Technical Program

Plenary Lecture 1

Monday, July 10, 2017, 8:20 AM - 9:20 AM
Great Hall

Organizers: G. John, I. Kretzschmar, R. Tu
Presiding: G. John, I. Kretzschmar, R. Tu

8:30 **1.** PLENARY: Geometric Strategies for Directed Assembly. **K. Stebe**; Department of Chemical and Biomolecular Engineering, University of Pennsylvania, Philadelphia, PA.

Colloids and Surface Forces: Thin-film Hydrodynamics, adhesion and soft surfaces

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Shepard Hall 381

Organizers: N. Alcantar, R. Dagastine
Presiding: R. Dagastine

9:40 **2.** KEYNOTE: Approach to contact and adhesion on soft surfaces. **J. Frechette**; Johns Hopkins University, Baltimore, MD.

10:20 **3.** Evaporation-driven soluto-capillary flows in thin films. **M. Rodriguez-Hakim**, G. G. Fuller; Chemical Engineering, Stanford University, Stanford, CA.

10:40 **4.** Non-contact AFM measurements of the Hamaker constants of solids: Calibrating cantilever geometries. S. Fronczak, C. Browne, S. Beaudoin, **D. Corti**; School of Chemical Engineering, Purdue University, West Lafayette, IN.

11:00 **5.** Thin wetting films studied by linear and non-linear vibrational spectroscopies: Linking surface forces to molecular structure. **L. Dalstein**, E. Tyrode; Division of Surface and Corrosion Science, KTH Royal Institute of Technology School of Chemical Science and Engineering, Stockholm, SWEDEN.

11:20 **6.** Potential dependent friction on Au (111). **L. Pashazanusi**; Chemical and Biomolecular Engineering, Tulane University, New Orleans, LA.

11:40 **7.** Inorganic-polymer hybrid core-shell microcapsules: A versatile encapsulation system with tailorable mechanical properties. **S. P. Meaney**, R. F. Tabor, B. Follink; Monash University, Clayton, VIC, AUSTRALIA.

Colloids and Surface Science in Medicine & Personal Care Products: Advances in Colloidal Systems for Personal Care

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Shepard Hall 203

Organizers: S. Herman, K. Rege
Presiding: E. Kaufman

9:40 **8.** KEYNOTE: Liquid crystal and α-gel-based emulsion and soft gel formulations for skin-care. **T. Suzuki**; Nikkol Group, Cosmos Technical Center Co., LTD., Tokyo, JAPAN.

10:20 **9.** Emulsions and Foams in Personal Care Applications: Review and Innovations. **M. Vethamuthu**, E. DiAntonio, H. Fares; Skin Care, Ashland Specialty Ingredients G.P., Bridgewater, NJ.

10:40 **10.** Delivery of quorum-sensing therapeutics across physiological barriers to *pseudomonas aeruginosa* infections using nanoparticles. **K. Ristroph**[1], H. Lu[1], E. Pearson[1], G. Duncan[2], L. Ensign[2], J. Suk[2], J. Hanes[2], R. Prud'homme[1]; [1]Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Johns Hopkins University School of Medicine, Baltimore, MD.

11:00 **11.** Forced phase transitions in cellulose microfibril networks. **K. Velikov**; Unilever R&D Vlaardingen, Vlaardingen, NETHERLANDS.

11:20 **12.** alpha-gel properties of highly purified mono hexadecyl phosphate arginine/fatty alcohol/water system. **K. Tanaka**[1], Y. Hirai[2], K. Sakai[2], H. Sakai[2], T. Suzuki[1], S. Hashimoto[1]; [1]NIKKOL GROUP Cosmos Technical Center Co., Ltd., Tokyo, JAPAN, [2]Department of Pure and Applied chemistry, Faculty of Science and Technology, Tokyo University of Science, Chiba, JAPAN.

11:40 **13.** Depletion-induced colloidal crystallization in microcapsules for colorimetric microsensors. T. Choi[1], J. Park[2], K. Je[1], D. Lee[1], **S. Kim**[1]; [1]Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology, Daejeon, KOREA, REPUBLIC OF, [2]Harvard University, Cambridge, MA.

Directed and Self-assembly at the Colloidal Scale: Colloidal crystals and aggregates

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: N. Wu

9:40 **14.** KEYNOTE: Surface wetting and premelting of colloidal crystals. **Y. Han**; Physics, Hong Kong University of Science and Technology, Hong Kong, CHINA.

10:20 **15.** Self-assembly of polymer-brush-decorated colloids. **K. Ohno**, Y. Huang, C. Zhao; Institute for Chemical Research, Kyoto University, Kyoto, JAPAN.

10:40 **16.** Size-dependent aggregation and precipitation of colloidal silica nanoparticles due to the critical Casimir effect and its application to the size-selective purification of nanoparticles. **H. Guo**[1,2], G. Stan[3], Y. Liu[1,2,4]; [1]CHEMICAL & BIOMOLECULAR ENGINEERING, University of Delaware, Newark, DE, [2]Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, [3]Materials Measurement Science Division, National Institute of Standards and Technology, Gaithersburg, MD, [4]Department of Physics and Astronomy, University of Delaware, Newark, DE.

11:00 **17.** Freezing on a sphere. **R. E. Guerra**, C. P. Kelleher, A. D. Hollingsworth, P. M. Chaikin; Physics, New York University, New York, NY.

11:20 **18.** Self-assembled complex colloidal crystals from pre-assembled clusters and spheres. **E. Ducrot**[1], G. Yi[2], D. J. Pine[1]; [1]Physics, CSMR NYU, New York, NY, [2]School of Chemical Engineering, Sungkyunkwan University, Suwon, KOREA, REPUBLIC OF.

11:40 **19.** Self-assembly of Janus ellipsoids: Role of chemical anisotropy in ordering a concentrated suspension. **S. Razavi**, Y. Liu, M. J. Solomon; University of Michigan, Ann Arbor, MI.

Directed and Self-Assembly at the Molecular Scale: Active & Dynamic Self-Assembly

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Auditorium

Organizers: L. Leon, R. Ulijn
Presiding: L. Leon

9:40 **20.** KEYNOTE: Self-assembly of flexible metal-organic cages and reversible photochromism inside their cavities. **R. Klajn**; Weizmann Institute of Science, Rehovot, ISRAEL.

10:20 **21.** Direct probing of self-assembly with multifunctional molecular rotors. **S. Panettieri**[1,2], J. R. Silverman[1,2], R. Nifosí[3], G. Signore[4], R. Bizzarri[3,4], G. John[1,2]; [1]Department of chemistry, The City College of New York (CUNY), New York, NY, [2]Ph.D. program in Chemistry, The Graduate Center of The City University of New York, New York, NY, [3]NEST, Scuola Normale Superiore and Istituto Nanoscienze, Pisa, ITALY, [4]Center for Nanotechnology Innovation @NEST, Istituto Italiano di Tecnologia, Pisa, ITALY.

10:40 **22.** Effect of Nucleotide State on the Protofilament Conformation of Tubulin Octamers. **A. Manandhar**[1,2], M. Kang[1], S. Loverde[1]; [1]Department of Chemistry, CUNY College of Staten Island, Staten Island, NY, [2]PhD Program in Biochemistry, The Graduate Center of The City University of New York, New York, NY.

11:00 **23.** Acoustic Field Directed Assembly of Conjugated Polymers. **Y. Xi**, D. Li, G. Newbloom, L. Pozzo; University of Washington, Seattle, WA.

11:20 **24.** Kinetic and chemical encoding of bio-catalytic peptide assembly pathways. **M. Kumar**[1], N. Ing[2], A. Hochbaum[2], R. V. Ulijn[1,3]; [1]ASRC, City University of New York, New York, NY, [2]University of California, Irvine, Irvine, CA, [3]Hunter College, City university of New York, New York, NY.

11:40 **25.** Dna programmed control of swarming demonstrated by a biomolecular motor system. **A. Kakugo**; Hokkaido university / Graduate School of Science, Sapporo, JAPAN.

Emulsions, Bubbles and Foams: Bubbles - I

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: M. Borden, S. Sirsi

9:40 **26.** KEYNOTE: Nested microbubbles: Coupling shell structure to cavitation phenomena. **S. Wrenn**; Drexel University, Philadelphia, PA.

10:20 **27.** Development of Quasi-Stable Microbubble Clusters: Potential for New Strategies in Contrast Agent Imaging and Drug Delivery. R. L. Hall[1], K. Hoyt[1], C. G. Lux[2], J. A. Lux[2], R. F. Mattrey[2], **S. R. Sirsi**[1]; [1]Bioengineering, UT Dallas, Richardson, TX, [2]Radiology, UT Southwestern, Dallas, TX.

10:40 **28.** Uniform attenuation from monodisperse microbubbles observed by plane-wave ultrasound imaging. **M. A. Borden**[1], F. Guidi[2], A. Ramalli[2], P. Tortoli[2]; [1]Mechanical Engineering, University of Colorado, Boulder, CO, [2]Information Engineering, University of Florence, Florence, ITALY.

11:00 **29.** Oxygen microbubbles to relieve tumor hypoxia in vivo. **V. Papadopoulou**[1], S. M. Fix[2], H. Velds[3], S. K. Kasoji[1], J. N. Rivera[4,1], M. A. Borden[3], S. Chang[4,1], P. A. Dayton[1,2]; [1]Joint Department of Biomedical Engineering, The University of North Carolina and North Carolina State University, Chapel Hill, NC, [2]Eshelman School of Pharmacy, UNC Chapel Hill, Chapel Hill, NC, [3]Department of Mechanical Engineering, University of Colorado, Boulder, CO, [4]Department of Radiation Oncology, UNC Chapel Hill, Chapel Hill, NC.

11:20 **30.** Microbbubles-mediated enhanced delivery of Curcumin to HeLa Cells. **A. Upadhyay**[1], P. Desai[2], S. V. Dalvi[1]; [1]Chemical Engineering, Indian Institute of Technology Gandhinagar, Gandhinagar, INDIA, [2]Deparment of Cell and Molecular Biology, B. V. Patel Pharmaceutical Education and Research Center, Ahmedabad, INDIA.

