21 |
| 2:20 | TM22 | SC22 | SM22 | IN22 | SF22 | BB22 | GG22 |
| 2:45 | TM23 | SC23 | SM23 | IN23 | SF23 | BB23 | GG23 |
| 3:10 | | | Coffee Break | | | | |
| 3:45 | TM24 | SC24 | SM24 | IN24 | SF24 | BB24 | GG24 |
| 4:10 | TM25 | SC25 | SM25 | IN25 | SF25 | BB25 | GG25 |
| 4:35 | TM26 | SC26 | SM26 | IN26 | SF26 | BB26 | GG26 |
| 5:00 | TM29 | SC27 | SM27 | IN27 | SF27 | BB27 | GG27 |
| 5:25 | TM28 | SC28 | SM28 | IN28 | SF28 | BB28 | GG28 |
| 5:50 | | | End | | | | |
| 7:00 | | | Awards Reception | | | | |
| 8:00 | | | Awards Banquet | | | | |

Wednesday, October 23, 2019

| | 305A | 304 | 201 | 305B | 306A | 306B | 306C |
|-------|------|------|-----------------------------|------|------|------|------|
| 8:30 | | | E. Del Gado (PL3) - 306 | | | | |
| 9:20 | | | Coffee Break | | | | |
| 9:50 | AM1 | SC29 | SM29 | IN29 | MC1 | AR1 | GG29 |
| 10:15 | AM2 | SC30 | SM30 | IN30 | MC2 | AR2 | GG30 |
| 10:40 | AM3 | SC31 | SM31 | IN31 | MC3 | AR3 | GG31 |
| 11:05 | AM4 | SC33 | SM32 | IN32 | MC4 | AR4 | GG32 |
| 11:30 | AM5 | | SM33 | IN33 | MC5 | AR5 | GG33 |
| 11:55 | | | Lunch Break | | | | |
| 1:30 | AM6 | SC34 | SM35 | IN34 | AD1 | TM27 | IR1 |
| 1:55 | AM7 | SC35 | SM34 | IN35 | AD2 | TM30 | IR2 |
| 2:20 | AM8 | SC36 | SM36 | IN36 | AD3 | TM31 | IR3 |
| 2:45 | AM9 | SC37 | SM37 | IN37 | AD4 | TM32 | IR4 |
| 3:10 | | | Coffee Break | | | | |
| 3:45 | AM10 | SC38 | SM38 | MC6 | AD5 | AR6 | IR5 |
| 4:10 | AM11 | SC39 | SM39 | MC7 | AD6 | AR7 | IR6 |
| 4:35 | AM12 | SC40 | SM40 | MC8 | AD7 | AR8 | IR7 |
| 5:00 | AM13 | SC41 | SM41 | MC9 | AD8 | AR9 | IR8 |
| 5:25 | AM14 | SC42 | SM43 | MC10 | AD9 | AR10 | IR9 |
| 5:50 | | | End | | | | |
| 6:30 | | | Poster Session & Reception | | | | |
| 6:30 | | | Gallery of Rheology Contest | | | | |

Thursday, October 24, 2019

| | 305A | 304 | 201 | 305B | 306A | 306B | 306C |
|-------|------|------|----------------------|------|------|------|------|
| 8:00 | | | X. Cheng (AP1) - 304 | | | | |
| 8:40 | AM15 | SC43 | SM44 | IN38 | AD10 | MC11 | IR10 |
| 9:05 | | SC44 | SM45 | IN39 | AD11 | MC12 | IR12 |
| 9:30 | AM17 | SC45 | SM46 | | AD12 | MC13 | IR11 |
| 9:55 | | | Coffee Break | | | | |
| 10:25 | AM18 | SC46 | SM47 | IN41 | AD13 | AR11 | IR13 |
| 10:50 | AM19 | SC47 | SM48 | IN42 | AD14 | AR12 | IR14 |
| 11:15 | AM20 | SC48 | SM42 | IN43 | AD15 | AR13 | IR15 |
| 11:40 | | SC49 | SM49 | IN44 | AD16 | AR14 | IR16 |
| 12:05 | | | End | | | | |

Session and Room Codes

AD = Active and Directed Systems
 AM = Additive Manufacturing and Composites
 AP = Award Presentations
 AR = Applied Rheology for Pharmaceuticals, Food, and Consumer Products
 BB = Biomaterials and Biofluid Dynamics
 GG = Out of Equilibrium Systems: Gels and Glasses
 IN = Flow Induced Instabilities and Non-Newtonian Fluids

IR = Interfacial Rheology
 MC = Microfluidic and Confined Flows
 PL = Plenary Lectures
 SC = Suspensions, Colloids, and Granular Materials
 SF = Surfactants, Foams, and Emulsions
 SM = Polymers Solutions, Melts and Blends
 TM = Rheometry: Advanced Techniques and Methods
 Shaded = Keynote

201 = Room 201
 304 = Room 304
 305A = Room 305A
 305B = Room 305B
 306 = Room 306
 306A = Room 306A
 306B = Room 306B
 306C = Room 306C
 BR4 = Ballroom C on 4th floor
 ML3 = Main Lobby on 3rd floor
 Meeting Prep: Room 202, Room 307

Monday, October 21

Morning

8:30 **PL1.** Statistical physics of active biological matter. *C. F. Schmidt, K. Nishi, C. Battle, N. Fakhri, C. P. Broedersz and F. C. MacKintosh* Room 306

9:20

COFFEE BREAK

| | Room 305A Rheometry: Advanced Techniques & Methods | Room 304 Suspensions, Colloids, & Granular Materials | Room 201 Polymers Solutions, Melts and Blends | Room 305B Flow Induced Instability. & Non-Newtonian Fluids | Room 306A Surfactants, Foams, and Emulsions | Room 306B Biomaterials and Biofluid Dynamics | Room 306C Out of Equilibrium Systems: Gels and Glasses |
|-------|--|---|---|---|---|--|--|
| 9:50 | TM1. Development of μ RheoSANS and investigating the structure and rheology of complex fluids at high shear rate. <i>K. M. Weigandt, S. Hudson, J. Weston and R. Murphy</i> | SC1. Time-dependent shear bands in a thixotropic yield-stress fluid under transient shear. <i>Y. Wei, M. J. Solomon and R. G. Larson</i> | SM1. Mobility of polymer-tethered nanoparticles in entangled polymer melts. <i>T. Ge and M. Rubinstein</i> | IN1. Characterizing the extensional rheology of weakly elastic fluids using capillary breakup technique: An experimental and numerical study. <i>J. Du, H. Ohtani, K. Ellwood and G. H. McKinley</i> | SF1. Mimicking coalescence using a dynamic thin film balance technique. <i>E. Chatziannakis and J. Vermant</i> | BB1. Modeling and simulation of blood flow syneresis and pulsatile pipe flow effects. <i>T. van de Vyver, J. S. Horner, N. J. Wagner and A. N. Beris</i> | GG1. Reversible and irreversible stress induced rheological changes in complex fluids. <i>W. H. Hartt, M. Caggioni, C. Harris, S. Shahsavari and E. Tozzi</i> |
| 10:15 | TM2. Rheological NMR to study polymer dynamics and protein aggregation. <i>B. Kohn, V. Köber, E. Stüindel, K. Sugase, E. Walinda, D. Morimoto, P. Galvosas and U. Scheler</i> | SC2. Generic elastoplastic behavior of yield stress fluids in their solid regime. <i>E. Ngouamba, J. Goyon and P. Coussot</i> | SM2. Amine functionalised polycyclooctenes, polynorbornenes and their copolymers: Transition from liquid- to solid-like. <i>T. Tomkovic, N. Kuanr, D. J. Gilmour, L. L. Schafer and S. G. Hatzikiriakos</i> | IN2. Inkjet printing of viscoelastic fluids: Examining the effect of concentration and polymer architecture on jetting. <i>K. Sundara Rajan, S. Sur and J. P. Rothstein</i> | SF2. The interfacial tension of the water-diluted bitumen interface at high bitumen concentrations measured using a microfluidic technique. <i>S. Goel, N. Joshi, M. Uddin, S. Ng, E. Acosta and A. Ramachandran</i> | BB2. Metabolic rates in red blood cells under shear studied by Rheo-NMR. <i>J. Milius, P. W. Kuchel, D. Shishmarev, S. J. Stevenson, T. I. Brox and P. Galvosas</i> | GG2. Investigation of the yielding transition in concentrated colloidal systems via rheo-XPCS. <i>G. J. Donley, J. D. Park, M. A. Wade, S. Narayanan, R. L. Leheny, J. L. Harden and S. A. Rogers</i> |
| 10:40 | TM3. Simultaneous Raman and rheology measurements for reaction and stress monitoring. <i>C. Roberts, A. M. Maes, A. M. Grillet and R. R. Rao</i> | SC3. A new effort in determining the viscoelastic properties from micro-rheological measurements. <i>Q. Li, J. G. Wang, D. Chen, X. Peng, R. Zia and G. B. McKenna</i> | SM3. Dynamics of entangled liquid coacervates made from oppositely charged polyelectrolytes. <i>C. Aponterivera and M. Rubinstein</i> | IN3. Pinch-off dynamics, extensional rheology and printability of polyelectrolyte solutions. <i>L. N. Jimenez, J. Dinic and V. Sharma</i> | SF3. Asphaltene adsorption and spontaneous emulsification at water/oil interfaces. <i>M. Rodriguez-Hakim, S. Bochner de Araujo and G. G. Fuller</i> | BB3. Characterization and rheology of platelet rich plasma and platelet poor plasma. <i>P. Jayaram, H. Mitra, A. T. Bratsman, T. Gabel and K. Alba</i> | GG3. Effect of attractive forces on slow dynamics in dense colloidal suspensions. <i>K. S. Schweizer and A. Ghosh</i> |
| 11:05 | TM4. Simultaneous rheo-Raman spectroscopy to identify the chemical origins of rheological response. <i>B. Rajaram, A. Ahuja and J. Ramirez</i> | SC4. Constitutive model selection using neural networks. <i>B. C. Blackwell and P. E. Arratia</i> | SM4. Dielectric relaxation of type-A chains undergoing head-to-tail association/dissociation: Difference from head-to-head case and correlation with viscoelastic relaxation. <i>H. Watanabe, Y. Matsumiya and Y. Kwon</i> | IN4. Macromolecular relaxation, strain, and extensibility determine elastocapillary thinning and extensional viscosity of polymer solutions. <i>J. Dinic and V. Sharma</i> | SF4. Humidity affects the rheology of supramolecular organogels. <i>E. Vereroudakis and D. Vlassopoulos</i> | BB4. Design of a microfluidic platform for high-sensitivity diagnosis of blood cell disorder. <i>A. Saadat, D. A. Huyke, J. G. Santiago and E. G. Shaqfeh</i> | GG4. Frictional dynamics of sticky colloids. <i>G. J. Wang and J. Swan</i> |
| 11:30 | TM5. New rheological tools for Rheo-SAXS and Rheo-SANS. <i>J. Laeuger</i> | SC5. Microstructure design in consumer products. <i>M. Caggioni, V. Trappe and P. T. Spicer</i> | SM5. Controlling the viscoelastic properties of entangled telechelic star polymers by combining stickers of different lifetimes. <i>E. van Ruymbeke, Y. Li and F. Zhuge</i> | IN5. Rheological behavior of mesophase pitches for carbon fiber processing. <i>H. Yoon, Z. R. Hinton, S. E. Smith, C. E. Chase and N. J. Alvarez</i> | SF5. Rheological behavior of amphiphilic block copolymers in oil water mixtures. <i>S. Qavi and R. Foudazi</i> | BB5. Large amplitude oscillatory shear (LAOS) flow as a metric of comparison for contemporary human blood rheological models. <i>M. J. Armstrong, J. S. Horner, M. Deegan, N. J. Wagner and A. N. Beris</i> | GG5. Realistic multi-body finite element models for the linear elastic response of compressed micro-gel suspensions.. <i>A. Elgailani and C. E. Maloney</i> |
| 11:55 | LUNCH BREAK / STUDENT-INDUSTRY FORUM Room 402 of RCC, 12:00 to 1:15 pm | | | | | | |