11:40 **31.** Thrombin-Activatable Ultrasound Contrast Agent for the Detection of Acute Thrombosis. **J. Lux**[1], A. M. Vezeridis[2], K. Hoyt[3,1], S. R. Adams[4], A. M. Armstrong[1], S. R. Sirsi[3,1], R. F. Mattrey[1]; [1]Radiology, UT Southwestern Medical Center, Dallas, TX, [2]Radiology, UC San Diego, La Jolla, CA, [3]Bioengineering, University of Texas at Dallas, Richardson, TX, [4]Pharmacology, UC San Diego, La Jolla, CA.

General Papers: Colllods and Interface Science in Macromolecules

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Steinamn Hall 161

Organizers: P. Dhar, R. Zia
Presiding: S. Anna, P. Dhar

9:40 **32.** KEYNOTE: Applications and Challenges for Colloidal Models to Predict Experimental Protein-Protein Interactions from Low to High Concentrations. **C. Roberts**; University of Delaware, Newark, DE.

10:20 **33.** Evaluating the Role of the Air-Solution Interface on the Mechanism of Subvisible Particle Formation Caused by Mechanical Agitation for an IgG1 mAb. **P. Dhar**, S. Ghazvini, C. Kalonia, D. Volkin; The University of Kansas, Lawrence, KS.

10:40 **34.** Mechanism of Lipid Bilayer Insertion by Amphiphilic, Monolayer-protected Nanoparticles. **R. C. Van Lehn**; Chemical and Biological Engineering, University of Wisconsin-Madison, Madison, WI.

11:00 **35.** Structural, tribological, and mechanical properties of the hind leg joint of a jumping insects. **M. Akbulut**, J. Oh; Texas A&M University, College Station, TX.

11:20 **36.** Dynamics of conjugated polymers from neutron scattering and molecular simulation. **C. M. Wolf**, L. D. Pozzo; Chemical Engineering, University of Washington, Seattle, WA.

11:40 **37.** Shape Control of Block Copolymer Particle. **B. Kim**; KAIST, Daejeon, KOREA, REPUBLIC OF.

Patchy and Active Colloids: Active Colloids I - mechanics, flow, and boundaries

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Shepard Hall 208

Organizers: J. Conrad, U. Cordova Figueroa
Presiding: J. Conrad

9:40 **38.** KEYNOTE: Phase behavior and mechanics of active colloids. **C. Marchetti**; Physics, Syracuse University, Syracuse, NY.

10:20 **39.** Boundary Effects in the Navigation of Self Propelled Colloidal Motors. A. Mozaffari[1], J. Koplik[2], **C. Maldarelli**[1]; [1]Levich Institute and Department of Chemical Engineering, City College of New York, New York, NY, [2]Levich Institute and Department of Physics, City College of New York, New York, NY.

10:40 **40.** Chemically active particles near planar walls. **M. N. Popescu**[1,2], W. E. Uspal[1,2], M. Tasinkevych[3], S. Dietrich[1,2]; [1]Max Planck Institute for Intelligent Systems, Stuttgart, GERMANY, [2]IV. Institute for Theoretical Physics, University of Stuttgart, Stuttgart, GERMANY, [3]Mater. Sci. and Eng., Northwestern University, Evanston, IL.

11:00 **41.** Cross-streamline migration of active Janus colloids in flow. **J. Katuri**[1,2], W. E. Uspal[2,3], J. Simmchen[2], A. Miguel[1], S. Sánchez[1,2,4]; [1]Institute for Bioengineering of Catalonia (IBEC), Barcelona, SPAIN, [2]Max Planck Institute for Intelligent Systems, Stuttgart, GERMANY, [3]IV. Institut für Theoretische Physik, Universität Stuttgart, Stuttgart, GERMANY, [4]Catalan Institute for Research and Advanced Studies, Barcelona, SPAIN.

11:20 **42.** Phoretic Interactions between Active Droplets. **P. Moerman**[1,2,3], H. Moyses[2], E. van der Wee[1], D. Grier[2], A. van Blaaderen[1], W. Kegel[3], J. Groenewold[1,4], J. Brujic[2]; [1]Physics, Debye Institute for Nanomaterials, Utrecht, NETHERLANDS, [2]Physics, Center for Soft Matter Research, New York, NY, [3]Chemistry, Debye Institute for Nanomaterials, Utrecht, NETHERLANDS, [4]Academy for Advanced Optoelectronics, Guangzhou, CHINA.

11:40 **43.** Effects of *Escherichia coli* motility and surface mechanics on behavior in flow. **M. K. Shave**[1], K. Kolewe[2], V. Raman[2], N. Forbes[2], J. Schiffman[2], M. Santore[1]; [1]Polymer Science and Engineering, UMass Amherst, Amherst, MA, [2]Chemical Engineering, UMass Amherst, Amherst, MA.

Polymers and Biomacromolecules at Interfaces: Interfacial Effects in Protein-based materials

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Shepard Hall 209

Organizers: P. Akcora, T. Kuhl
Presiding: T. Kuhl

9:40 **44.** KEYNOTE: Toward Protein/Peptide-based Functional Hybrid Materials. **T. Xu**; Department of Material Sciences and Engineering, Department of Chemistry, University of California - Berkeley, Berkeley, CA.

10:20 **45.** SOFT MATTER LECTURESHIP: Functional Membranes *via* Interfacial Complexation in AqueousTwo Phase Systems. S. Hann, K. J. Stebe, **D. Lee**; University of Pennsylvania, Philadelphia, PA.

10:40 **46.** Recognition of target cells by *Vibrio cholerae* outer membrane vesicles. E. S. Rasti, **A. C. Brown**; Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA.

11:00 **47.** Supported Biomembrane Systems for Probing Membrane Protein Interphase Partitioning. **W. Houlihan**[1], M. Barros[2], Y. Li[2], L. Gilchrist[1]; [1]Chemical Engineering, CCNY, New York, NY, [2]Chemical Biology Program, MSKCC, New York, NY.

11:20 **48.** Triggered rupture of polymersome protocells via protease protein interaction. **W. Jang**, D. A. Hammer, D. Lee; University of Pennsylvania, Philadelphia, PA.

Rheology and Dynamics: Colloidal Susspension and Gels

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: T. Squires

9:40 **49.** KEYNOTE: Rapid Hydrodynamic Simulation of Massive Colloidal Suspensions with Applications to the Structure and Rheology of Sheared Colloidal Gels. **J. Swan**; MIT, Cambridge, MA.

10:20 **50.** Colloidal gels tuned by oscillatory shear. E. Moghimi[1], **A. R. Jacob**[2,3], N. Koumakis[4], G. Petekidis[5]; [1]Department of Materials Science and Technology, IESL/FORTH, University of Crete, Heraklion,Crete, GREECE, [2]Department of Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC, [3]Department of Materials Science and technology, IESL/FORTH, University of Crete, Heraklion,Crete, GREECE, [4]School of Physics and Astronomy, University of Edinburgh, Edinburgh, UNITED KINGDOM, [5]Department of Materials Science and technology, IESL/FORTH, University of Crete, Heraklion, GREECE.

10:40 **51.** Microstructure and rheology of gels consisting of heteroaggregated nanoparticles. **J. Weston**[1], K. Weigandt[2]; [1]Physics, Georgetown University/NIST, Washington, DC, [2]NIST Center for Neutron Research, Gaithersburg, MD.

11:00 **52.** Bijel rheology and its connection to processability. M. Kaganyuk, H. Ching, **A. Mohraz**; Chemical Engineering and Materials Science, University of California, Irvine, CA.

11:20 **53.** From criticality to gelation in sticky spheres. **D. Richard**[1], J. Hallet[2], T. Speck[1], C. P. Royall[2]; [1]University of Mainz, Mainz, GERMANY, [2]University of Bristol, Bristol, UNITED KINGDOM.

11:40 **54.** Start-up of shear flow of particle suspensions in viscoelastic fluids : structure formation and rheology. N. O. Jaensson[1], M. A. Hulsen[1], **P. D. Anderson**[2]; [1]Polymer Technology, Eindhoven Univeristy of Technology, Eindhoven, NETHERLANDS, [2]Mechanical Engineering, Eindhoven University of Technology, Eindhoven, NETHERLANDS.

Wetting and Adhesion: Fundamentals - I

Monday, July 10, 2017, 9:40 AM - 12:00 PM
Shepard Hall 379

Organizers: D. Hu, N. Pesika
Presiding: D. Hu

9:40 **55.** KEYNOTE: Smart Interfacial Materials from Super Wettability to Binary Cooperative Complementary Systems. **L. Jiang**; Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, CHINA.

10:20 **56.** Wetting and Adhesion Mediated by Nanoscale Capillary Bridges. S. Huang[1], S. P. Fu[2], Y. Young[2], H. A. Stone[3], **C. E. Colosqui**[4,1]; [1]Department of Applied Mathematics & Statistics, Stony Brook University, Stony Brook, NY, [2]Department of Mathematical Sciences, New Jersey Institute of Technology, Newark, NJ, [3]Department of Mechanical & Aerospace Engineering, Princeton University, Stony Brook, NY, [4]Department of Mechanical Engineering, Stony Brook University, Stony Brook, NY.

10:40 **57.** Electro-responsive polymer smart surfaces to control wetting and adhesion. **V. Sénéchal**[1], H. Saadaoui[1], J. Rodriguez Hernandez[2], C. Drummond[1]; [1]Centre de Recherche Paul Pascal, Pessac, FRANCE, [2]Instituto de Ciencia y Tecnología de Polímeros, Madrid, SPAIN.

11:00 **58.** Dynamics of oil film spreading and dewetting on aqueous substrates. **J. Feng**[1], O. Shardt[2], H. A. Stone[2]; [1]Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ.

11:20 **59.** Droplet spreading dynamics: Role of interfacial shear elasticity. **E. James**, D. Harbottle, O. J. Cayre, T. N. Hunter; Chemical and Engineering Dept, University of Leeds, Leeds, UNITED KINGDOM.

11:40 **60.** Why Test Inks Cannot Tell the Full Truth About Surface Free Energy. **R. Sanedrin**[1], M. Jin[2], T. Willers[2]; [1]KRUSS USA, Matthews, NC, [2]KRUSS GmbH, Hamburg, GERMANY.

Colloids and Surface Forces: Poylmers, Surfactants, Proteins and Lipids

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 381

Organizers: N. Alcantar, R. Dagastine
Presiding: N. Alcantar

1:20 **61.** KEYNOTE: Polymer Brushes in Restricted Geometries. **T. Kuhl**; Chemical Engineering, University of California at Davis, Davis, CA.