Afternoon

| | Room 305A Rheometry: Advanced Techniques & Methods | Room 304 Suspensions, Colloids, & Granular Materials | Room 201 Polymers Solutions, Melts and Blends | Room 305B Flow Induced Instability & Non-Newtonian Fluids | Room 306A Surfactants, Foams, and Emulsions | Room 306B Biomaterials and Biofluid Dynamics | Room 306C Out of Equilibrium Systems: Gels and Glasses |
|------|--|--|---|---|--|--|--|
| 1:30 | TM6. Gaining physical insights into LAOS experiments: Stress decomposition in LAOS of dense suspensions. <i>E. Y. X. Ong, M. Ramaswamy and I. Cohen</i> | SC6. Force network structure development in discontinuous shear thickening. <i>J. F. Morris, O. Sedes and S. Abhinendra</i> | SM6. Using rheology, colloid force microscopy and mathematical modeling for understanding the role of associative polymers in lubrication. <i>E. Pashkovski et al.</i> | IN6. Effects of shear and extensional rheology on liquid transfer between two flat surfaces. <i>J.-T. Wu, L. F. Francis, M. S. Carvalho and S. Kumar</i> | SF6. Rheology and structure of microgel-surfactant composites. <i>S. Goujard, J.-M. Suau, C. Champagne and M. Cloitre</i> | BB6. Modeling of the human blood rheology and simulation of its flow in elastic microvessels. <i>Y. Dimakopoulos et al.</i> | GG6. The hydrodynamics of the colloidal glass transition. <i>M. A. Zakhari, J. G. Wang, G. Ouaknin and R. Zia</i> |

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|------|---|---|---|---|--|--|--|
| 1:55 | TM7. Understanding molecular changes in three wheat flour doughs during aging through their LAOS behavior. <i>S. Turksøy, M. Yildirim and J. Kokini</i> | SC7. Towards a tribological perspective on dense suspension rheology. <i>L. C. Hsiao</i> | SM7. Electrostatics in semidilute polyelectrolyte solutions. <i>G. Chen, A. Perazzo and H. A. Stone</i> | IN7. The Kaye effect: New insights from experiment, theory and modelling. <i>J. King and S. J. Lind</i> | SF7. Recovery rheology via rheo-SANS: Application to step strains under out-of-equilibrium conditions. <i>J.-W. Lee, L. Porcar and S. A. Rogers</i> | BB7. Measurements and modeling of interspecies hemorheology and hemodynamics. <i>J. S. Horner, Y.-J. Lin, A. N. Beris and N. J. Wagner</i> | GG7. Microscopic theory of spatially heterogeneous dynamics, elasticity and vitrification in confined colloidal suspensions and polymer melts. <i>A. Phan and K. S. Schweizer</i> |
| 2:20 | TM8. Medium amplitude parallel superposition (MAPS) rheology. <i>J. Swan, G. H. McKinley and K. Lennon</i> | SC8. Role of rolling friction in the flow of dense frictional suspension. <i>A. Singh, J. J. de Pablo and H. M. Jaeger</i> | SM8. Solution rheology of dry native cellulose in ionic liquids: Weakly associating polymers? <i>N. Utomo, B. Nazari and R. Colby</i> | IN8. Interplay between shear banding and wall slip: Generalized lever rule. <i>M. Geri, B. Saint-Michel, T. Divoux, S. Manneville and G. H. McKinley</i> | SF8. Mesoscale simulation approach for dynamics and assembly of deformable objects. <i>T. Bello, S. Lee and P. T. Underhill</i> | BB8. Multiscale characterization of nanoparticle diffusion in cellular blood flow under shear. <i>Z. Liu, J. R. Clausen, R. R. Rao, D. N. Ku and C. K. Aidun</i> | GG8. Microscopic dynamics of stress relaxation in a nanocolloidal soft glass. <i>C. Yihao, S. A. Rogers, S. Narayanan, J. L. Harden and R. L. Leheny</i> |
| 2:45 | TM9. Calibration of a commercial rheometer for orthogonal superposition measurements. <i>R. Tao and A. M. Forster</i> | SC9. Experimental tests of frictional contact models for suspensions. <i>Y.-F. Lee, Y. Luo, C.-P. Hsu, S. C. Brown, K. A. Dennis, L. Isa, E. M. Furst and N. J. Wagner</i> | SM9. The impact of association strength on performance and processing of entangled ionomers. <i>Z. R. Hinton and N. J. Alvarez</i> | IN9. Investigation of non-linear coarsening mechanism in co-continuous polymer blends via in-situ confocal rheology. <i>R. S. Shah, S. Bryant and M. Trifkovic</i> | SF9. The role of deformability in determining the structural and mechanical properties of bubbles and emulsions. <i>A. Boromand, A. Signoriello, E. Weeks, F. Ye, M. Shattuck and C. O'Hern</i> | BB9. Microstructure and rheology of blood - before and after cardiovascular surgery. <i>Y.-L. Chen, Y.-F. Wu, P.-S. Hsu and C.-S. Tsai</i> | GG9. Gelation and relaxations of nanofibrils suspended in viscoelastic media. <i>R. Poling-Skutvik and C. O. Osuji</i> |
| 3:10 | COFFEE BREAK | | | | | | |
| 3:45 | TM10. Injectability screening for concentrated biologics by microfluidic quartz resonator. <i>Z. Parlak</i> | SC10. Cellular Stokesian dynamics: The colloidal hydrodynamics of intracellular transport. <i>R. Zia, A. Maheshwari, E. Gonzalez, A. Sunol and D. Endy</i> | SM10. Rapid relaxation by internal slip - rheology and ordering of diblock bottlebrush polymers. <i>B. M. Yavitt, H. Fei, G. K. Kopanati, J. J. Watkins and H. H. Winter</i> | IN10. Fully developed capillary flow of a shear-banding solution of wormlike micelles requires $L/d > 100$. <i>P. F. Salipante, V. Dharmaraj and S. Hudson</i> | SF10. Formation, growth and coalescence of nanoscopic mesas in stratifying foam films. <i>C. Xu, S. Yilixiati, C. Ochoa, Y. Zhang and V. Sharma</i> | BB10. Using freely suspended biofilms to study the interactions among engineered proteins displayed on the bacteria cell surface. <i>P. K. Chittur, H. Liu, D. A. Tirrell and J. A. Kornfield</i> | GG10. Large-scale structural rearrangement during yielding of heterogeneous colloidal gels revealed by rheo-microscopy. <i>T. Nguyen, A. Shetty and M. E. Helgeson</i> |
| 4:10 | TM11. High frequency rheometry with the quartz crystal microbalance. <i>K. R. Shull, Q. Wang and D. E. Delgado</i> | SC11. Dynamics and rheology of suspensions of particles with arbitrary shapes. <i>M. Tan, J. Adeniran and T. W. Walker</i> | SM11. Rheological fingerprinting of nanoscale structure of block copolymer micelle liquid crystals. <i>C. S. Valentine and L. M. Walker</i> | IN11. High Weissenberg number flow alignment transitions in wormlike micelles. <i>J. Weston, K. M. Weigandt and S. Hudson</i> | SF11. Bubble-size predictions for polyurethane foam using a population balance equation. <i>R. R. Rao, W. Ortiz and C. Roberts</i> | BB11. Effects of non-ionic surfactant on the formation of <i>P. aeruginosa</i> pellicles. <i>G. Christopher and L. Qi</i> | GG11. Rejuvenation protocols and pre-shear history in non-ergodic states of attractive colloids. <i>G. Petekidis and E. Moghimi</i> |
| 4:35 | TM12. Single and multi-particle tracking to study transport properties and viscoelasticity of biopolymer solutions. <i>P. Kumar, J. Tamayo and A. Gopinath</i> | SC12. Relationship between rheology and microstructure in thermosensitive micellar copolymer polycrystals with embedded colloidal nanoparticles. <i>I. Boucenna, F. Carn and A. Mourchid</i> | SM12. Structure and rheology of aqueous solutions of triblock copolymers. <i>G. Marotta, A. Di Samo, M. D'Apuzzo, S. Costanzo and R. Pasquino</i> | IN12. An experimental explanation of the G'' overshoot in yield stress soft materials. <i>G. J. Donley and S. A. Rogers</i> | SF12. Rheology of carbon nanotube foams. <i>S. Arzash, S. M. Williams, M. Pasquali and F. C. MacKintosh</i> | BB12. Role of collagen on the viscoelasticity of <i>P. aeruginosa</i> biofilms. <i>M. Rahman, V. Gordon and G. Christopher</i> | GG12. Microscopic dynamics and failure precursors of a gel under mechanical load. <i>S. Aime, L. Ramos and L. Cipelletti</i> |
| 5:00 | TM13. Artificial thermal noise to probe local viscoelastic properties of complex fluids. <i>S. K. Kale and J. R. Samaniuk</i> | SC13. Simulation of nanocrystalline cellulose suspensions. <i>J.-Y. Chen, Z. Li, I. Szlufarska and D. J. Klingenberg</i> | SM13. Theory of interchain packing and the interplay of caging and physical bonding on segmental relaxation and shear elasticity in associating copolymer liquids. <i>A. Ghosh and K. S. Schweizer</i> | IN13. Dean flow of a Bingham plastic. <i>L. Frigaard and M. Moyers-Gonzalez</i> | SF13. The formation and stability of foams for particulate delivery in biomedical applications. <i>N. J. Alvarez and T. Lewis</i> | BB13. Non-equilibrium dynamics of vesicles in flow using a Stokes trap. <i>D. Kumar, C. Richter and C. M. Schroeder</i> | GG13. Large amplitude oscillatory shear study of a colloidal gel at the critical point. <i>K. Suman and Y. M. Joshi</i> |
| 5:25 | TM14. Bi-disperse multiple particle tracking to characterize evolving gels. <i>M. D. Wehrman, S. Lindberg and K. M. Schultz</i> | SC14. Elucidating powder rheology via Discrete Element simulations and mechanically stirred powder rheometry. <i>J. B. Lechman, D. S. Bolintineanu and A. M. Grillet</i> | SM14. Tri- and penta-block polymer gelation in the presence of small molecules. <i>M. A. Calabrese, R. Yang, B. D. Olsen and D. S. Kohane</i> | IN14. Start-up flows of elastoviscoplastic fluids in porous media. <i>S. Hormozi, F. De Vita, Q. Mitchell, M. Rosti and L. Brandt</i> | SF14. Elastic and mechanically robust polymeric foams to stop bleeding. <i>H. Choudhary, M. Rudy and S. R. Raghavan</i> | BB14. Vesicle shape stability in general linear flows. <i>C. Lin and V. Narsimhan</i> | GG14. Controlling microstructures in depletions gels: Effects of quenching rate, depth and shear flow history. <i>G. Colombo and J. Vermant</i> |
| 5:50 | END | | | | | | |
| 6:30 | MONDAY EVENING RECEPTION North Carolina Museum of Art, until 9:30 pm | | | | | | |

Tuesday, October 22

Morning

8:30 **PL2.** Molecular rheology and synthetic chemistry: A critical partnership for designing flow-responsive matter. *D. Vlassopoulos* (Bingham Lecture) Room 306

9:20

COFFEE BREAK

| | Room 305A Rheometry: Advanced Techniques & Methods | Room 304 Suspensions, Colloids, & Granular Materials | Room 201 Polymers Solutions, Melts and Blends | Room 305B Flow Induced Instability & Non-Newtonian Fluids | Room 306A Surfactants, Foams, and Emulsions | Room 306B Biomaterials and Biofluid Dynamics | Room 306C Out of Equilibrium Systems: Gels and Glasses |
|-------|--|---|---|---|--|--|---|
| 9:50 | TM15. Transition criteria between scaling regimes in capillary thinning rheometry. <i>C. Clasen et al.</i> | SC15. Short and long time relaxation processes determine the macroscopic rheology of soft particle glasses. <i>F. Khabaz, M. Cloitre and R. T. Bonnecaze</i> | SM15. Molecular dynamics (MD) simulations of entangled melts in shear and extension. <i>Y. Zheng, M. Tsigie and S.-Q. Wang</i> | IN15. Using rheometry and MRI to predict transfer of pastes and gels. <i>A. Potanin and N. Shapley</i> | SF15. Micellar structures, stepwise thinning and nanoscopic thickness variations in foam films formed by aqueous sodium naphthenate solutions. <i>C. Ochoa et al.</i> | BB15. Determining how human mesenchymal stem cells change their degradation strategy in response to microenvironmental stiffness. <i>M. Daviran et al.</i> | GG15. The linear viscoelastic spectrum and non-affine rearrangements in soft particulate gels. <i>M. Bantawa et al.</i> |
| 10:15 | TM16. Stability of liquid filament stretching and implications for rheometry. <i>O. Hassager</i> | SC16. Start-up shear flow of soft particle glasses reveals microscopic dynamics. <i>F. Khabaz, M. Cloitre and R. T. Bonnecaze</i> | SM16. Shear thinning of unentangled polymer melts due to flow-induced reduction of monomeric friction coefficient. <i>G. Ianniruberto and G. Marrucci</i> | IN16. Creating strain hardening polypropylene via multilayers for improved thermoformability. <i>A. M. Jordan et al.</i> | SF16. Wormlike micelles in cold and sub-zero conditions: New insights into the self-assembly of ionic surfactants in polar organic solvents. <i>N. R. Agrawal et al.</i> | BB16. Cell nucleus as a microrheological probe to study the rheology of the cytoskeleton. <i>M. Moradi and E. Nazockdast</i> | GG16. Accelerated gelation kinetics in binary colloidal gels of two different attraction strengths. <i>J. H. Cho and I. Bischofberger</i> |
| 10:40 | TM17. Drop dynamics of viscoelastic filament. <i>H. Pingulkar, J. Peixinho and O. Crumeyrolle</i> | SC17. One-step, in-situ jamming point measurements by immobilization cell rheometry. <i>Y. Luo, Y.-F. Lee, S. C. Brown, K. A. Dennis, E. M. Furst and N. J. Wagner</i> | SM17. Elucidating the molecular rheology of entangled polymeric fluids via direct comparison of NEMD simulations and model predictions. <i>M. H. Nafar Sefiddashti, B. J. Edwards and B. Khomami</i> | IN17. Structure-property relationships via recovery rheology in viscoelastic materials. <i>J.-W. Lee, K. M. Weigandt, E. Kelley and S. A. Rogers</i> | SF17. Effect of wetting on pinch-off dynamics of wormlike micellar fluid. <i>S. Wu and H. Mohammadigoushki</i> | BB17. Putting the mitotic spindle in its place. <i>E. Nazockdast, H.-Y. Wu, D. Needleman and M. Shelley</i> | GG17. Shear-induced microstructure and mechanical characterization of composite organocolloid-hydrogels. <i>E. D. Cárdenas-Vásquez, L. Kass and L. C. Hsiao</i> |
| 11:05 | TM18. Micro gel beads produced by inkjet system and its application to biorheology measurement. <i>M. Shujiro, H. Taichi and S. Keiji</i> | SC18. Cracking and self-healing of shrinkable, granular materials. <i>H. J. Cho and S. S. Datta</i> | SM18. Spatially anisotropic relaxation dynamics in deformed polymer melts. <i>W.-S. Xu, C. Lam, J.-M. Carrillo, B. Sumpter and Y. Wang</i> | IN18. Non-linear analysis of extrusion instabilities in polymer melt processing. <i>S. Varchanis, D. Pettas, Y. Dimakopoulos and J. Tsamopoulos</i> | SF18. Scaling of flow-induced alignment and the possibility of flow-induced scission in wormlike micelles. <i>J. Zhang, L. G. Leal and M. E. Helgeson</i> | BB18. Linear and nonlinear rheology of collagenase-treated breast cancer tumors. <i>R. D. Corder and S. A. Khan</i> | GG18. On the viscosity of adhesive hard sphere dispersions: Critical scaling and the role of rigid contacts. <i>J. Swan and G. Wang</i> |
| 11:30 | TM19. Flexibility-dependent contrast in capillary break-up dynamics, coil-stretch transition, and extensional rheology of polymer solutions revealed using Dripping-onto-Substrate (DoS) rheometry. <i>J. Dinic and V. Sharma</i> | SC19. Anomalous creep in jammed suspensions. <i>H. Goswami and J. R. Seth</i> | SM19. Inhomogeneous yielding and chain disentanglement upon "constrained" planar extension. <i>R. Yuan, X. Li and S.-Q. Wang</i> | IN19. Microphase separation in entangled polymeric solutions. <i>M. H. Nafar Sefiddashti, B. J. Edwards and B. Khomami</i> | SF19. Probing topological transitions of reverse worm-like micelles subject to transient shear flow using dielectric spectroscopy. <i>J. J. Richards, N. H. Cho and J. K. Riley</i> | BB19. Rheological characterization, experimental studies, and computer simulation of polytetrafluoroethylene (PTFE) paste extrusion and expansion for vascular tissue engineering grafts. <i>G. Schmidt, Y. Xu, Y. Lin, G. Yilmaz and L.-S. Turng</i> | GG19. Anisotropic self-assembly and percolation of nanoparticles in nanoparticle-incorporated supramolecular hydrogels. <i>J. Song, M. H. Rizvi, J. Ilavsky, D. Mankus, J. B. Tracy, N. Holten-Andersen and G. H. McKinley</i> |
| 11:55 | LUNCH BREAK / SOCIETY BUSINESS MEETING Room 304 of RCC, 12:00 - 1:30 pm | | | | | | |

Afternoon

| | Room 305A Rheometry: Advanced Techniques & Methods | Room 304 Suspensions, Colloids, & Granular Materials | Room 201 Polymers Solutions, Melts and Blends | Room 305B Flow Induced Instability & Non-Newtonian Fluids | Room 306A Surfactants, Foams, and Emulsions | Room 306B Biomaterials and Biofluid Dynamics | Room 306C Out of Equilibrium Systems: Gels and Glasses |
|------|--|---|---|---|--|---|--|
| 1:30 | TM20. A filament stretching rheometer for in-situ X-ray experiment: Combining rheology and in-situ crystalline morphology characterization. <i>J. Pepe, R. Cardinaels, G. Peters and P. D. Anderson</i> | SC20. Rheology of dense granular flows: The effect of particle and boundary properties. <i>F. Fazelpour, Z. Tang and K. E. Daniels</i> | SM20. Investigation of the rheological behavior of polymer melts in equibiaxial elongational flows. <i>D. C. Venerus, R. Mick and T. Kashyap</i> | IN20. Numerical simulations of non-Newtonian fluids in melt processes. <i>N. Sharifi-Mood, M. Masoudian, P. Kodl and J.-M. Marchal</i> | SF20. Rheology as a tool to assess long term stability and robustness in formulation development. <i>J. N. Fowler</i> | BB20. Length scale dependent human mesenchymal stem cell remodeling of polymer-peptide hydrogels quantified using bi-disperse multiple particle tracking microrheology. <i>J. A. McGlynn and K. M. Schultz</i> | GG20. Universality of critical exponents in the neighborhood of sol-gel transition. <i>K. Suman, N. Joshi and Y. M. Joshi</i> |