2:00 **62.** How charge heterogeneity and particle aspect ratio affect particle-surface interactions. **M. K. Shave**, M. Santore; Polymer Science and Engineering, UMass Amherst, Amherst, MA.

2:20 **63.** Surfactants at the design limit. **A. Czajka**, J. Eastoe; School of Chemistry, University of Bristol, Bristol, UNITED KINGDOM.

2:40 **64.** Interactions between bacteria lipopolysaccharide layers in aqueous media. C. Redeker, **W. H. Briscoe**; School of Chemistry, University of Bristol, Bristol, UNITED KINGDOM.

Colloids and Surface Science in Medicine and Personal Care Products: Fundamental Advances in Collidal Systems for Medical Applications and Personal Care - I

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 203

Organizers: S. Herman, K. Rege
Presiding: E. Kaufman

1:20 **65.** PFA-PEG particles: A colloidal model system for the investigation of phase diagrams of PEGylated drug carrier systems. **M. Werner**[1,2], N. von Seggern[1], M. Tappe[1], M. Wernet[2], E. Bartsch[1,2]; [1]Macromolecular Chemistry, University of Freiburg, Freiburg, GERMANY, [2]Physical Chemistry, University of Freiburg, Freiburg, GERMANY.

1:40 **66.** Microfluidic designing of multi-compartment microcarriers through polymer-polymer phase separation in emulsion droplets. **N. Min**[1], E. Lee[2], J. Yang[2], S. Kim[1]; [1]KAIST, Daejeon, KOREA, REPUBLIC OF, [2]Yonsei University, Seoul, KOREA, REPUBLIC OF.

2:00 **67.** Investigating Morphology and Thermal Stability of Biopharmaceutical Surfactants and their Implication in Micellar Degradation. **J. Nayem**[1,2], Z. Zhang[1,2], S. H. Koshari[1], A. Tomlinson[3], I. E. Zarraga[3], N. J. Wagner[1], Y. Liu[1,2]; [1]Chemical and Biomolecular Engineering, University of Delaware, Newark, DE, [2]Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, [3]Late Stage Pharmaceutical Development, Genentech, South San Francisco, CA.

2:20 **68.** Dynamic Surface Tension Measurements of Ionic Surfactants Using Maximum Bubble Pressure Tensiometry. C. A. Ortiz, **V. Sharma**; Chemical Engineering, University of Illinois at Chicago, Chicago, IL.

2:40 **69.** Mechanochromic poly(ethyleneimine)/poly(vinyl alcohol) blends for applications in chemo- and bio-sensing. S. P. Authimoolam, **S. Khapli**; Engineering Division, New York University Abu Dhabi, Abu Dhabi, UNITED ARAB EMIRATES.

Directed and Self-assembly at the Colloidal Scale: Self assembly - modeling and numerial simulations

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: C. Maloney

1:20 **70.** Self-assembly of multi-flavored two-dimensional binary colloidal crystals. **N. A. Mahynski**[1], H. Zerze[2], H. W. Hatch[1], V. K. Shen[1], J. Mittal[2]; [1]National Institute of Standards and Technology, Gaithersburg, MD, [2]Department of Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA.

1:40 **71.** Digital Alchemy: Designing colloids for self-assembly. **G. van Anders**[1], S. C. Glotzer[2]; [1]Department of Physics, University of Michigan, Ann Arbor, MI, [2]Department of Chemical Engineering, University of Michigan, Ann Arbor, MI.

2:00 **72.** Chiral colloids from isotropic spheres. S. Ouhajji[1], B. van Ravensteijn[1,2], C. Fernández Rico[1], **A. V. Petukhov**[1], A. P. Philipse[1]; [1]Van 't Hoff Laboratory for Physical and Colloid Chemistry, Utrecht University, Utrecht, NETHERLANDS, [2]Department of Chemical Engineering, UC Santa Barbara, Santa Barbara, CA.

2:20 **73.** Open and compact self-assembled structures in systems with competing interactions. **A. P. Santos**[1], J. Pękalski[2], A. Z. Panagiotopoulos[1]; [1]Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, POLAND.

2:40 **74.** Chaotic routes to colloidal clusters and molecules. **H. Abdi**, C. Maloney; MIE, Northeastern, Boston, MA.

Directed and Self-assembly at the Molecular Scale: Supramolecular Assemblies

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Auditorium

Organizers: L. Leon, R. Ulijn
Presiding: L. Leon

1:20 **75.** KEYNOTE: Designed nanoscale systems via self-assembly. **O. Gang**[1,2]; [1]Columbia University, New York, NY, [2]Brookhaven National Laboratory, Upton, NY.

2:00 **76.** Free-energy of solvation for self-assembled systems: SWCNT-ssDNA hybrids in mixed solvents. **K. R. Hinkle**, F. R. Phelan, Jr.; NIST, Gaithersburg, MD.

2:20 **77.** A Discontinuous Transition from Dodecamer to Icosamer After an Induction Time in a Calix[4]arene-Derivative Surfactant Monitored by Time-Resolved SAXS. **R. Takahashi**[1,2], S. Matsumoto[1], S. Fujii[1], T. Narayanan[2], K. Sakurai[1]; [1]Department of Chemistry and Biochemistry, University of Kitakyushu, Kitakyushu, Fukuoka, JAPAN, [2]ESRF−The European Synchrotron, Grenoble, FRANCE.

2:40 **78.** Calix[4]arene-based supramolecular gels formed by hydrazine reaction. **J. Lee**[1], J. Jung[2], K. Sakurai[1]; [1]The University of Kitakyushu, Fukuoka, JAPAN, [2]Gyeongsang National University, Jinju, KOREA, REPUBLIC OF.

Emulsions, Bubbles and Foams: Bubbles - II

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

1:20 **79.** KEYNOTE: Phospholipid-coated microbubbles for ultrasound imaging and therapy. **M. Versluis**[1,2]; [1]Physics of Fluids group, University of Twente, Enschede, NETHERLANDS, [2]MIRA Institute for Biomedical Technology and Technical Medicine, Enschede, NETHERLANDS.

2:00 **80.** Temperature effect on microbubble lipid shell elasticity. **J. S. Lum**, D. M. Stobbe, T. W. Murray, M. A. Borden; Mechanical Engineering, University of Colorado, Boulder, CO.

2:20 **81.** Adsorption dynamics of phosphatidylcholine from dispersed vesicles onto a clean air-water interface. **J. Staton**[1], S. Dungan[2]; [1]Chemical Engineering, University of California, Davis, Davis, CA, [2]Food Science and Technology, University of California, Davis, Davis, CA.

2:40 **82.** Microbubble film balance to study the collapse mechanics of lung surfactant. **A. N. Thomas**, M. Borden; Mechanical Engineering Department, University of Colorado, Boulder, CO.

General Papers: Applications in Extraction and Clean-up

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 205

Organizers: P. Dhar, R. Zia
Presiding: D. Blair

1:20 **83.** Determination of residual solvent in the tailings from an alternative bitumen extraction process. **F. Lin**[1], Y. Xu[1], R. Nelson[2]; [1]Natural Resources Canada, Devon, AB, CANADA, [2]Alberta Innovates, Edmonton, AB, CANADA.

1:40 **84.** Calcite microfracking using pseudomorphic mineral replacement reactions. **D. Velegol**, A. Garg; Department of Chemical Engineering, Penn State University, University Park, PA.

2:00 **85.** Eco-Friendly Sacrificial Amphiphiles as Chemical Herders for Oil Spill Remediaion. **H. Zhou**[1], G. John[2], C. Maldarelli[1]; [1]CIty College of New York, NEW YORK, NY, [2]Chemistry, CIty College of New York, NEW YORK, NY.

2:20 **86.** Influence of radioactivity-induced charging on global transport of radioactive aerosols released during the Fukushima Daiichi nuclear power plant accident. Y. Kim[1], S. Yiacoumi[1], A. Nenes[1], **C. Tsouris**[1,2]; [1]Georgia Institute of Technology, Atlanta, GA, [2]Oak Ridge National Laboratory, Oak Ridge, TN.

2:40 **87.** Flotation used as a novel technique to separate nuclear waste: case studies based on clay and its hexacyanoferrate composite adsorbents. **H. Zhang**[1], T. N. Hunter[1], J. W. Lee[2], D. Harbottle[1]; [1]School of Chemical and Process Engineering, University of Leeds, Leeds, UNITED KINGDOM, [2]Chemical and Biomolecular Engineering, Korean Advanced Institute of Science and Technology, Daejeon, KOREA, REPUBLIC OF.

Patchy and Active Colloids: Active Colloids II - motors, spinners, and swimmers

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 208

Organizers: J. Conrad, U. Cordova Figueroa
Presiding: Y. Chang

1:20 **88.** Motion of Patchy particle Swimmers in the Vicinity of an Oil/Water Interface. **Z. Jalilvand**, I. Kretzschmar; City college of New York, New York, NY.

1:40 **89.** Preparation and characterization of Janus dumbbells nanomotors. **F. Guignard**, M. Lattuada; University of Fribourg, Fribourg, SWITZERLAND.

2:00 **90.** Mobile Microelectrodes. **A. Boymelgreen**, G. Yossifon; Technion, Haifa, ISRAEL.

2:20 **91.** Shape-directed micro-spinners powered by ultrasound. **S. Sabrina**[1], M. Tasinkevych[2], S. Ahmed[3], A. Brooks[1], M. Olvera de la Cruz[2], T. E. Mallouk[3], K. Bishop[4]; [1]Chemical Engineering, Penn State University, University Park, PA, [2]Materials Science and Engineering, Northwestern University, Evanston, IL, [3]Chemistry, Penn State University, University Park, PA, [4]Chemical Engineering, Columbia University, New York, NY.

2:40 **92.** Rotation of microspheres by the kinesin-microtubule system. **Y. Zhang**, H. Hess; Columbia University, New York, NY.

Polymers and Biomacromolecules at Interfaces: Biomolecules and Polymers at Interfaces - I

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 209

Organizers: P. Akcora, T. Kuhl
Presiding: P. Akcora

1:20 **93.** Enhanched superhydrophobicity through polysiloxane nanofilaments on nanofibrillated cellulose materials. **C. Antonini**[1], P. Orsolini[1,2], A. Stojanovic[3], W. Caseri[2], T. Zimmermann[1]; [1]Functional Cellulose Material, EMPA, Dübendorf, SWITZERLAND, [2]ETH Zurich, Zürich, SWITZERLAND, [3]Building Energy Materials and Components, EMPA, Dübendorf, SWITZERLAND.

1:40 **94.** Solvophobic and multivalent ion induced collapse in polyelectrolyte brushes. **B. Brettmann**; Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA.

2:00 **95.** KEYNOTE: Directed Self-Assembly and Crystallization of Colloids. **M. Weck**, E. Elacqua, X. Zheng; Chemistry, NYU, New York, NY.

2:40 **96.** Can you see me now? - Evolution and disappearance of miscible solvent drops in polymer solutions near entanglement. **A. Z. Stetten**[1], B. Treece[1], S. Garoff[1], T. M. Przybycien[2], R. D. Tilton[2]; [1]Physics, Carnegie Mellon University, Pittsburgh, PA, [2]Chemical Engineering / Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA.

Rheology and Dynamics: Colloidal Suspension Dynamics

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: J. Swan

1:20 **97.** Bridging bidisperse and polydisperse suspension rheology. **S. Pednekar**[1,2], J. Chun[3], J. Morris[1,2]; [1]Chemical Engineering, City College of New York, New York, NY, [2]Levich Institute, New York, NY, [3]Pacific Northwest National Laboratory, Richland, WA.

1:40 **98.** Multi-particle collision dynamics simulations of nanoparticle diffusion in semidilute polymer solutions. **R. Chen**[1], R. Poling-Skutvik[1], A. Nikoubashman[2], M. Howard[3], J. C. Conrad[1], J. C. Palmer[1]; [1]Department of Chemical and Biomolecular Engineering, University of Houston, Houston, TX, [2]Institute of Physics, Johannes Gutenberg University of Mainz, Mainz, GERMANY, [3]Department of Chemical and Biological Engineering, Princeton University, Princeton, NJ.

2:00 **99.** Glassy rotational dynamics in concentrated suspensions of rough colloids. **L. C. Hsiao**[1], D. J. Beltran-Villegas[2], R. G. Larson[2], M. J. Solomon[2]; [1]Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC, [2]Chemical Engineering, University of Michigan, Ann Arbor, MI.

2:20 **100.** Probing flow-induced microstructure of colloidal fluids in arbitrary 2D flows. **P. Corona**[1], N. Ruocco[1], K. Weigandt[2], L. G. Leal[1], M. Helgeson[1]; [1]Chemical Engineering, University of California Santa Barbara, Santa Barbara, CA, [2]NIST Center for Neutron Research, Gaithersburg, MD.

2:40 **101.** The effect of dispersed non-settling particles on the stability of dense colloidal particles against sedimentation. **Y. Yang**, E. Franses, D. Corti; School of Chemical Engineering, Purdue University, West Lafayette, IN.

Wetting and Adhesion: Responsive Surfaces

Monday, July 10, 2017, 1:20 PM - 3:00 PM
Shepard Hall 379

Organizers: D. Hu, N. Pesika
Presiding: D. Hu

1:20 **102.** Lateral actuation of an organic droplet on conjugated polymer electrodes. W. Xu, **J. Xu**, X. Li, Y. Tian, C. Choi, E. Yang; Department of Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ.

1:40 **103.** On-demand capture and release of organic droplets on surfactant-doped polypyrrole surfaces. W. Xu, A. Palumbo, **J. Xu**, Y. Jiang, C. Choi, E. Yang; Department of Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ.

2:00 **104.** Effects of nanostructures on tunable droplet mobility on conjugated polymer surfaces. **Y. Jiang**, J. Xu, E. Yang, C. Choi; Mechanical engineering, Stevens institute of technology, Hoboken, NJ.

2:20 **105.** Shedding of Multiple Sessile Droplets. A. Razzaghi, **A. Amirfazli**; Mechanical Engineering, York University, Toronto, ON, CANADA.

2:40 **106.** Moving a Liquid Bridge Between Hydrophobic Surfaces at Will. M. Ataei, H. Chen, **A. Amirfazli**; Mechanical Engineering, York University, Toronto, ON, CANADA.

Colloids and Surface Forces: Ionic Liquids, Confined Systems, and Energy

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 381

Organizers: N. Alcantar, R. Dagastine
Presiding: N. Alcantar

3:20 **107.** LAMER: Tuning electrostatic interactions in confined soft matter. **M. A. Gebbie**[1], J. N. Israelachvili[2]; [1]Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA, [2]Chemical Engineering, University of California, Santa Barbara, Santa Barbara, CA.

4:00 **108.** Assembly, Interactions and Dynamic Properties of Ionic Liquids Confined by Surfaces. **Y. Zhang**, Y. Min; Department of Polymer Engineering, University of Akron, Akron, OH.

4:20 **109.** The effect of free carbon on battery slurry microstructures. **S. L. Morelly**, M. H. Tang, N. J. Alvarez; Chemical and Biological Engineering, Drexel University, Philadelphia, PA.

4:40 **110.** Controlled plasmonic transition via trapped aggregation of silica-coated gold nanoparticles with polymer-nanoparticle interactions. **N. Kwon**, T. Lee, S. Kwak, S. Kim; School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, KOREA, REPUBLIC OF.

Colloids and Surface Science in Medicine and Personal Care Products: Fundamental Advances in Collidal Systems for Medical Applications and Personal Care - II

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 203

Organizers: S. Herman, K. Rege
Presiding: E. Kaufman

3:20 **111.** Measuring zeta potential: Black boxes and white elephants. **J. F. Miller**; Enlighten Scientific LLC, Hillsborough, NC.

3:40 **112.** Assessing particle counting techniques to improve the regulatory review of complex colloidal drug products. **J. Myung**[1], J. Zheng[2], D. Kozak[1]; [1]CDER/OGD/ORS/DTP, FDA, Silver Spring, MD, [2]CDRH/OSEL/DBCMS, FDA, Silver Spring, MD.

4:00 **113.** Engineering the structure of biopolymer microgels for the controlled release of proteins. **H. Labie**[1], V. Lapeyre[1], A. Perro-Marre[1], R. Auzély-Velty[2], V. Ravaine[1]; [1]Institue of molecular science-Université de Bordeaux, Bordeaux, FRANCE, [2]CERMAV-CNRS, University of Grenoble Alpes, Grenoble, FRANCE.

4:20 **114.** Approaches to protein aggregate and contaminant detection based on holographic video microscopy. **D. B. Ruffner**, J. M. Blusewicz, F. C. Cheong, L. A. Philips; Spheryx, Inc., New York, NY.

4:40 **115.** Large-Area Alginate/PEO-PPO-PEO Hydrogels with Thermoresponsive Rheology at Physiological Temperatures. **S. Quah**, A. Smith, S. Bhatia; Chemistry, Stony Brook University, Stony Brook, NY.

Directed and Self-assembly at the Colloidal Scale: DNA-assisted self assembly

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: L. Biswal

3:20 **116.** The dynamics of DNA-capped gold nanoparticle superlattice assembly in electrolyte solutions. **T. L. Derrien**[1], M. Zhang[1], P. Dorion[2], D. Smilgies[3], D. Luo[1]; [1]Biological & Environmental Engineering, Cornell University, Ithaca, NY, [2]Chemical & Biomolecular Engineering, Cornell University, Ithaca, NY, [3]Cornell High Energy Synchrotron Source, Ithaca, NY.

3:40 **117.** Deposition and aggregation of DNA grafted particles in a flow field. **C. L. Porter**, Y. Lee, S. L. Diamond, T. R. Sinno, J. C. Crocker; University of Pennsylvania, Philadelphia, PA.

4:00 **118.** Left-Handed and Right-Handed Colloids. **M. Ben Zion**[1], X. He[1], C. C. Maass[2], R. Sha[1], N. C. Seeman[1], P. M. Chaikin[1]; [1]New York University, New York, NY, [2]Max Planck Institute for Dynamics and Self-Organization, Göttingen, GERMANY.

4:20 **119.** Flexible colloidal polymers of self-assembled emulsion droplets. **A. McMullen**, D. Bargteil, J. Brujic; Physics, New York University, New York, NY.

4:40 **120.** Optically Transparent DNA-coated Colloidal Crystals. **M. He**[1], J. Oh[2], S. Sacanna[3], D. J. Pine[1,2]; [1]Department of Chemical and Biomolecular Engineering, New York University, Brooklyn, NY, [2]Department of Physics, New York University, New York, NY, [3]Department of Chemistry, New York University, New York, NY.

Directed and Self-assembly at the Molecular Scale: Self-Assemblyin Biological/Biomedical Systems

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Auditorium

Organizers: L. Leon, R. Ulijn
Presiding: A. Marciel

3:20 **121.** KEYNOTE: Direct measurements of cholesterol's impact on lipid bilayer packing into a molecular lattice. **T. Kuhl**; Chemical Engineering, University of California at Davis, Davis, CA.

4:00 **122.** Nanoencapsulation of ultra-long wavelength infrared absorbers for NIR-II photoacoustic imaging. **L. Z. Wang**[1], H. D. Lu[1], M. R. Fagan[1], T. L. Lim[1], B. J. Kudisch[2], Y. Chen[2], A. Heinmiller[3], R. K. Prud'homme[1]; [1]Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Chemistry, Princeton University, Princeton, NJ, [3]FUJIFILM VisualSonics, Toronto, ON, CANADA.

4:20 **123.** Modulating drug nanocarrier release kinetics through hydrophobic ion pairing. **K. Ristroph**, H. Lu, P. Rummaneethorn, R. Prud'homme; Chemical and Biological Engineering, Princeton University, Princeton, NJ.

4:40 **124.** All-Atomistic Simulations of the Interaction of the Model Hydrophobic Drug Camptothecin with Phospholipid Membranes. **P. K. Tang**[1,2], M. Kang[1], S. Loverde[1,2]; [1]Chemistry, College of Staten Island, Staten Island, NY, [2]Biochemistry, The Graduate Center of The City University of New York, New York, NY.

Emulsions, Bubbles and Foams: Bubbles - III

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

3:20 **125.** The dynamics of rising oil-coated bubbles: Experiments and simulations. **S. Wang**[1], M. Tripathi[2], K. Sahu[3], J. Meredith[1], S. Behrens[1]; [1]Georgia Institute of Technology, Atlanta, GA, [2]Indian Institute of Science Education and Research Bhopal, Madhya Pradesh, INDIA, [3]Indian Institute of Technology Hyderabad, Telangana, INDIA.