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| 1:55 | TM21. Measurements of yield stress materials using 3D printed fractal vanes. <i>C. E. Owens, A. J. Hart and G. H. McKinley</i> | SC21. Modes of particle association in clay slurries. <i>M. Shoaib, E. R. Bobicki and C. Nestor</i> | SM21. Using nonlinear extensional rheology to elucidate differences in long chain branching in commercial high density polyethylene. <i>N. J. Alvarez and S. L. Morelly</i> | IN21. Viscosity control by percolation. <i>T. Ochi, J. Aoki and H. Takahasi</i> | SF21. Direct investigation of solid-stabilized droplet deformation under shear flow. <i>M. Kaganyuk and A. Mohraz</i> | BB21. Rheological characterization of coordinated physical gelation and chemical crosslinking in gelatin methacrylamide hydrogels. <i>A. T. Young and M. Daniele</i> | GG21. Mechanical spectroscopy of aluminosilicate hydrogels during gelation. <i>B. Keshavarz, A. Poulesquen, D. Gomes-Rodriguez, J.-B. Champenois, M. Geri, C. E. Owens, T. Divoux and G. H. McKinley</i> |
| 2:20 | TM22. Making rheology fun again – case studies in practical rheometry. <i>D. J. Mooney</i> | SC22. Connecting structure to bulk rheology in dense disordered solids. <i>L. Galloway, X. Ma, N. C. Keim, A. G. Yodh, D. J. Jerolmack and P. E. Arratia</i> | SM22. Intermolecular hooking in unentangled semidilute polymer solutions under extensional flow. <i>C. D. Young and C. E. Sing</i> | IN22. Ultrasonication-assisted dispersion of cellulose nanocrystals: A comprehensive study. <i>M. Girard, J. R. Tavares and M. C. Heuzey</i> | SF22. Nanodiamonds stabilized Pickering emulsions. <i>B. V. Farias, D. Brown and S. A. Khan</i> | BB22. Highly tunable short peptide hydrogels for biomedical applications. <i>L. J. Thursch, D. DiGuseppi, N. J. Alvarez and R. Schweitzer-Stemmer</i> | GG22. Stress relaxation of model PDMS vitrimers with neutral and ionic crosslinks. <i>C. M. Evans and L. E. Porath</i> |
| 2:45 | TM23. Elastic and viscoelastic characterization of gellan gum microcapsules and the effects of aging. <i>Y.-H. Huang et al.</i> | SC23. Connections between bulk rheology and microstructure of dense granular flows at the flow-arrest transition. <i>I. Srivastava et al.</i> | SM23. Nonlinear rheological behavior of unentangled poly(alkylstyrene) melts. <i>Y. Matsumiya and H. Watanabe</i> | IN23. Shear-dependent structures of microfibrillated cellulose suspensions. <i>E. G. Facchine, S. A. Khan and O. J. Rojas</i> | SF23. Structure-function relationship between surfactant and spray drift of emulsions. <i>B. M. Rawzan, A. Schmucker and M. Bishop</i> | BB23. Chitosan-graphene oxide hydrogels and thin films - applications in drug delivery. <i>S. G. Marapureddy and P. Thareja</i> | GG23. Microfluidic filament thinning of aqueous fibrillar methylcellulose solutions. <i>A. E. Metaxas and C. S. Dutcher</i> |
| 3:10 | | | | COFFEE BREAK | | | |
| 3:45 | TM24. How to produce unbiased experimental results for time-dependent materials: Pre-shear with strain recovery. <i>J. Choi and S. A. Rogers</i> | SC24. Self-organization and flow of rod-like colloidal particles with tunable interactions. <i>M. Das and G. Petekidis</i> | SM24. Direct visualization of single comb polymer dynamics in semi-dilute solutions: Complex interplay of topology and concentration at the molecular scale. <i>S. F. Patel and C. M. Schroeder</i> | IN24. Measuring the material properties of drying paint films through microrheology. <i>S. Varghese, R. Rock, S. V. Baranycyk, J. F. Gilchrist and C. Wirth</i> | SF24. The effect of the surfactants, predissolved drop fluid and chemistry of the suspending fluid on the wetting of a surface by an emulsion drop. <i>S. Borkar and A. Ramachandran</i> | BB24. Revealing processability of structured fluids comprising biopolymers by microfluidics. <i>M. Lynch, Y.-J. Lin, N. J. Wagner, E. M. Furst and C. Mourafetis</i> | GG24. Shear-induced gelation of charged liquid crystalline rodlike aggregates. <i>R. J. Fox, M. Hegde, A. S. Kumbhar, S. T. Edward, L. A. Madsen, S. J. Picken and T. J. Dingemans</i> |
| 4:10 | TM25. Weakly-nonlinear viscoelastic rheometry. <i>R. H. Ewoldt, L. Martinetti, O. Carey-De La Torre, P. K. Singh, K. S. Schweizer, I. Natalia and E. Koos</i> | SC25. Characterization of rheological properties for both polydisperse and monodisperse colloidal rod systems. <i>S. He, S. Lindberg and K. M. Schultz</i> | SM25. Dynamics of bottlebrush polymers in dilute solution. <i>S. Dutta, T. Pan, M. A. Wade, D. J. Walsh, B. B. Patel, D. S. Guironnet, Y. Diao, S. A. Rogers and C. E. Sing</i> | IN25. Tube rolling and tumbling of graphene oxide domains in shear flows. <i>M. Park and H. S. Lee</i> | SF25. Manipulating the colloidal interaction in macro- and nano-emulsions. <i>H. Salimi-Kenari and R. Foudazi</i> | BB25. Slime for defense – biophysical design principles in a marine environment. <i>K. Rementzi, L. J. Boeni, P. Fischer and D. Vlassopoulos</i> | GG25. Small and large amplitude oscillatory shear behavior of physical and chemical PVA hydrogels. <i>D. Kogan and M. Gottlieb</i> |
| 4:35 | TM26. Rheological behaviour of wax networks in crude oil. <i>P. Saxena, A. Jain, V. A. Juvekar and J. R. Seth</i> | SC26. Settling of two spheres in a suspension of Brownian rods. <i>G. Kumar and G. Natale</i> | SM26. Relating solvent dynamics to the extensional viscosity of entangled polymer solutions. <i>T. C. O'Connor, A. Hopkins and M. O. Robbins</i> | IN26. Air entrainment through viscous fingering in drying colloid-polymer solutions. <i>J. F. Gilchrist and T. Kaewpetch</i> | SF26. Controlling nanoemulsion self-assembly via thermo-responsive attractive and repulsive interactions. <i>L.-C. Cheng, S. M. Hashemnejad and P. S. Doyle</i> | BB26. Tunable rheology and ultra-low interfacial tension of polyelectrolyte complex coacervates. <i>S. Ali, D. J. Audus and V. M. Prabhu</i> | GG26. Probe rheology simulations of polymer networks: Role of network structure heterogeneity. <i>R. Islam, N. Valadez-Perez, T. Indei, J. D. Schieber and R. Khare</i> |
| 5:00 | TM29. Stress relaxation and the exponential data-fitting problem. <i>S. Shanbhag</i> | SC27. Quantitative understanding of sheared colloidal rods and the effect of particle size and flexibility. <i>M. P. Lettinga, C. Lang, C. Clasen, J. k. Dhont and J. Hendricks</i> | SM27. Rapid simulation of semidilute polymer solutions. <i>C. E. Sing and C. D. Young</i> | IN27. Electrokinetic instabilities in viscoelastic fluids with conductivity gradients. <i>L. Song, P. Jagdale, L. Yu and X. Xuan</i> | SF27. Composition-dependent transition from viscoelasticity to viscoplasticity in a ternary liquid/liquid/particle mixture. <i>S. S. Velankar, J. Yang and S. Mohanlal</i> | BB27. Slow stress relaxation of transient-crosslinked biopolymer networks. <i>S. Chen, T. Markovich and F. C. MacKintosh</i> | GG27. Controlling viscoelasticity of phase change salogels via crosslinker geometry. <i>P. Karimineghlani and S. Sukhishvili</i> |
| 5:25 | TM28. Calculation of molecular weight distribution using fixed point iteration method from linear viscoelastic model of monodisperse polymers. <i>J. Lee and K. S. Cho</i> | SC28. Quantifying order in nonspherical colloidal systems with small-angle scattering. <i>P. T. Corona, K. S. Sillmore, C. Lang, L. Porcar, M. P. Lettinga, J. Swan, L. G. Leal and M. E. Helgeson</i> | SM28. Non-homogeneous flows in entangled polymer solutions driven by flow-concentration coupling. <i>M. C. Burroughs, M. E. Helgeson and L. G. Leal</i> | IN28. Experimental investigation of rheological effects on electroosmotic fluid flow in a contraction-expansion microchannel. <i>A. Malekanfard and X. Xuan</i> | SF28. Wall slip of direct and inverse emulsions: Origin of wall slip yield stress and slip layer thickness. <i>P. Coussot, X. Zhang and E. Lorenceau</i> | BB28. Nonlinear Poisson effect in critical mechanical networks. <i>J. L. Shivers, S. Arzash and F. C. MacKintosh</i> | GG28. Fourier transform fatigue analysis in LAOS and LAOE. <i>V. Hirschberg, M. Wilhelm and D. Rodrigue</i> |
| 5:50 | | | | END | | | |
| 7:00 | | | | AWARDS RECEPTION Ballroom Lobby on 4th floor of RCC, until 8:00 pm | | | |
| 8:00 | | | | AWARDS BANQUET Ballroom C on 4th floor of RCC | | | |

Wednesday, October 23

Morning

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| 8:30 | PL3. Rheology of gel networks: Softness, rigidity and failure. <i>E. Del Gado</i> Room 306 | | | | | | |
| 9:20 | COFFEE BREAK | | | | | | |
| | Room 305A Additive Manufacturing and Composites | Room 304 Suspensions, Colloids, & Granular Materials | Room 201 Polymers Solutions, Melts and Blends | Room 305B Flow Induced Instability & Non-Newtonian Fluids | Room 306A Microfluidic and Confined Flows | Room 306B Appl. Rheology for Pharma., Food & Consumer Products | Room 306C Out of Equilibrium Systems: Gels and Glasses |
| 9:50 | AM1. An integrated experimental and computational approach to the design of thermoplastic polyurethane/graphene oxide nanocomposites with specific properties. <i>J. Maia et al.</i> | SC29. Brittle solids collapse in simple liquid suspensions. <i>P. Coussot and D. E. Andrade</i> | SM29. Strain hardening during melt stretching of PDLLA and PLLA: Effect of deformation-induced crystallization. <i>M. Razavi, X. Zhao, R. Yuan and S.-Q. Wang</i> | IN29. Upstream vortex and elastic wave in the viscoelastic flow around a confined cylinder. <i>B. Qin, P. F. Salipante, S. Hudson and P. E. Arratia</i> | MC1. Development and commercialization of microfluidic flow assurance testing. <i>T. de Haas</i> | AR1. Using rheology to optimize of the chocolate process. <i>P. Boylston, A. Miller, B. Schieve and M. J. Armstrong</i> | GG29. Rheology of glass-ceramics for sealing applications. <i>A. M. Grillet, S. X. Dai and B. Elisberg</i> |
| 10:15 | AM2. Uniaxial extension of polymer nanocomposites with well-dispersed nanoparticles: The role of the adsorbed polymers. <i>R. Sun and S. Cheng</i> | SC30. Altering thickening shear rate of fumed silica slurries using spherical silica. <i>E. Akbari Fakhrahadi and M. Liberatore</i> | SM30. In situ synchrotron X-ray scattering during extensional flow induced crystallization of PLLA enabled by tube expansion deformation. <i>J. A. Kornfield et al.</i> | IN30. Flow-induced vibrations of flexible microcylinders due to a viscoelastic flow instability. <i>C. C. Hopkins, S. J. Haward and A. Q. Shen</i> | MC2. Droplet shape relaxation in confined microfluidic flows for probing the properties of liquid-liquid emulsions. <i>C. S. Dutcher et al.</i> | AR2. LAOS (Large Amplitude Oscillatory Shear) rheological characteristics of non-fat, low-fat, and high-fat yogurt samples. <i>M. Yildirim and J. Kokini</i> | GG30. From rubber-toughening to crazing: How to understand yielding or lack of it in polymer glasses? <i>M. Razavi, D. Huang, S. Zhang and S.-Q. Wang</i> |
| 10:40 | AM3. Imaging the flow field of polymer nanocomposites by nanoparticle tracking velocimetry. <i>M. Melton and S. Cheng</i> | SC31. Rheology of graphene oxide suspensions on aqueous solution of Carbopol®. <i>L. R. Moraes, M. F. Naccache and R. E. Andrade</i> | SM31. Shear flow-induced crystallization of poly(ether ether ketone). <i>J. Seo, A. Gohn, A. Rhoades, R. Schaake and R. Colby</i> | IN31. Elastic-instability-induced oscillations of a flexible cantilevered beam subject to the microscale and macroscale flow of a viscoelastic fluid. <i>A. A. Dey et al.</i> | MC3. Coating and crumpling of armored gas filled capsules through confined bubble flow. <i>C. C. Sharkey, Z. Cui and S. L. Anna</i> | AR3. Identification of parameters affecting wear behavior of cheese. <i>F. Zadbagher Seighalani and H. Joyner</i> | GG31. Photorheology and gelation during polymerization of coordinated ionic liquids. <i>R. D. Corder and S. A. Khan</i> |
| 11:05 | AM4. Viscoelastic properties of polymer nanocomposites with soft and hard nanoparticles: A comparison. <i>S. Cheng, J. Yang, Z. Yang and W. Yang</i> | SC33. Rheologically tunable graphene oxide suspensions – Influence of electrolytes and ultra-sonication time. <i>P. Thareja and A. Ojha</i> | SM32. Slip-link modeling of a crystallizing entangled polymer melt. <i>M. Andreev and G. C. Rutledge</i> | IN32. Flow of a shear thickening micellar fluid past a falling sphere. <i>S. Wu and H. Mohammadigoushki</i> | MC4. Microfluidic production of gastro-resistant microcapsules. <i>M. Michelin, B. C. Leopercio, R. V. Tonon, F. S. Gomes and M. S. Carvalho</i> | AR4. Understanding starch swelling behavior and how it impacts rheology and functional properties of food systems. <i>L. G. Howarth and J. K. Whaley</i> | GG32. Gel evolution and collapse in an oil based drilling fluid. <i>E. Jamie, A. Clarke, L. Bailey, G. Meeten and J. Staniland</i> |
| 11:30 | AM5. In-situ photocuring and film characteristics of PDMS/zirconia polymer nanocomposites: Role of reactive vs. passive fillers. <i>R. D. Corder, J. C. Tilly, R. J. Spontak and S. A. Khan</i> | | SM33. Effect of tungsten disulfide nanotubes (WSNTs) on flow-induced crystallization of polylactide (PLA) for new generation bioresorbable vascular scaffolds. <i>T. Di Luccio, K. Ramachandran, Z. Shao and J. A. Kornfield</i> | IN33. Shear-induced sedimentation of a sphere in yield stress fluids: A computational study. <i>M. Sarabian, M. Rosti, L. Brandt and S. Hormozi</i> | MC5. Shearing liquids confined in microfluidic channels at acoustic frequencies without dissipation. <i>Y. Zhao, Z. Parlak and S. Zauscher</i> | AR5. Using in vitro measures to probe the responses of electrospun protein-polysaccharide conjugates to high-shear deformations. <i>M. W. Boehm, S. K. Baier, I. Kutzli, M. Gibis and J. Weiss</i> | GG33. PDMS network structure-property relationships: Influence of molecular architecture on mechanical and wetting properties. <i>K. Efimenko, M. Melillo and J. Genzer</i> |
| 11:55 | LUNCH BREAK | | | | | | |