3:40 **126.** Bubble pinch-off under high shear rates in a microfluidic expansion channel. **D. J. Vecchiolla**, V. Giri, S. L. Biswal; Chemical and Biomolecular Engineering, Rice University, Houston, TX.

4:00 **127.** Bubbles, Drops, and Fluorocarbons. **M. Krafft**; University of Strasbourg-CNRS, Strasbourg, FRANCE.

4:20 **128.** Monolayer phase behavior and protein interaction dependent ultrasound response in lipid-coated perfluorocarbon nanodroplets. **R. Chattaraj**, G. M. Goldscheitter, A. Yildirim, A. P. Goodwin; Chemical and Biological Engineering, University of Colorado, Boulder, CO.

4:40 **129.** Direct formulation of monodisperse superheated nanodroplets as activatable ultrasound contrast agent. C. de Gracia Lux[1], **J. Lux**[1], A. M. Vezeridis[2], A. M. Armstrong[1], S. Sirsi[1,3], K. Hoyt[1,3], R. F. Mattrey[1]; [1]Radiology, UT Southwestern Medical Center, Dallas, TX, [2]Radiology, University of California San Diego, San Diego, CA, [3]Bioengineering, University of Texas at Dallas, Dallas, TX.

General Papers: Synthesis and Characterization of Nanopraticles

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 205

Organizers: P. Dhar, R. Zia
Presiding: S. Rogers

3:20 **130.** Synthesis of gold-palladium nanoparticles with mixed surface curvature through iodide-facilitated reduction of palladium. **M. E. King**, M. L. Personick; Chemistry, Wesleyan University, Middletown, CT.

3:40 **131.** Control over oxide shell growth in eutectic gallium-indium nanoparticles via thiolation. **Z. Farrell**[1], C. Tabor[2]; [1]Materials and Manufacturing - Functional Soft Materials, Air Force Research Laboratory, WrightPatterson, OH, [2]Materials and Manufacturing - Functional Nanomaterials, Air Force Research Laboratory, WrightPatterson, OH.

4:00 **132.** Cellulose nanocrystals: Excellent building blocks for functional coatings. **P. Buskens**[1,2,3], N. Meulendijks[2], M. Mourad[2], R. van Ee[2], M. Burghoorn[2]; [1]DWI - Leibniz Institute for Interactive Materials e.V., RWTH Aachen University, Aachen, GERMANY, [2]The Netherlands Organisation for Applied Scientific Research (TNO), Eindhoven, NETHERLANDS, [3]Zuyd University of Applied Sciences, Heerlen, NETHERLANDS.

4:20 **133.** Synthesizing temperature-responsive colloidal molecules. **L. K. Månsson**[1], F. Peng[1], T. De Wild[1], S. H. Holm[2], S. Ghosh[1], J. J. Crassous[1], J. O. Tegenfeldt[2], P. Schurtenberger[1]; [1]Division of Physical Chemistry, Department of Chemistry, Lund University, Lund, SWEDEN, [2]Division of Solid State Physics, Department of Physics, Lund University, Lund, SWEDEN.

4:40 **134.** Synthesis and molecularly-mediated assembly of gold nanoparticles for biomedical applications. **P. De Silva Indrasekara**, S. Johnson, T. Vo-Dinh; Biomedical Engineering, Duke University, Durham, NC.

Patchy and Active Colloids: Patchy Colloids I - thermodynamics and self-assembly

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 208

Organizers: J. Conrad, U. Cordova Figueroa
Presiding: U. Cordova Figueroa

3:20 **135.** Thermodynamics, phase behavior, and kinetics of patchy particle assemblies. **R. G. Larson**[1], D. Beltran-Villegas[1], H. Rezvantalab[1], R. DeLaCruz-Araujo[2], U. Cordova-Figueroa[2], B. Schultz[1], N. Nguyen[1], S. Glotzer[1]; [1]Chemical Engineering, University of Michigan, Ann Arbor, MI, [2]Chemical Engineering, University of Puerto Rico – Mayaguez, Mayaguez, PR.

4:00 **136.** Controlled Self-assembly of Patchy Particles into Non-trivial Ordered Structures. **N. Patra**, A. V. Tkachenko; Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, NY.

4:20 **137.** Self-assembly of magnetic Janus colloids via Brownian dynamics simulation. G. Vega-Bellido[1], R. DeLaCruz-Araujo[1], I. Kretzschmar[2], **U. M. Cordova-Figueroa**[1]; [1]Department of Chemical Engineering, University of Puerto Rico - Mayaguez, Mayaguez, PR, [2]Department of Chemical Engineering, City College of New York, New York, NY.

4:40 **138.** Computer simulation of cylinders with short-ranged attractive interactions. **H. Hatch**[1], R. Murphy[2], N. Mahynski[1], V. Shen[1], N. Wagner[2]; [1]Chemical Informatics Research Group, Chemical Sciences Division, National Institute of Standards and Technolgoy, Gaithersburg, MD, [2]Chemical and Biomolecular Engineering, University of Delaware, Newark, DE.

Polymers and Biomacromolecules at Interfaces: Polymers at Interfaces - I

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 209

Organizers: P. Akcora, T. Kuhl
Presiding: P. Akcora

3:20 **139.** Polymeric quinone-based structures as natural materials for lithium-ion batteries. **M. Miroshnikov**[1,2], K. P. Divya[1], G. Babu[3], P. Pradhan[1], H. Wang[1], L. M. Arava[3], P. M. Ajayan[4], G. John[1,2]; [1]Chemistry, The City College of New York and The Center for Discovery and Innovation, New York, NY, [2]The Ph.D. Program in Chemistry, The Graduate Center of The City University of New York, New York, NY, [3]Mechanical Engineering, Wayne State University, Detroit, MI, [4]Materials Science and NanoEngineering, Rice University, Houston, TX.

3:40 **140.** Polymer brushes in ionic liquids. **M. Han**, R. Espinosa-Marzal; Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL.

4:00 **141.** Self-assembly of polymer-nanoparticle capsules with controlled shape and internal microstructure. **C. E. Udoh**, J. Cabral, V. Garbin; Department of Chemical Engineering, Imperial College London, London, UNITED KINGDOM.

4:20 **142.** Adhesion and Separation of Nanoparticles on Polymer-grafted Porous Substrates. **K. P. Santo**[1], A. Vishnyakov[1], Y. Brun[2], A. V. Neimark[1]; [1]Chemical & Biochemical Engineering, Rutgers, The State University of New Jersey, Piscataway, NJ, [2]DuPont Central Research & Development, Wilmington, DE.

4:40 **143.** Responsive coatings from natural materials. **Z. Veisi**[1], M. Cardenas[2], A. Cardenas-Valencia[2], N. Alcantar[1], R. Toomey[1]; [1]University of South Florida, Tampa, FL, [2]SR-international, Saint Petersburg, FL.

Rheology and Dynamics: Flow of Complex Fluids

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: S. Anna

3:20 **144.** Pinch-off Dynamics, Dripping-onto-Substrate (DoS) Rheometry, and Printability of Polymeric Complex Fluids. J. Dinic, L. N. Jimenez, **V. Sharma**; Chemical Engineering, University of Illinois at Chicago, Chicago, IL.

3:40 **145.** Pinch-off dynamics and extensional rheology of aqueous polyelectrolyte solutions. L. N. Jimenez, J. Dinic, N. Parsi, **V. Sharma**; Chemical Engineering, University of Illinois at Chicago, Chicago, IL.

4:00 **146.** Signatures of branching in wormlike micelles (WLMs): Static, dynamic and non-equilibrium properties. **M. A. Calabrese**[1], S. A. Rogers[2], L. Porcar[3], N. J. Wagner[1]; [1]Chemical & Biomolecular Engineering, University of Delaware, Newark, DE, [2]Chemical & Biomolecular Engineering, University of Illinois Urbana-Champaign, Urbana, IL, [3]Institut Laue-Langevin, Grenoble, FRANCE.

4:20 **147.** Flow fluctuations in wormlike micelle fluids. **P. Salipante**[1], S. Meek[2], S. Hudson[1]; [1]National Institute of Standards and Technology, Gaithersburg, MD, [2]Montgomery College, Gaithersburg, MD.

4:40 **148.** The recoverable strain of self-assembled worm-like micellar solutions measured in the linear viscoelastic regime. C. Lee, J. Park, **S. Rogers**; University of Illinois at Urbana-Champaign, Urbana, IL.

Wetting and Adhesion: Applications I

Monday, July 10, 2017, 3:20 PM - 5:00 PM
Shepard Hall 379

Organizers: D. Hu, N. Pesika
Presiding: D. Hu

3:20 **149.** KEYNOTE: Remodeling of super hydrophobic surfaces. **C. Extrand**; CPC, St Paul, MN.

4:00 **150.** Adhesion and surface energy of shale rocks. **D. Nguyen**, T. Phan, T. Hsu, J. Phan; Nalco Champion, Sugar Land, TX.

4:20 **151.** Ostwald Ripening-driven Wetting of a Solid Surface by a Drop of an Emulsion. **S. G. Borkar**, A. Ramachandran; Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, ON, CANADA.

4:40 **152.** Several aspects of oil reservoir wettability. **M. Chamerois**; SCR/R&D, Total E&P, Pau, FRANCE.

Poster Session

Monday, July 10, 2017, 5:30 PM - 8:00 PM
Great Hall

Organizers: V. Breedveld, R. Toomey
Presiding: V. Breedveld, R. Toomey

5:30 **153.** Uncertainty in contact angle measurements from the tangent method. **C. Extrand**; CPC, St Paul, MN.

5:30 **154.** Surface Hydrophilic Modificaiton of Poly(ether ether ketone) and Immobilization of Collagen. **H. Sun**; Beijing Technology and Business University, Beijing, CHINA.

5:30 **155.** Superhydrophilic modification of polyethylene via grafting ultrathin layers of poly(phosphobetaine). **B. Yang**[1], X. Duan[1], J. Huang[2]; [1]Beijing Technology and Business University, Beijing, CHINA, [2]University of Chinese Academy of Sciences, Beijing, CHINA.

5:30 **156.** Oil-swollen micelles to stabilize surfactants in harsh environments for enhanced oil recovery in Middle Eastern reservoirs. **A. Gizzatov**[1], A. A. Mashat[2], N. Alhazza[1], S. L. Eichmann[1], D. Kosynkin[2], M. N. Askar[2], M. E. Poitzsch[1], A. I. Abdel-Fattah[2]; [1]Aramco Research Center - Boston, Aramco Services Company, Cambridge, MA, [2]EXPEC Advanced Research Center, Saudi Aramco, Dhahran, SAUDI ARABIA.

5:30 **157.** Alginate microgels created by selective coalescence between core drops paired with an ultrathin shell. **T. Lee**, S. KIM; KAIST, Daejeon, KOREA, REPUBLIC OF.

5:30 **158.** Identifying the role of macromolecular architecture in the viscosity modification of lubrication oils by star polymers. **B. van Ravensteijn**[1], R. Bou Zerdan[2], D. Seo[1], N. Cadirov[1], J. Gerbec[3], T. Watanabe[4], S. Koga[4], J. Israelachvili[1], C. J. Hawker[2], M. E. Helgeson[1]; [1]Chemical Engineering, University of California - Santa Barbara, Santa Barbara, CA, [2]Materials Research Laboratory, University of California - Santa Barbara, Santa Barbara, CA, [3]Mitsubishi Chemical Center for Advanced Materials, Santa Barbara, CA, [4]Mitsubishi Chemical Corporation, Tokyo, JAPAN.

5:30 **159.** A Polyaniline-Coated Bagasse Fiber Core-Shell Heterostructure Material Provides Effective Electromagnetic Shielding Performance. Y. Zhang, M. Qiu, **B. Wen**; Beijing Technology and Business University, Beijing, CHINA.

5:30 **160.** PDMS/CNT hybrid thin films with unique surface pattern as a surface engineered versatile sensor platform. **J. Bae**[1], C. Lee[2], J. Park[3], S. Park[4]; [1]Applied Chemistry, Dongduk Women's University, Seoul, KOREA, REPUBLIC OF, [2]KRIBB, Daejeon, KOREA, REPUBLIC OF, [3]Energy and Chemical Engineering, UNIST, Ulsan, KOREA, REPUBLIC OF, [4]Mechanical Engineering, Soongsil University, Seoul, KOREA, REPUBLIC OF.

5:30 **161.** Polystyrene microgel colloids - a versatile model system for (soft) condensed matter physics. J. Gisin[1,2], G. Schmidt[2], S. Herbstritt[2], **M. Werner**[1,2], E. Bartsch[1,2]; [1]Macromolecular Chemistry, University of Freiburg, Freiburg, GERMANY, [2]Physical Chemistry, University of Freiburg, Freiburg, GERMANY.

5:30 **162.** Investigation of the osmotic deswelling of polystyrene microgels by polymer addition. **M. Werner**[1,2], S. Burger[1,2], P. Lindner[3], E. Bartsch[1,2]; [1]Macromolecular Chemistry, University of Freiburg, Freiburg, GERMANY, [2]Physical Chemistry, University of Freiburg, Freiburg, GERMANY, [3]Institute Laue-Langevin, Grenoble, FRANCE.

5:30 **163.** Delivering DNA-coated nanoparticles into the brain *in vivo* using focused ultrasound and microbubbles. **T. G. Chan**[1,2], S. V. Morse[3], A. N. Pouliopoulos[3], J. Lin[3], J. J. Choi[3], R. Vilar[1]; [1]Chemistry, Imperial College, London, UNITED KINGDOM, [2]Centre for Neurotechnology, Imperial College, London, UNITED KINGDOM, [3]Bioengineering, Imperial College, London, UNITED KINGDOM.

5:30 **164.** Magnetic actuation of discrete liquid entities with a deformable paramagnetic liquid substrate. **J. Vialetto**[1], M. Hayakawa[2], N. Kavokine[1], M. Anyfantakis[1], M. Morel[1], S. Rudiuk[1], D. Baigl[1]; [1]Chemistry, Ecole Normale Supérieure, Paris, FRANCE, [2]Computational Intelligence and Systems Science, Tokyo Institute of Technology, Yokohama, JAPAN.

5:30 **165.** Oxygen microbubble behavior under hydrostatic pressurization. **H. Velds**, M. Borden; University of Colorado, Boulder, CO.

5:30 **166.** Using microfluidics and X-ray scattering to probe the transformation of liquid crystalline nanoparticles. **L. Hong**[1,2], Y. Dong[1], P. Spicer[3], B. Boyd[1,2]; [1]Monash University, Parkville, AUSTRALIA, [2]ARC Centre of Excellence in Convergent Bio-Nano Science and Technology, Parkville, AUSTRALIA, [3]University of New South Wales, Sydney, AUSTRALIA.

5:30 **167.** Nanostructured liquid crystalline nanoparticles as penetration enhancing adjuvant systems. **N. B. Bisset**[1], G. R. Webster[1], Y. D. Dong[1], B. J. Boyd[1,2]; [1]Pharmacy and Pharmaceutical Sciences, Monash University, Melbourne, AUSTRALIA, [2]ARC Centre of Excellence in Convergent Bio-Nano Science and Technology, Melbourne, AUSTRALIA.

5:30 **168.** Designs for Directing Motion at the Micro and Nanoscale. **S. Das**; University of Pennsylvania, Philadelphia, PA.

5:30 **169.** Electroformation of mechanically robust giant unilamellar vesicles by molecular assembly of lipids with amphiphilic triblock copolymers. **J. Kang**, M. Seo, J. Lee, J. Kim; Bionano Technology, Hanyang University, Ansan, KOREA, REPUBLIC OF.

5:30 **170.** The effect of molecular mixing on domain formation in adsorbed film at oil/water interface. **S. Hiraki**[1], A. Yamakawa[1], T. Ina[2], K. Nitta[2], H. Tanida[2], T. Uruga[2], Y. Imai[1], T. Takiue[1]; [1]Kyushu University, Fukuoka, JAPAN, [2]Japan Synchrotron Radiation Research Institute, Hyogo, JAPAN.

5:30 **171.** Miscibility and critical packing parameter of surfactant molecules in adsorbed film and micelle. **H. Hayese**[1], A. Yamakawa[1], S. Hiraki[1], T. Ina[2], K. Nitta[2], T. Uruga[2], Y. Imai[3], T. Takiue[3]; [1]Department of Chemistry, Kyushu University, Fukuoka-ken, JAPAN, [2]Japan Synchrotron Radiation Research Institute, Hyogo-ken, JAPAN, [3]Department of faculty of Arts and Science, Kyushu University, Fukuoka-ken, JAPAN.

5:30 **172.** Enhanced adhesion of mosquitoes to fibrous surfaces. **L. Pashazanusi**; Chemical and Biomolecular Engineering, Tulane University, New Orleans, LA.

5:30 **173.** Characterization of the hydrophobic collapse of polystyrene in water using free energy techniques. **M. Drenscko**, S. M. Loverde; CUNY-CSI, New York, NY.

5:30 **174.** Effect of PEI-oleic acid complex structures on in-situ solidification properties of Si_3N_4/α-terpineol dense slurry induced by addition of multifunctional acrylates. **K. Hasegawa**, M. Iijima, J. Tatami; Yokohama National University, Yokohama, JAPAN.

5:30 **175.** Fabrication of hierarchical porous TiN nanostructures from TiO_2 colloids using PMMA monolith as a template. **A. Uga**, M. Iijima, J. Tatami; Yokohama National University, Yokohama, JAPAN.

5:30 **176.** Studying the effect of substrate properties on bacterial adhesion using a high-throughput flow device. **S. Siddiqui**, A. Chandrasekaran, N. Tufenkji, C. Moraes; Chemical Engineering, McGill University, Montreal, QC, CANADA.

5:30 **177.** Facile fabrication of silver nano catalysts within polymer microgel particles for reduction reactions in aqueous medium. **Z. H. Farooqi**[1], N. Rani[1], K. Naseem[1], R. Begum[2]; [1]Institute of Chemistry, University of the Punjab, Lahore, PAKISTAN, [2]Centre for Undergraduate Studies, University of the Punjab, Lahore, PAKISTAN.

5:30 **178.** Fabrication, characterization and catalytic activity of copper nanoparticles loaded N-isopropylmethacrylamide based colloidal particles for degradation of methylene blue. **R. Begum**[1], F. Ali[2], Z. H. Farooqi[2]; [1]Centre for Undergraduate Studies, University of the Punjab, Lahore, PAKISTAN, [2]Institute of Chemistry, University of the Punjab, Lahore, PAKISTAN.

5:30 **179.** Spectral response of colloidal crystal and relationship to defect states. **T. Liu**[1], M. J. Solomon[2]; [1]Macromolecular Science and Engineering, University of Michigan, Ann Arbor, MI, [2]Chemical Engineering, University of Michigan, Ann Arbor, MI.

5:30 **180.** Effects of Stereochemistry on Phase Behavior of Oleic Acid-Based Gemini Surfactants. **T. Sugahara**[1], Y. Takamatsu[2], M. Akamatsu[1], K. Sakai[1,3], M. Abe[3], H. Sakai[1,3]; [1]Faculty of Science and Technology, Tokyo University of Science, Chiba, JAPAN, [2]Miyoshi Oil □ Fat Co., Ltd., Tokyo, JAPAN, [3]Research Institute for Science and Technology, Tokyo University of Science, Chiba, JAPAN.

5:30 **181.** Many-body dissipative particle dynamics simulation for size- and chain length-dependences of static polymer droplet behavior. **N. Arai**, N. Kadoya; Mechanical Engineering, Kindai University, Higashiosaka, JAPAN.

5:30 **182.** Flow microreactor synthesis of core-shell particles of metal-organic frameworks. **A. Fujiwara**, S. Watanabe, K. Mae, M. T. Miyahara; Chemical Engineering, Kyoto University, Kyoto, JAPAN.

5:30 **183.** Adsolubilization Kinetics Monitored by QCM-D. **K. Koizumi**[1], M. Akamatsu[1], S. Sasaki[2,3], K. Sakai[1,3], H. Sakai[1,3]; [1]Faculty of Science and Technology, Tokyo University of Science, Chiba, JAPAN, [2]Faculty of Engineering, Tokyo University of Science, Tokyo, JAPAN, [3]Research Institute for Science and Technology, Tokyo University of Science, Chiba, JAPAN.

5:30 **184.** Transient flow in concentrated rough sphere suspensions. **A. R. Jacob**, L. C. Hsiao; Department of Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC.