Afternoon

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|------|---|---|---|--|---|--|--|
| | Room 305A Additive Manufacturing and Composites | Room 304 Suspensions, Colloids, & Granular Materials | Room 201 Polymers Solutions, Melts and Blends | Room 305B Flow Induced Instability & Non-Newtonian Fluids | Room 306A Active and Directed Systems | Room 306B Rheometry: Advanced Techniques & Methods | Room 306C Interfacial Rheology |
| 1:30 | AM6. Application of the sequence of physical processes (SPP) framework to the yielding and recovery of conductive pastes for screen printing. <i>G. J. Donley et al.</i> | SC34. Transition from the viscous to inertial regime in non-Brownian suspensions. <i>Y. Madraki, G. Ovarlez and S. Hormozi</i> | SM35. Molecular origin of strain hardening in blend of ring and linear polystyrene. <i>W. Wang et al.</i> | IN34. Shear-induced sedimentation of a sphere in yield stress fluids: An experimental study. <i>R. Mehrani et al.</i> | AD1. Magnetically actuated colloidal microswimmers based on elliptical orbits. <i>S. L. Biswal</i> | TM27. Shear and pressure effects on wax appearance in a waxy oil system. <i>A. Ali and M. Liberatore</i> | IR1. From macro to micro (to nano): Mechanical resonators at all scales for rheology sensing in oilfield fluids. <i>M. Gonzalez</i> |
| 1:55 | AM7. Viscoelastic characterization in hierarchical fiber reinforced composites. <i>A. M. Forster et al.</i> | SC35. Using acoustic perturbations to dynamically tune shear thickening in colloidal suspensions. <i>P. Sehgal et al.</i> | SM34. Extensional rheology of ring polystyrene melt and linear/ring polystyrene blends. <i>Q. Huang et al.</i> | IN35. From PAL to PAL-PSPG: A fast and stable method for viscoplastic flows. <i>Y. Dimakopoulos et al.</i> | AD2. Dielectric nanofluids. <i>J. Wang, K. J. Frankforter, D. C. Ludois and D. J. Klingenberg</i> | TM30. Effect of SDS on whey protein polymers: Molecular investigation via dilute solution viscometry and dynamic light scattering. <i>A. S. Eissa</i> | IR2. Effect of interfacial properties on polymerized high internal phase emulsions. <i>M. Zhou and R. Foudazi</i> |

- 2:20 **AM8.** Role of flow type on the evolution of semi-flexible fiber orientation. *D. Baird, H. Chen and P. Wapperom*
- 2:45 **AM9.** The role of physical structure and morphology on the photodegradation behaviour of polypropylene-graphene oxide nanocomposites. *Y. C. de Oliveira, L. G. Amurin, F. F. Valim, G. J. Fechine and R. E. Andrade*
- 3:10
- 3:45 **AM10.** Materials, systems, and software for thermoplastic additive manufacturing by FDM. *V. Jaker, T. Diekmann, J. Nixon, P. Taylor, C. Newell and A. R. Pawloski*
- 4:10 **AM11.** In-line rheology of FFF: Process and strength insights. *T. J. Coogan and D. Kazmer*
- 4:35 **AM12.** Flow-induced crystallization effects in materials extrusion additive manufacturing. *A. P. Kotula, J. E. Seppala and C. McIlory*
- 5:00 **AM13.** Multiscale rheological investigation of highly filled multi-layer filament for Fused Deposition Modeling (FDM). *S. Wang, R. R. Ruckdashel, J. Park and J. Vera-Sorroche*
- 5:25 **AM14.** The role of rheology in laser sintering of polymer particles. *P. D. Anderson, P. Hejmady, C. Balemans, L. van Breemen, M. Hulsen and R. Cardinaels*
- SC36.** A new dimensionless number governing dethickening in orthogonally perturbed shear thickened suspensions. *M. Ramaswamy, I. Cohen and A. Shetty*
- SC37.** Pre-shear holds the key to understanding discontinuous shear thickening in dense suspensions. *T. Khan and P. Nott*
- SC38.** The evolving rheology of basaltic lava flows. *A. Soldati, B. Houghton and D. B. Dingwell*
- SC39.** Deciphering nanocolloid suspension rheology by passive probe rheology simulations. *D. Sundaravadivelu Devarajan and R. Khare*
- SC40.** Rheology and shear-induced structural breakdown in model conductive carbon black suspensions. *J. B. Hipp, J. J. Richards and N. J. Wagner*
- SC41.** Dynamics and rheology of concentrated suspensions of polarizable particles in an electric field. *S. Mirfendereski and J. S. Park*
- SC42.** An experimental study on the shear-induced migration of particles in yield stress fluids. *A. Rashedi, N. Lenoir, G. Ovarlez and S. Hormozi*
- SM36.** Stress relaxation in ring-linear polymer blends. *D. Parisi, M. Rubinstein and D. Vlassopoulos*
- SM37.** Direct visualization of single ring polymers in the flow-gradient plane of shear flow. *M. O. Tu, M. Lee, R. M. Robertson-Anderson and C. M. Schroeder*
- SM38.** Tight-links in extensional flows of nonconcatenated ring polymers. *T. C. O'Connor, G. S. Grest, T. Ge and M. Rubinstein*
- SM39.** Long-lived self-entanglements in ring polymers. *B. W. Soh, A. R. Klotz and P. S. Doyle*
- SM40.** Rheology of linear and circular DNA molecules. *S. Banik, D. Kong, R. M. Anderson, M. J. San Francisco and G. B. McKenna*
- SM41.** Shear and extensional rheology of large molecular weight cyclic poly(3,6-dioxo-1,8-octanedithiol) (polyDODT). *D. Chen, G. B. McKenna, J. E. Puskas, C. A. Helfer and J. A. Kornfield*
- SM43.** Macromolecular architecture and complex viscosity. *M. Kansa, A. J. Giacomini, C. Saengow and J. H. Piette*
- IN36.** Natural and forced convection in Bingham plastic fluids from two differentially heated cylinders in a square duct. *L. Mishra and R. P. Chhabra*
- IN37.** Thixotropic yield-stress fluid drop splash: Testing a dimensionless group across different microstructure classes. *S. Sen, A. G. Morales and R. H. Ewoldt*
- AD3.** Electro-rheology (ER) performance of salt-doped polyurethane thermoset particles dispersed in silicone oil. *R. L. Sammler, B. Nickless, S. Kuchibhatla, D. Adrian, J. Walker, W. Woodward and T. P. Clark*
- AD4.** Exploration of novel responsive and interfacially anchored magneto-capillary gels. *N. I. Castellanos, S. Roh, B. Bharti, S. A. Khan and O. D. Velev*
- AD5.** Hydrodynamic coupling to the electrical response of fluid suspensions of non-Brownian conducting particles. *J. J. Richards and M. Snell*
- AD6.** Dynamics of colloids above a bottom wall driven by active torques and forces. *A. Donev*
- AD7.** Particle migration in channel flow of viscoelastic fluids. *A. H. Raffiee, S. Dabiri and A. M. Ardekani*
- AD8.** Diffusiophoresis of active colloids in viscoelastic media. *S. Saad and G. Natale*
- AD9.** Migration of an electrophoretic particle in an inertial or viscoelastic shear flow. *A. S. Khair and J. K. Kabarowski*
- AD10.** Microrheological characterization of covalent adaptable hydrogel degradation in response to pH changes in the gastrointestinal tract. *N. Wu and K. M. Schultz*
- TM31.** Rheology as a tool to understand anti-drip properties in flame retardant polycarbonate resins. *M. Chellamuthu, S. K. Subramanian, Z. Anderson, H. Asthana, S. Sur and J. P. Rothstein*
- TM32.** Applications of EMS rheometry from viewpoint of remote sensing. *T. Hirano, S. Mitani and K. Sakai*
- IR3.** Globular protein stabilized emulsions: Effect of the oil. *J. Bergfreund and P. Fischer*
- IR4.** Kinetic and thermodynamic control of interfacial localization of silica nanoparticles in cocontinuous polymer blends. *M. Trifkovic and S. Yoshida*

COFFEE BREAK

Microfluidic and Confined Flows

- MC6.** Flows, instabilities and topography driven by supramolecular oscillatory structure forces due to confinement-induced layering of micelles in foam films. *V. Sharma et al.*
- MC7.** The role of molecular elasticity in sprayable yield-stress fluids. *Y.-J. Lin, J. S. Horner, C. Mourafetis, B. Illie, M. Lynch, E. M. Furst and N. J. Wagner*
- MC8.** Active- and transfer-learning applied to microscale-macroscale coupling in modeling of viscoelastic flows. *B. Caswell, Z. Li, L. Zhao, Z. Wang, J. Ouyang and G. E. Karniadakis*
- MC9.** Cross-stream migration of non-spherical particles in a second order fluid – theories of particle dynamics in arbitrary quadratic flows (i.e., pressure driven flows). *C.-W. Tai, S. Wang and V. Narsimhan*
- MC10.** Experimental investigation of particle electrophoresis in non-Newtonian fluids. *A. Malekanfard, W. Zu, A. M. Wolfersberger and X. Xuan*
- AR5.** Operation windows for interfacial rheometry. *D. Renggli, R. H. Ewoldt and J. Vermant*
- AR6.** Comparison of the behavior and distribution of extension and shear rates in a model sigma blade mixer with a non-Newtonian fluid and their impact on bubble size distribution. *N. Bozdogan et al.*
- AR7.** Pinch-off dynamics, shear and extensional rheology, and dispensing of polymer-surfactant complexes. *C. Martinez and V. Sharma*
- AR8.** Embedded droplet printing in yield-stress fluids for pharmaceutical materials manufacturing. *A. Z. Nelson, S. A. Khan and P. S. Doyle*
- AR9.** Rheological modification of crop sprays for deposition efficiency enhancement. *M. Xu, X. Li and J. M. Frostad*
- AR10.** Microrheological characterization of covalent adaptable hydrogel degradation in response to pH changes in the gastrointestinal tract. *N. Wu and K. M. Schultz*
- IR5.** Experimental and numerical analysis of the pendant drop experiment for complex interfaces. *N. O. Jaensson, P. D. Anderson and J. Vermant*
- IR7.** rheo-MAGIK: Investigating interfacial monolayers and their path dependent isotherms via combined neutron reflectivity and interfacial rheology technique. *Y.-H. S. Tein, C. F. Majkrzak, B. Maranville, J. Vermant and N. J. Wagner*
- IR8.** An oscillating liquid bridge to separate interfacial tension and bulk viscosity in simple and complex fluids. *J. K. Ferri and R. E. McMillin*
- IR9.** Probing structure and dynamics on a particle coated interface using X-ray Photon Correlation Spectroscopy (XPCS). *C. C. Sharkey, Y. Li, C. A. Orme, Y. Zhang, A. Fluerasu and S. L. Anna*

END

POSTER SESSION & RECEPTION Ballroom C on 4th floor of RCC, until 8:30 pm

GALLERY OF RHEOLOGY CONTEST Main Lobby on 3rd floor of RCC; Online voting 10 am - 8 pm

Thursday, October 24

Morning

| | Room 305A Additive Manufacturing and Composites | Room 304 Suspensions, Colloids, & Granular Materials | Room 201 Polymers Solutions, Melts and Blends | Room 305B Flow Induced Instability & Non-Newtonian Fluids | Room 306A Active and Directed Systems | Room 306B Microfluidic and Confined Flows | Room 306C Interfacial Rheology |
|-------|---|--|--|--|--|---|---|
| 8:00 | AP1. Symmetric shear banding and collective swarming of bacterial suspensions. <u>X. Cheng</u> (Metzner Award Presentation) Room 304 | | | | | | |
| 8:40 | AM15. 3D printing of magnets from highly concentrated, plate-like particle suspensions. <u>S.-Y. Chang et al.</u> | SC43. Multiscale dynamics of colloidal particle transport in porous media. <u>N. Bizmark, R. D. Priestley and S. S. Datta</u> | SM44. Viscoelastic response of branched polyethylene combs: A molecular dynamics simulation insight. <u>D. Perahia et al.</u> | IN38. On well-conditioned methods for modal and non-modal analysis of Newtonian and viscoelastic fluids. <u>G. Hariharan et al.</u> | AD10. Sculpting vesicles with active particles: Less is more. <u>H. R. Vutukuri and J. Vermant</u> | MC11. Vortex trapping of particles in xanthan gum solutions. <u>D. Li, A. J. Kummetz, X. Xuan and M. K. Raihan</u> | IR10. Interfacial layer formation of clay particles with surfactants. <u>J. S. Hong and P. Fischer</u> |
| 9:05 | | SC44. Coiling dynamics of semiflexible chains under rotational fields. <u>S. Kuei and S. L. Biswal</u> | SM45. Medium-amplitude oscillatory shear (MAOS) predictions for the Johnson-Segalman non-affine deformation model. <u>N. Ramlawi and R. H. Ewoldt</u> | IN39. Turbulence dynamics of dilute polymer solutions: Apparent slip and the effect of slip-inducing surfaces. <u>E. A. Davis and J. S. Park</u> | AD11. Activity-induced fluidization modifies the viscosity of active biopolymer gels. <u>C. Dessi, D. A. Gagnon, J. Berezney, R. Boros, Z. Dogic and D. Blair</u> | MC12. Lubrication solutions of Herschel-Bulkley flow in channels and tubes. <u>P. Panasetti, G. C. Georgiou, I. Ioannou and L. Fusi</u> | IR12. Viscoelasticity of a carbon nanotube-laden air-water interface. <u>S.-Y. Chang, S. Vora, C. Young, A. Shetty and A. Ma</u> |
| 9:30 | AM17. Additive manufacturing of gradient index glass optics. <u>N. Dudukovic</u> | SC45. Parameter determination of the non-local granular fluidity model for wood chips by comparison to well-defined experimental flow systems. <u>J. Stickel, H. Sitaraman and J. Klinger</u> | SM46. A highly coarse-grained model for dynamics of entangled polymers using transient bonds. <u>T. Uneyama</u> | | AD12. Programming stiffness change in soft materials. <u>G. Chaudhary, A. Ghosh, A. Bharadwaj, J. G. Kang, P. Braun, K. S. Schweizer and R. H. Ewoldt</u> | MC13. Flow-induced near-wall depletion layer dependence on RBC aggregation. <u>Y.-L. Chen and C.-T. Liao</u> | IR11. Real-time absolute measurement of particle contact angle at an oil/water interface. <u>M. A. Islam, G. Christopher and C. Snoeyink</u> |
| 9:55 | COFFEE BREAK | | | | | | |
| 10:25 | AM18. In operando studies of curing dynamics in 3D printed epoxy materials using X-ray photon correlation spectroscopy. <u>B. M. Yavitt, L. Wiegart, D. Salatto, Z. Huang, M. K. Endoh, S. Petrash and T. Koga</u> | SC46. Imbibition and evaporation of droplets of colloidal suspensions on permeable substrates. <u>T. Pham and S. Kumar</u> | SM47. Efficient sampling of continuous polymer chains through Brownian bridges. <u>V. Narsimhan, S. Wang and D. Ramkrishna</u> | IN41. Megasupramolecular drag reduction: Long end-associative polymers as experimental probes of turbulence. <u>R. Lhota, H. Kim and J. A. Kornfield</u> | AD13. Hopping and trapping of bacteria in 3D porous media. <u>T. Bhattacharjee and S. S. Datta</u> | Appl. Rheology for Pharma., Food & Consumer Products | IR13. A mesoscale computational study of momentum transfer across complex fluid-fluid interfaces. <u>F. Paiva, S. Khani, A. Boromand, A. Secchi, V. Calado and J. Maia</u> |
| 10:50 | AM19. Soft thermoreversible elastomers for additive manufacturing. <u>S. Nian, Z. Gong, L. Weis and L. Cai</u> | SC47. Particle dynamics and structure development during paint drying. <u>K. A. Dennis, S. C. Brown, N. J. Wagner and E. M. Furst</u> | SM48. Influence of solvent quality on the entanglement properties of flexible polymers. <u>C. G. Lopez and W. Richtering</u> | IN42. Non-linear dynamics of turbulence and re-laminarization of dilute polymer solution jets. <u>S. Yamamoto, S. S. Sorkhabi, G. H. McKinley and I. Bischofberger</u> | AD14. Rheology of bacterial suspensions under confinement. <u>Z. Liu, K. Zhang and X. Cheng</u> | AR12. A new pressurized Couette cell for rheological characterization. <u>A. Ahuja, R. Lee, A. Latshaw, M. Nowak and P. Foster</u> | IR14. Predicting shear rheology of soft interfaces. <u>A. Raghunandan, N. E. Debono, J. M. Lopez and H. H. Amir</u> |
| 11:15 | AM20. Large effect of surface oxide on measurement of liquid metal viscosity. <u>E. S. Elton, T. C. Reeve, L. E. Thornley, A. J. Pascall and J. R. Jeffries</u> | SC48. Vertical film drying of colloidal dispersion using Lattice-Boltzmann method and continuum model. <u>B. Chun, T. H. Yoo and H. W. Jung</u> | SM42. Internal friction can be measured with the Jarzynski equality. <u>R. Kailasham, R. Chakrabarti and J. R. Prakash</u> | IN43. Self-sustaining Tollmien-Schlichting waves and elastoinertial turbulence. <u>A. Shekar, R. M. McMullen, S.-N. Wang, B. J. McKeon and M. D. Graham</u> | AD15. Inhomogeneous stresses and the surface tension of active matter. <u>A. K. Omar, Z.-G. Wang and J. F. Brady</u> | AR13. Rheo-physical characterization of concentrated surfactant solutions. <u>E. Caicedo-Casso, S. Lindberg and K. Erk</u> | IR15. Rheology of a carboxylic acid at water/oil interface. <u>I. F. Soares, M. N. Souza, M. F. Naccache and G. G. Fuller</u> |
| 11:40 | | SC49. Drying colloidal dispersion drops at different orientations. <u>L. P. Kumar, B. G. Madivala and S. P. Thampi</u> | SM49. Investigation of the controlling factors of tack life on prepreg surface. <u>H. Takahashi, R. Ota and T. Ochi</u> | IN44. Silicone coatings with nearly matched viscometric properties exhibit distinct pinch-off dynamics, extensional rheology response and processability. <u>C. Martinez et al.</u> | AD16. A touch of non-linearity: Mesoscale swimmers and active matter in fluids at intermediate Reynolds numbers. <u>D. Klotsa</u> | AR14. Development and validation of a viscoelastic model for photovoltaic module encapsulants. <u>A. M. Maes, J. Y. Hartley and C. Roberts</u> | IR16. Linear and non-linear rheology of liquid metals. <u>A. R. Jacob, M. D. Dickey and L. C. Hsiao</u> |
| 12:05 | END | | | | | | |