5:30 **185.** Dielectric RheoSANS: A tool for simultaneous interrogation of structure, impedance, and rheology in complex fluids. J. J. Richards[1], **J. K. Riley**[1], N. J. Wagner[2], P. D. Butler[1]; [1]NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, [2]Department of Chemical and Biomolecular Engineering, University of Delaware, Newark, DE.

5:30 **186.** Highly effective removal of cesium ion by a three-dimensional porous hydrogels embedded with potassium copper hexacyanoferrate nanoparticles. Y. Kim[1], **Y. Kim**[1], S. Kim[1], D. Harbottle[2], J. W. Lee[1]; [1]Chemical & Biomolecular Eng, KAIST, Daejeon, KOREA, REPUBLIC OF, [2]School of Chemical and Process Engineering, University of Leeds, Leeds, UNITED KINGDOM.

5:30 **187.** Click chemistry conjugation of tumor-targeting peptides to microbubbles under GLP guidelines. **C. Slagle**, M. Borden; Mechanical Engineering, University of Colorado Boulder, Boulder, CO.

5:30 **188.** Thermodynamic stability of binary (Thiophene + CH_4) hydrate and its guest-distribution analysis for methane storage. M. Cha[1], S. Baek[2], **J. Min**[2], J. W. Lee[2]; [1]Kangwon National University, Chuncheon, KOREA, REPUBLIC OF, [2]Chemical & Biomolecular Eng, KAIST, Daejeon, KOREA, REPUBLIC OF.

5:30 **189.** Revealing the 3D nano and micro-scale structures in cellulose microfibril dispersions. **S. Mohan**[1], J. Jose[1], A. Kuijk[2], S. Veen[2], A. van Blaaderen[1], K. Velikov[2]; [1]Utrecht University, Utrecht, NETHERLANDS, [2]Unilever R&D, Vlaardingen, NETHERLANDS.

5:30 **190.** Tribological behavior of hydrogel-supported lipid bilayers. **T. Shoaib**[1,2], Y. He[1], Y. Chen[1], P. C. Nalam[1], J. Heintz[3], R. M. Espinosa-Marzal[1]; [1]Civil and Environmental Ebgineering, University of Illinois at Urbana-Champaign, Urbana, IL, [2]Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, [3]Healthcare Engineering Systems Center, University of Illinois at Urbana-Champaign, Urbana, IL.

5:30 **191.** Polymer gels with tunable crystalline domains. **X. Yin**, D. Hewitt, R. B. Grubbs, S. R. Bhatia; Stony Brook University, stony brook, NY.

5:30 **192.** Rational approaches to colloidal graphene solutions. **M. Diasio**[1], D. L. Green[2]; [1]Materials Science and Engineering, University of Virginia, Charlottesville, VA, [2]Chemical Engineering, University of Virginia, Charlottesville, VA.

5:30 **193.** Effect of γ-methacryloxypropyltrimethoxysilane co-polymerized acrylic latex addition on the characteristics of hardened cement body. **S. Mizumoto**[1], M. Iijima[1], J. Tatami[1], Y. Kamiyama[2], M. Mori[2], T. Nguyen[2]; [1]Yokohama National University, Yokohama, JAPAN, [2]Asahi Kasei Corporation, Kawasaki, JAPAN.

5:30 **194.** A study on many-body dissipative particle dynamics simulations for the polymer droplet on hydrophilic/hydrophobic-patterned solid wall. **K. Nishiwaki**, N. Arai; Kindai Unibersity, Higashiosaka, JAPAN.

5:30 **195.** Synthesis of spherical and triangular silver nanoparticles and determination of their antibacterial activity against *Staphylococcus aureus*. R. Friedhoff[1], **L. M. Hernandez Rodriguez**[2], N. Tufenkji[2]; [1]Department of Chemistry, University Duisburg-Essen, Essen, GERMANY, [2]Chemical Engineering, McGill University, MONTREAL, QC, CANADA.

5:30 **196.** Surface forces in solvent mixtures. **J. Riley**, P. Butler; NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD.

5:30 **197.** Dissipative Particle dynamics simulation for self-assembly of polymer electrolyte fuel cell membranes using Janus or homogeneous nanoparticles. **Y. Kobayashi**, N. Arai; Mechanical Engineering, Kindai University, Higashi-Osaka, JAPAN.

5:30 **198.** The effect of mechanical treatment of silica porous particles on their surface microstructures and macroscopic/microscopic wetting properties. **M. Hayakawa**, M. Iijima, J. Tatami; Yokohama National University, Yokohama, JAPAN.

5:30 **199.** Analysis of liquid-crystal orientation in confinement system: A dissipative particle dynamics study. **T. Inokuchi**[1], N. Arai[2]; [1]Kindai University, Daito, JAPAN, [2]Kindai University, Higashiosaka, JAPAN.

5:30 **200.** Surprising antioxidation activity of transition metal dichalcogenide nanosheets in water dichalcogenide nanosheets in water. **J. Kim**, J. Kim; Hanyang University, Ansan, KOREA, REPUBLIC OF.

5:30 **202.** Convective self-assembly of colloidal particles in a nanofluid. **N. Arai**, S. Watanabe, M. T. Miyahara; Chemical Engineering, Kyoto University, Kyoto, JAPAN.

5:30 **203.** Predicting the microstructure of an interface laden with anisotropic particles. **S. Nuthalapati**, C. L. Wirth; Chemical and Biomedical Engineering, Cleveland State University, Cleveland, OH.

5:30 **204.** Microrheology of a drying paint. **S. M. Varghese**[1], R. M. Rock[2], C. L. Wirth[1]; [1]Chemical and Biomedical Engineering, Cleveland State University, Cleveland, OH, [2]PPG Industries, Allison Park, PA.

5:30 **205.** Holographic fingerprinting of multicomponent colloidal suspensions. **J. M. Blusewicz**, D. B. Ruffner, F. C. Cheong, L. A. Philips; Spheryx, Inc., New York, NY.

5:30 **206.** Holographic characterization of large particle contaminants in nanoparticle chemical mechanical planarization slurries. **P. Kasimbeg**, F. C. Cheong, E. Hlaing, D. B. Ruffner, L. A. Philips; Spheryx Inc., New York, NY.

5:30 **207.** Pickering emulsion stabilized by clay particle and surfactants. **B. Zheng**[1], B. Zheng[2], D. J. McClements[2], S. R. Bhatia[1]; [1]Stony Brook University, Stony Brook, NY, [2]University of Massachusetts, Amherst, Amherst, MA.

5:30 **208.** Amphiphilic block copolymers at the alkane/water interface: A comparative study. **M. L. Davidson**[1], L. M. Walker[1], M. Gottlieb[2]; [1]Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, [2]Chemical Engineering, Ben Gurion University, Beer-Sheva, ISRAEL.

5:30 **209.** Determining lipid bilayer alterations and selective bacteria elimination through ultrasound induced microbubbles. **M. Walsh**[1], L. Bastarrachea[2], H. Dolan[2], R. Rai[3], K. Huang[3], R. Tikekar[2], N. Nitin[3], S. Wrenn[1]; [1]Chemical and Biological Engineering, Drexel University, Philadelphia, PA, [2]Nutrition and Food Science, University of Maryland, College Park, MD, [3]Food Science and Technology, University of California, Davis, Davis, CA.

5:30 **210.** Conjugated polymer nanoparticles: Enhanced photostability in aqueous media by assembling with phospholipids via dense alkyl chain packing. **J. Park**[1], Y. Choi[2], D. Lee[1], S. Lee[2], T. Shin[3], D. Ahn[2]; [1]School of Chemical Engineering and Materials Science, Chung-Ang University, Seoul, KOREA, REPUBLIC OF, [2]Department of Chemical and Biological Engineering, Korea University, Seoul, KOREA, REPUBLIC OF, [3]UNIST Central Research Facilities & School of Natural Science, Ulsan National Institute of Science and Technology, Ulsan, KOREA, REPUBLIC OF.

5:30 **211.** The Effect of Microenvironment on the Apparent Catalytic Activity of Multifunctional Nanoreactors Microenvironment on the Apparent Catalytic Activity of Multifunctional Nanoreactors. **A. Harrison**, T. Vuong, M. Nguyen, C. Tang; Chemical and Life Sciences Engineering, Virginia Commonwealth University, Richmond, VA.

5:30 **212.** Co-delivery of antibiotic and biofilm dispersant using nanoparticles to control biofilm development. **Y. Zhang**[1], R. Robert K.[1], M. Chikindas[2]; [1]Princeton University, Princeton, NJ, [2]Rutgers University, Piscataway, NJ.

5:30 **213.** Controlling assembly of attractive colloidal crystals with anisotropic fields. **J. Zhang**, M. Bevan; Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, MD.

5:30 **214.** Kinetics of (un)binding between DNA-functionalized particles using a coarse-grained model with explicit nucleotide representation. **T. Maula**, J. Mittal; Lehigh University, Bethlehem, PA.

5:30 **215.** Encapsulating cargo using electrospun complex coacervates fibers. **X. Meng**, S. L. Perry, J. D. Schiffman; Chemical Engineering Department, University of Massachusetts Amherst, Amherst, MA.

5:30 **216.** Effect of noncovalent bond for morphological behavior of triblock type supra macromolecule using dissipative particle dynamics study. **Y. Araki, Jr.**[1], N. Arai[2]; [1]Kindai University, Amagasaki, JAPAN, [2]Kindai University, Higashiosaka, JAPAN.

5:30 **217.** Analysis of surfactant-induced suppression of Marangoni flow in an evaporating sessile droplet. **S. Yun, Sr.**; Department of Mechanical Engineering, Korea National University of Transportation, Chungju, KOREA, REPUBLIC OF.

5:30 **218.** Growth and stability of bubbles in an oversaturated liquid. **J. Miguet**[1], E. Rio[1], F. Rouyer[2]; [1]Laboratoire de Physique des Solides, Université Paris-Saclay, Orsay, FRANCE, [2]Laboratoire Navier, Université Paris-Est, Marne-la-Vallée, FRANCE.

5:30 **219.** Reconfigurable light diffraction response of ellipsoidal colloids by electric field assisted assembly. **P. Kao**, M. J. Solomon; Chenical Engineering, University of Michigan, Ann Arbor, MI.