Poster Session

Wednesday, October 23 6:30 PM – 8:30 PM Ballroom C on 4th floor of RCC

- PO1.** Remote sensing of coagulation process by electro-magnetically spinning system. *K. Sakai, M. Hosoda and Y. Yamakawa*
- PO2.** PIV analysis of the vane in cup flow of a viscoplastic microgel. *E. F. Medina-Bañuelos, B. M. Marín-Santibáñez and J. Pérez-González*
- PO3.** Using non-lubricated squeeze flow to determine empirical parameters for modeling long fiber injection molded thermoplastics. *K. Boyce, G. Lambert and D. Baird*
- PO4.** Medium amplitude parallel superposition (MAPS) rheology. *K. Lennon, J. Swan and G. H. McKinley*
- PO5.** The role of elasticity in thixotropy: Elastic stress during parallel superposition. *J. Choi and S. A. Rogers*
- PO6.** Tribological characterization of polymer brush-grafted substrates with varying elastic moduli. *C. M. Serfass and L. C. Hsiao*
- PO7.** Tribology of solid- solid interfaces – selecting test fixture materials to optimize measurement sensitivity and reproducibility. *S. K. Cotts and J. Evers*
- PO8.** Capillary RheoSANS: Measuring the rheology and nanostructure of complex fluids at high shear rates. *R. Murphy, Z. Riedel, M. Nakatani, J. Weston, P. F. Salipante, Y. Liu, S. Hudson and K. M. Weigandt*
- PO9.** Closed boundary shear rheology: An alternative to existing methods for high shear rate testing of filled polymer products. *A. Latshaw, T. Rauschmann and S. Reddy*
- PO10.** A sequence of physical processes in time-resolved powder rheology. *G. J. Donley, A. Shetty and S. A. Rogers*
- PO11.** Rheo-NMR velocimetry of large amplitude oscillatory shear. *J. S. Jayaratne, R. N. Al-Kaby, S. L. Codd, T. I. Brox, J. A. Maley, P. Galvosas and J. D. Seymour*
- PO12.** Combined FT rheology and thermal surface analysis for complete mechanical testing. *V. Hirschberg, M. Wilhelm and D. Rodrigue*
- PO13.** Probing nonlinear rheology layer-by-layer in interfacial hydration water. *W. Jhe*
- PO14.** Correlation of rheological data and optically visible sample effects during measurements. *T. Nill*
- PO15.** Enhancing material characterization through the Rheo-Raman techniques. *J. P. Eickhoff and J. Lanauze*
- PO16.** Correlation of rheological parameters between laboratory and online rheometers. *A. Farahanchi and K. Criag*
- PO17.** Insights from recovery rheology applied to step-strain and start-up of shear flows. *P. K. Singh, J.-W. Lee and S. A. Rogers*
- PO18.** Investigation of non-linear coarsening mechanism in co-continuous polymer blends via confocal rheology. *R. S. Shah, S. Byrant and M. Trifkovic*
- PO19.** Can we predict viscosity of electrolytes? Simple theories versus molecular dynamics simulations with LiTFSI in acetonitrile. *Y. Wang, H. Farag, Y. Zhang and R. H. Ewoldt*
- PO20.** Improving the estimation of the zero-shear-rate viscosity. *M. T. Shaw*
- PO21.** Flow of transiently networked FENE and Hookean dumbbell mixtures. *L. E. Quintero, L. Zhou and L. P. Cook*
- PO22.** Intermolecular hooking in unentangled semidilute polymer solutions under extensional flow. *C. D. Young and C. E. Sing*
- PO23.** Validating predictive models of the modulus change for polymers due to outdoor exposure. *C. C. White, D. Hunston, L. Sung and A. Pintar*
- PO24.** Linear and nonlinear shear rheology of pure ring polymers using cyclic poly(phthalaldehyde). *M. Q. Tu, J.-W. Lee, S. A. Rogers and C. M. Schroeder*
- PO25.** Fundamental study of polymer compatibility of polymer blends and their effects on melt spinning process and fiber/nonwoven properties. *I. Khan*
- PO26.** Rheology and compatibility of bioplasticizers in PVC. *S. Reynaud and Z. Donnelly*
- PO27.** A novel analytical model to predict the dynamics of polymer chains in dilute solutions in an arbitrary flow. *I. Saha Dalal and R. G. Larson*
- PO28.** Nonlinear shear rheology of isotactic polypropylene melts. *D. Parisi, J. Seo, A. Han and R. Colby*
- PO29.** Rheological scaling of semidilute polymerized ionic liquids in ionic liquid solutions. *A. Matsumoto and A. Q. Shen*
- PO30.** Color, rheology, and microstructure of bottlebrush diblock copolymer solutions. *M. A. Wade, J.-W. Lee, E. Kelley, K. M. Weigandt and S. A. Rogers*
- PO31.** The time-averaged extension of a FENE dumbbell in an oscillatory planar extensional flow. *S. Sahu and A. S. Khair*
- PO32.** Novel numerical simulations of the debonding process of pressure sensitive adhesives. *S. Varchanis, Y. Dimakopoulos and J. Tsamopoulos*
- PO33.** A thermodynamic method for constitutive equation. *K. S. Cho*
- PO34.** Are GNF and FENE-P models appropriate to model the flow of polymer solutions? *I. Saha Dalal, R. Kumar and S. Rawat*
- PO35.** Molecular considerations for ductility ($T < T_g$) and drawability ($T > T_g$) of semicrystalline polymers. *M. Razavi and S.-Q. Wang*
- PO36.** Single molecule dynamics of symmetric 3-arm star polymers in dilute solution. *S. F. Patel and C. M. Schroeder*
- PO37.** Macromolecular architecture and complex viscosity. *M. Kanso, A. J. Giacomin, C. Saengow and J. H. Piette*
- PO38.** Temperature dependent stress relaxation of neutral and ionic dynamic polymers. *L. E. Porath and C. M. Evans*
- PO39.** Concentration dependence of extensional relaxation time and FENE constant in aqueous PEO solutions using a microfluidic rheometer. *S. G. Kim and H. S. Lee*
- PO40.** Thermally activated slide-ring networks. *K. V. Dikshit and C. J. Bruns*
- PO41.** Linear rheology of an associative covalent adaptable network. *B. El-Zaatar and J. Kalow*
- PO42.** The molecular origins of viscosity in the liquid state and Thomas Kuhn. *T. W. Theysen*
- PO43.** Extensional rheology of aqueous polymer solutions in filament thinning and microfluidic contraction flows. *A. E. Metaxas and C. S. Dutcher*
- PO44.** Rheological and optical properties of photocurable organic coatings for outgas-free flexible display. *S. H. Kim, J. Oh, K. I. Jung, J. Bang and H. W. Jung*
- PO45.** Role of polymer physics on the formation of “beads on a string”. *D. R. Chase and M. Cromer*
- PO46.** Facing the facts: A look at the Society of Rheology's history. *M. S. Anderson and G. H. McKinley*
- PO47.** MEEPT: A flowable redox-active organic with a charged state that remains flowable at concentrations of at least 0.5 M. *Y. Wang, M. T. Suduwella, Z. Yu, L. Cheng, L. Zhang, S. A. Odom and R. H. Ewoldt*
- PO48.** Viscoelastic identification of PLA/PBAT blends by use of relaxation time spectrum. *H. Jang and K. S. Cho*
- PO49.** Modeling flow effects on polymer crystallization. *J. Seo, A. Gohn, A. Rhoades, R. Schaake and R. Colby*
- PO50.** Rheological response of polyelectrolyte complexes under the effect of salt and temperature. *S. Meng, J. M. Ting, H. Wu and M. V. Tirrell*
- PO51.** Mechanisms of wax deposition: Rheological study of different thermal and flow histories. *C. Harris and R. G. Larson*
- PO52.** Stratification in foam films made with polymer-surfactant complexes. *C. Xu, C. Martinez, P. Kotwis, C. Ochoa and V. Sharma*
- PO53.** Shear-induced microstructure and mechanical characterization of composite organocolloid-hydrogels. *L. Kass, E. D. Cárdenas-Vásquez and L. C. Hsiao*
- PO54.** Wormlike micellar gels: Linear and nonlinear rheology. *R. Gupta, R. S. Mitshita, G. J. Elfring and I. Frigaard*
- PO55.** Engineered transparent emulsion to optically study the flow in yield stress fluid suspensions. *A. Rashedi, G. Ovarlez and S. Hormozi*
- PO56.** Rheology of THF hydrate slurries at high pressure. *P. R. de Souza Mendes, M. F. Naccache and P. H. de Lima Silva*
- PO57.** Foam films and liquid bridges formed by aqueous sodium naphthenate solutions. *C. Ochoa, S. Gao, J. Dinic, S. Srivastava and V. Sharma*

- PO58.** Rheology of concentrated emulsions with adhesive and repulsive droplets. *M. Zhou and R. Foudazi*
- PO59.** Destabilizing emulsions to enable oil removal processes. *E. Caicedo-Casso, C. Davis, S. Lindberg, P. Stenger, J. Howarter, C. Martinez and K. Erk*
- PO60.** Particle image velocimetry for evaluating the flow profiles of thermoresponsive nanoemulsions. *K. M. Smith, E. D. Cárdenas-Vásquez and L. C. Hsiao*
- PO61.** Foamability of aqueous solutions of charged surfactants and of surfactant-polymer mixtures. *C. Martínez, T. Mazur, C. Xu and V. Sharma*
- PO62.** Rheology of concentrated nanoemulsions with different volume fractions. *H. Salimi-Kenari, Z. Abbasian Chaleshtari and R. Foudazi*
- PO63.** Rheology of nanofluids used in solar collectors. *O. Gulzar, A. Qayoum and R. Gupta*
- PO65.** Dynamics of a single-grain intruder driven through a granular medium. *R. Kozłowski, C. M. Carlevaro, K. E. Daniels, L. Kondic, L. A. Pugnaloni, J. S. Socolar, H. Zheng and R. P. Behringer*
- PO66.** Characterizing the rheological properties for both polydisperse and monodisperse colloidal rod systems. *S. He, S. Lindberg and K. M. Schultz*
- PO67.** Rheological properties of self-assembled networks of nanoclay and wormlike micelles. *V. S. Molchanov, M. A. Efremova, T. Y. Kiseleva and O. E. Philippova*
- PO68.** Connecting frictional dissipation with the rheology of confined suspensions. *S. Pradeep, Y. Peng and L. C. Hsiao*
- PO70.** Vibration-assisted powder patterning. *N. Dudukovic*
- PO71.** Constraint-based rheology of graphite particles. *A. L. Søbye, W. Poon, J. R. Royer, D. Hodgson, J. D. Christiansen and S. J. Andreasen*
- PO72.** Understanding thixotropic behavior of drilling fluids: A comparative study on impact of fluid type, temperature, and density. *A. Etehad*
- PO73.** Micromechanical modeling of heterogeneous suspensions. *C. G. Weeks, D. E. Benjamin and R. Zia*
- PO74.** Pre-shear holds the key to understanding discontinuous shear thickening in dense suspensions. *T. Khan and P. Nott*
- PO75.** Concentration profiles of particulate suspensions sheared in a Taylor–Couette cell with flat and bumpy rough walls. *M. Sarabian, B. Metzger and S. Hormozi*
- PO76.** Fiber-level simulation of nanofibrillated cellulose suspensions. *J.-Y. Chen and D. J. Klingenberg*
- PO77.** Visualization of particle migration in converging-diverging flows. *B. C. Leopercio and M. S. Carvalho*
- PO78.** Dynamics of anisotropic Brownian particles by simultaneous control of position and orientation. *D. Kumar, A. Shenoy, C. Richter and C. M. Schroeder*
- PO79.** The effect of confinement on the observed rheology of complex fluid flow in microcapillaries. *J. Weston and E. Trigo*
- PO80.** The rheology of spherically confined, patchy Brownian suspensions. *J. L. Hofmann and R. Zia*
- PO81.** Predicting the lubricated friction of textured soft substrates. *Y. Peng, C. Serfass, C. Hill and L. C. Hsiao*
- PO82.** Effect of interface rheology on drop coalescence in water-oil emulsion. *T. C. Botti and M. S. Carvalho*
- PO83.** Dilatational rheology of Lysolipid and its effects on acute respiratory distress syndrome (ARDS). *S. Barman and J. A. Zasadzinski*
- PO84.** Fluid dynamics and particle deposition in porous filters using lattice Boltzmann simulation. *G. W. Lee, B. Chun and H. W. Jung*
- PO85.** A study on the boundary of the linearity of simple shear flows: Model calculations. *T. Kim and K. S. Cho*
- PO86.** Shear thinning and thickening behaviors of hollow carbon nanoparticles in Newtonian fluids. *P. Tianny, F. Goharpey and R. Foudazi*
- PO87.** Electro-elastic flow instabilities in microflows of non-Newtonian fluids. *L. Song, D. Li, L. Yu and X. Xuan*
- PO88.** Transient evolution of flow profiles in shear banding wormlike micellar fluids. *P. Rassolov and H. Mohammadigoushki*
- PO89.** Pipe flow engineering and design computations for non-Newtonian fluids - going open source. *W. H. Hartt, S. Shahsavari, E. Tozzi and M. Caggioni*
- PO90.** Role of elastic turbulence on oil displacement in microfluidic porous networks. *C. Miller, I. Sinha and G. Christopher*
- PO91.** Effect of cooling on steady dynamics and stability in 2-D viscoelastic film casting process. *C. Lee, I. Kwon, J. S. Lee, H. W. Jung and J. C. Hyun*
- PO92.** The roles of elastic and inertial forces in the formation of vortices. *J. LaRue, L. Villasmil and M. Cromer*
- PO93.** A kinetic model for a sol-gel transition in a colloidal dispersion: Application of the modified Bailey criterion. *K. Suman and Y. M. Joshi*
- PO94.** Microscopic origins of caging and equilibration of self-suspended hairy nanoparticles. *X. Liu and L. A. Archer*
- PO95.** Tunable rheology of mixed hydrogels with different interactions. *M. Bantawa, E. Vereroudakis, D. Parisi, R. P. Lafleur, E. Del Gado, E. W. Meijer and D. Vlassopoulos*
- PO96.** Rheology of glassy and jammed emulsions. *C. Cao and E. Weeks*
- PO97.** Human mesenchymal stem cell migration in hydrogels quantified by bi-disperse multiple particle tracking microrheology. *J. A. McGlynn, K. J. Druggan, K. J. Croland and K. M. Schultz*
- PO98.** A rheological constitutive model for human blood via population balance modeling. *S. Jariwala, J. S. Horner, A. N. Beris and N. J. Wagner*
- PO99.** Investigating heat-induced gelation of whey protein using simultaneous rheology and FTIR spectroscopy. *N. C. Crawford*
- PO100.** Microrheological characterization of covalent adaptable hydrogel degradation in response to pH changes that mimic the gastrointestinal tract. *N. Wu and K. M. Schultz*
- PO101.** Effect of endogenous non-starch wheat lipids on gluten network non-linearity. *G. Yazar, J. Kokini and B. Smith*
- PO103.** Rheological investigation of TEMPO-treated cellulose nanofibril hydrogel. *G.-S. Choi, H.-J. Ahn and K.-W. Song*
- PO104.** Rheology and characterization of platelet-rich and platelet-poor plasma. *H. Mitra, P. Jayaram, A. T. Bratsman, T. Gabel and K. Alba*
- PO105.** Rheological and parametric analysis of the effects of aspirin on human blood. *W. Pulles, K. Rook, M. J. Armstrong and J. S. Horner*
- PO106.** Optimal rheology for bio-implantable crosslinked hyaluronic acid gel; filler rheology to avoid edema & erythema. *K. H. Lee, B. Choi, E. S. Kim, J. H. Kang and E. K. Kim*
- PO107.** Flow behavior of woody biomass in a lab-scale compression twin-screw compounder. *E. Akbari Fakhraabadi, M. Liberatore and J. Stickel*
- PO108.** Rheological evaluation of hyaluronic acid and proteoglycan in well-defined shear flow fields. *H.-J. Ahn and K.-W. Song*
- PO109.** Rheology of starch gelation using a new pressurized pasting cell. *Y. Adhia, A. Ahuja, R. Lee, A. Latshaw and P. Foster*
- PO110.** Relating lung surfactant phases and its bulk rheology. *C. O. Ciutara and J. A. Zasadzinski*
- PO111.** Characterizing rheological behavior of a corn stover biomass slurry. *R. Szeto, J. C. Overton, A. C. Freitas dos Santos, E. A. Ximenes, N. S. Mosier, M. Ladisch and K. Erk*
- PO112.** Rheology of graphene oxide embedded and carbamoylated chitosan hydrogels. *S. G. Marapureddy, P. Thareja, S. Gupta and S. Kumar*
- PO113.** Determination of statistically significant correlations between physiological and rheological model parameters of human blood. *M. J. Armstrong, M. Deegan, J. Barnhill, K. Wickiser, N. Clark and J. Baker*
- PO114.** Rheological characterization of dynamic re-engineering of the pericellular region by human mesenchymal stem cell-secreted enzymes in well-defined synthetic hydrogel scaffolds. *M. Daviran, S. M. Longwill, J. F. Casella and K. M. Schultz*
- PO115.** Comparison of the non-linear rheological behaviour of the *Ocimum basilicum* seed mucilage with pectin gels. *B. Bhargava, J. John and S. Varughese*
- PO116.** Cross-sectional focusing and vortex dynamics of red blood cells in a constricted microfluidic channel. *S. M. Recktenwald, A. Abay, T. John, L. Kaestner and C. Wagner*
- PO117.** Rheology of thermosetting multi-layer coating systems. *S. V. Baranczyk, H. Sun and R. A. Quiroz*
- PO118.** Rheology of Swiss cheese fondue. *P. Bertsch, L. Savorani and P. Fischer*
- PO119.** Material selection design tools for nonlinear elastic solids in soft machines. *C. N. Darling and R. H. Ewoldt*

- PO120.** Viscosity of an industrial, engineered polysaccharide slurry. *C. E. Giacomini, K. Kim and N. J. Wagner*
- PO121.** Application of powder rheometer to determine powder flow properties. *X. Gu, H. Sun, S. Sisley and S. Moravek*
- PO122.** 3D printing liquid metal-silicone composites for wearable electronics applications. *T. V. Neumann and M. D. Dickey*
- PO123.** Using dynamic shear rheological analysis to generate in-situ injection molded multi-scale wholly thermoplastic composite materials. *J. Y. Han and D. Baird*
- PO124.** Nonlinear rheological behavior of asphalt binders. *S. Gulzar and S. Underwood*
- PO125.** Rheology-guided direct-write printing of carbon nanotube structures. *C. E. Owens, G. H. McKinley and A. J. Hart*
- PO126.** Direct visualization of thermoplastic melt in material extrusion 3D printing using neutron imaging. *J. E. Seppala*
- PO127.** Structure formation in alkali-activated binders for development of sustainable construction materials. *J. N. Mills, N. J. Wagner and P. Mondal*
- PO128.** Application of melt rheology in the development of novel hybrid composites. *T. Chen and D. Baird*
- PO129.** Effect of block copolymer micelles on the rheology of 3D printable epoxy inks. *D. V. Krogstad, R. Ekbote, G. J. Donley and S. A. Rogers*
- PO130.** Rheology of bacterial suspensions under confinement. *Z. Liu and X. Cheng*
- PO132.** Investigation of suspension mechanics for cell growth in rotating wall vessel (RWV). *J. Adeniran, M. Tan and T. W. Walker*
- PO133.** Manipulating blood rheology with external magnetic field and application to lower blood pressure. *K. M. Tawhid-Al-Islam, R. Tao, X. Xu, H. Tang and M. Autieri*
- PO134.** Controlling polymer rheology and self-assembly via low-strength magnetic fields. *K. Suresh and M. A. Calabrese*
- PO135.** Yielding behavior of active colloidal gels. *K. T. Saud and M. J. Solomon*
- PO136.** SoR member survey. *L. Merner*

Gallery of Rheology

Preview: Monday 1:30 PM – 4:00 PM, Tuesday 8:30 AM – 4:00 PM, Wednesday 8:30 AM – 4:00 PM

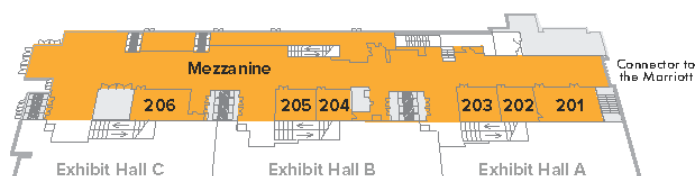
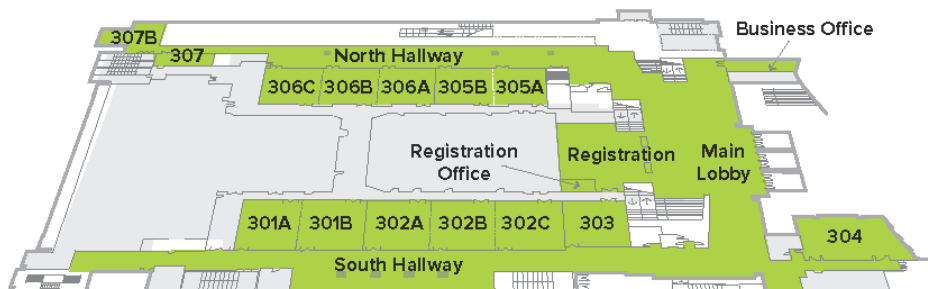
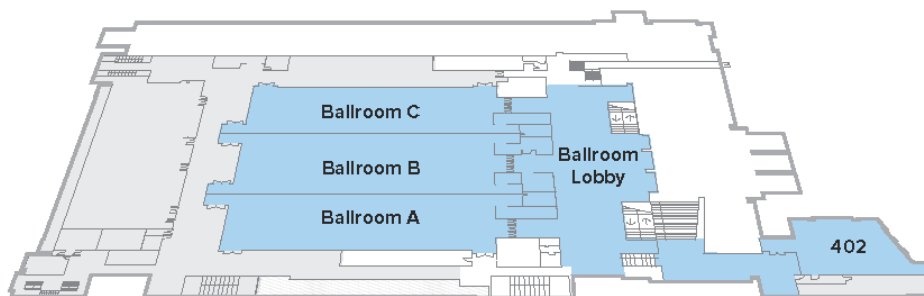
Contest: Wednesday 6:30 PM – 8:30 PM (Online voting 10:00 AM – 8:00 PM)

Main Lobby on 3rd floor of RCC

- GR1.** Kaleidoscopic mesophases: Colors of relaxation. *M. Marquez Garcia, A. Bandegi and R. Foudazi*
- GR2.** The soapy terrace. *C. Ochoa and V. Sharma*
- GR3.** Schlieren imaging of transition to turbulence for submerged jets of dilute polymer solutions via elasto-inertial streaks. *S. Yamanidouzisorkhabi, G. H. McKinley and I. Bischofberger*
- GR4.** Baby's pacifier from saliva. *M. Zhou, Z. Abbasian Chaleshtari, H. Mohammadigoushki and R. Foudazi*
- GR5.** Mystic Smoke: The rheology of magic. *A. Z. Nelson and R. H. Ewoldt*
- GR6.** Nocturnal nanoemulsions. *K. M. Smith, E. D. Cárdenas-Vásquez and L. C. Hsiao*
- GR7.** Elastic effects in extension with yield-stress fluids. *S. Sen and R. H. Ewoldt*
- GR8.** Metamorphosis through viscous fingering. *T. Kaewpetch and J. F. Gilchrist*
- GR9.** Flow-structure diptych. *P. T. Corona, B. Berke, M. Guizar-Sicairos, M. Liebi, L. G. Leal and M. E. Helgeson*
- GR10.** The vane geometry. *C. E. Owens, A. J. Hart and G. H. McKinley*
- GR11.** Non-affine displacements in soft gels. *M. Bantawa and E. Del Gado*
- GR12.** Mechanical contour maps of human blood. *M. J. Armstrong, S. A. Rogers, G. J. Donley and J. S. Horner*
- GR13.** When drops collide. *B. Keshavarz, M. Geri and G. H. McKinley*
- GR14.** A nano-puffer fish having lunch. *E. D. Cárdenas-Vásquez, A. R. Jacob and L. C. Hsiao*

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Raleigh Convention Center Meeting Space



Social Program and Special Events

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|------------------------------|--|--|
| Sunday, October 20 | Rheology Research Symposium (continued from Saturday, October 19) | |
| | SoR Outreach Event | 1:00 PM – 4:00 PM North Carolina Museum of Natural Sciences |
| | Welcoming Reception | 6:00 PM – 8:00 PM Main Lobby on 3rd floor of RCC |
| Monday, October 21 | Student-Industry Forum | 12:00 PM – 1:15 PM Room 402 of RCC <i>Sponsored by American Institute of Physics and The Dow Chemical Company</i> |
| | Gallery of Rheology Preview | 1:30 PM – 4:00 PM Main Lobby on 3rd floor of RCC |
| | Monday Evening Reception | 6:30 PM – 9:30 PM North Carolina Museum of Art <i>Sponsored by TA Instruments</i> |
| Tuesday, October 22 | Gallery of Rheology Preview | 8:30 AM – 4:00 PM Main Lobby on 3rd floor of RCC |
| | Society Business Meeting | 12:00 PM – 1:30 PM Room 304 of RCC |
| | Awards Reception | 7:00 PM – 8:00 PM Ballroom Lobby on 4th floor of RCC |
| Wednesday, October 23 | Awards Banquet | 8:00 PM Ballroom C on 4th floor of RCC |
| | Gallery of Rheology Preview | 8:30 AM – 4:00 PM Main Lobby on 3rd floor of RCC |
| | Poster Session and Reception | 6:30 PM – 8:30 PM Ballroom C on 4th floor of RCC <i>Reception sponsored by Anton-Paar USA</i> |
| | Gallery of Rheology Contest | 6:30 PM – 8:30 PM Main Lobby on 3rd floor of RCC Online voting 10 AM – 8 PM |

The Society of Rheology gratefully acknowledges the generous support of TA Instruments, Anton-Paar USA, American Institute of Physics, The Dow Chemical Company, Kenan Institute - NC State, Eastman Chemical Company, Trinity College of Arts & Sciences - Duke University, College of Engineering - NC State and Department of Chemical & Biomolecular Engineering - NC State.