5:30 **220.** Interfacial activity of non-amphiphilic particles at air-water and oil-water interfaces. **S. Wang**[1], Y. Zhang[2], J. Zhou[1], R. Zhao[1], G. Benz[1], S. Tcheimou[1], J. Meredith[1], S. Behrens[1]; [1]Georgia Institute of Technology, Atlanta, GA, [2]Northwestern University, Evanston, IL.

5:30 **221.** Electrochemical Detection of Acetaminophen with Silicon Nanowires. R. R. Pandey, **C. C. Chusuei**; Chemistry, Middle Tennessee State University, Murfreesboro, TN.

5:30 **222.** Inkjet printed porous structures: Investigating the driving forces behind dropwise colloidal co-assembly. **A. V. Tavasoli**, B. D. Hatton; Materials Science & Engineering, University of Toronto, Toronto, ON, CANADA.

5:30 **223.** Understanding mechanisms of spontaneous Pickering emulsions. **D. Neibloom**, M. Bevan, J. Frechette; Johns Hopkins University, Baltimore, MD.

5:30 **224.** Experimental study of interfacial dynamics and isotherm parameters for perfluoropentane systems with soluble and polymeric surfactants. **M. Cimorelli**, N. Alvarez, S. Wrenn; Chemical & Biological Engineering, Drexel University, Philadelphia, PA.

5:30 **225.** SERS- and electrochemically-active plasmonic liquid marble for spectroelectrochemical investigations. **S. Koh**; Division of Chemistry and Biological Chemistry, Nanyang Technological University, Singapore, SINGAPORE.

5:30 **226.** Effect of surface oxidation on the mechanics of a carbon nanotube laden interface. **W. D. Ivancic**, C. L. Wirth; Chemical and Biomedical Engineering, Cleveland State University, Cleveland, OH.

5:30 **227.** Assembling Particle Clusters with Incoherent 3D Magnetic Fields. **R. Soheilian**, H. Abdi, C. Maloney, R. Erb; Mechanical Engineering, Northeastern University, Boston, MA.

5:30 **228.** Three-dimensional printing of PDMS composites with multiphasic capillary bridging. **S. Roh**[1], D. P. Parekh[1], B. Bharti[2], S. D. Stoyanov[3,4], O. D. Velev[1]; [1]Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC, [2]Chemical Engineering, Louisiana State University, Baton Rouge, LA, [3]Physical Chemistry and Soft Matter, Wageningen University, Wageningen, NETHERLANDS, [4]Department of Mechanical Engineering, University College London, London WC1E 7JE, UNITED KINGDOM.

5:30 **229.** The effect of volume exclusion and reversible cross-linking reagents on the colloidal stability of globular protein. **Q. Gu**[1], T. M. Przybycien[1,2]; [1]Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, [2]Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA.

5:30 **230.** Directed Assembly of Self-Reconfiguring Clusters from Anisotropic Microparticles. **K. Han**[1], C. W. Shields[1,2], B. Bharti[1,3], G. P. López[4], O. D. Velev[1]; [1]Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC, [2]Mechanical Engineering and Materials Science, Duke University, Durham, NC, [3]Chemical Engineering, Louisiana State University, Baton Rouge, LA, [4]Chemical and Biological Engineering, University of New Mexico, Albuquerque, NM.

5:30 **231.** Observation of hydrate crystal growth at the water - cyclopentane interface. **M. Cha**[1], J. Min[2], S. Baek[2], J. Lee[2]; [1]Dep. of Energy and Resources Eng., Kangwon National University, Chuncheon-si, KOREA, REPUBLIC OF, [2]Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, KOREA, REPUBLIC OF.

5:30 **232.** Effect of film thickness on elastohydrodynamic interactions in rebounding solids. **Y. Wang**, M. Tan, J. Frechette; Johns Hopkins University, Baltimore, MD.

5:30 **233.** A Versatile Force Microscope for Soft Matter. **P. Roberts**, G. Pilkington, P. Karnal, J. Frechette; Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, PA.

5:30 **234.** Dynamics of a colloidal gel of charged anisotropic particles. **K. Suman**, Y. Joshi; Chemical Engineering, Indian Institute of Technology Kanpur, Kanpur, INDIA.

5:30 **235.** Molecular and hydrodynamic effects of salt and surfactant on bubble dynamics in a microbubble gas-liquid bioreactor. **M. Ansari**, D. Turney, S. Banerjee; Chemical Engineering, The City College of New York, New York, NY.

5:30 **236.** Effect of shear stress on rheological properties of hydrogenated castor oil during gel-sol transitions by osmotic pressure gradients. **M. Wehrman**[1], S. Lindberg[2], K. Schultz[1]; [1]Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA, [2]Process and Engineering Development, Procter & Gamble, West Chester, OH.

5:30 **238.** Entropic attraction in fow-induced colaescence of polymeric drops compatibilized by block-copolymers. **C. Vannozzi**; Chemical Engineering, University of California, Santa Barbara, CA.

5:30 **239.** Deterministic and chaotic dynamics of driven colloidal particle chains. **S. Kuei**, S. L. Biswal; Rice University, Houston, TX.

5:30 **240.** Electrokinetics and microfluidics: Motion of spherical microgels through a microfluidic constricting channel. **H. Chien**, J. Fan; Mechanical Engineering, The City college of New York, New York, NY.

5:30 **241.** Dielectric constant measurement of colloidal particles using dielectrophoretic force. **S. Manafirasi**, C. Maldarelli; Chemical Engineering, Levich Institute, New York, NY.

5:30 **242.** Plasmonic evolution of Ag−Ag2X (X=S, Se) hybrid nanoprisms. **M. M. Shahjamali**[1], N. Large[2], G. C. Schatz[3], N. Zaraee[4]; [1]Applied physics and Physics, Harvard University, cambridge, MA, [2]Department of Physics and Astronomy, The University of Texas at San Antonio, San Antonio, TX, [3]Chemistry, Northwestern University, Evanston, IL, [4]Photonics Center, Boston University, Boston, MA.

5:30 **243.** Application of X-ray interfacial analysis methods to study how surface chemistry of gold nano rods induced cytotoxicity. **P. Quan**[1,2], L. Wang[2], W. Bu[1], C. Chen[3], Y. Zhao[2,3], B. Lin[1]; [1]University of Chicago, Chicago, IL, [2]Institute of High Energy Physics, CAS, Beijing, CHINA, [3]National Center for Nanoscience and Technology of China, CAS, Beijing, CHINA.

5:30 **244.** Non-spherical aerosol droplets with internal structure. **T. A. Prileszky**[1], P. T. Spicer[2], E. M. Furst[1]; [1]Chemical and Biomolecular Engineering, University of Delaware, Newark, DE, [2]Complex Fluids Group, School of Chemical Engineering, University of New South Wales, Sydney, AUSTRALIA.

5:30 **245.** N-cadherin-coated emulsion droplets are a biomimetic scaffold for tumor spheres and cell migration. **K. Nagendra**[1], J. D. Frenster[1], A. McMullen[2], D. G. Placantonakis[3], J. Brujic[2]; [1]NYU School of Medicine, Sackler Institute of Graduate Biomedical Sciences, New York, NY, [2]Center for Soft Matter Research, Department of Physics, New York University, New York, NY, [3]NYU School of Medicine, Department of Neurosurgery, New York, NY.

5:30 **246.** Interfacial Behaviors of Versatile Janus Nanoparticles at Oil-Water Interface. **Y. Zhang**, M. Tukpah, Y. Min; Department of Polymer Engineering, University of Akron, Akron, OH.

5:30 **247.** Optically aligned assembly of silver and gold nanospheroids. **P. Samaimongkol**[1], E. M. See[1], C. L. Peck[2], A. M. Gates[2], W. L. Santos[2], H. D. Robinson[1]; [1]Department of Physics, Virginia Tech, Blacksburg, VA, [2]Department of Chemistry, Virginia Tech, Blacksburg, VA.

5:30 **248.** Material design by DNA-mediated interactions between colloids using a coarse-grained model. **R. Mao**, J. Mittal; Lehigh University, Bethlehem, PA.

5:30 **249.** Monomer derived 0-3 nanocomposite capacitors: maximization of the effective permittivity through control at the interface. **F. A. Pearsall**[1,2,3], J. Lombardi[1,2,3], S. O'Brien[1,2,3]; [1]Chemistry, City College of New York, New York, NY, [2]PhD program in Chemistry, The Graduate Center of the City University of New York, New York, NY, [3]The CUNY Energy Institute, City University of New York, The City College of New York, New York, NY.

5:30 **250.** Formation of oxide-gold core-shell nanorods using block copolymer templates. **U. Gabinet**, C. Osuji; Yale University, New Haven, CT.

5:30 **251.** Visualizing Nanoscopic Topography and Patterns in Freely Standing Thin Films. S. Yilixiati, Y. Zhang, **V. Sharma**; Chemical Engineering, University of Illinois at Chicago, Chicago, IL.

5:30 **252.** Colloidal "muscle filaments": Anchoring selectivity and mobility. **Y. Liu**[1], S. Razavi[2], M. J. Solomon[2]; [1]Macromolecular Science and Engineering, University of Michigan, Ann Arbor, MI, [2]Chemical Engineering, University of Michigan, Ann Arbor, MI.

5:30 **253.** Influence of Divalent Cations on Deformation and Rupture of Adsorbed Lipid Vesicles. **M. Dacic**, N. Cho; School of Materials Science and Engineering, Nanyang Technological Institute, Nanyang, SINGAPORE.

Plenary Lecture 2

Tuesday, July 11, 2017, 8:30 AM - 9:20 AM
Great Hall

Organizers: G. John, I. Kretzschmar, R. Tu
Presiding: G. John, I. Kretzschmar, R. Tu

8:30 **255.** PLENARY: Polymer ionic liquids: A new key component for interface control and hybrid design. **M. Antonietti**, J. Yuan; Max Planck Institute of Colloids and Interfaces, Potsdam, GERMANY.

Colloids and Surface Forces: Brownian Dynamics and Surface Forces

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 381

Organizers: N. Alcantar, R. Dagastine
Presiding: R. Dagastine

9:40 **256.** Measuring the hindered translational and rotational dynamics of anisotropic nanoparticles diffusing near a solid-liquid interface. **C. G. Bolton**[1,2], R. R. Dagastine[1,2]; [1]Department of Chemical & Biomolecular Engineering, University of Melbourne, Melbourne, AUSTRALIA, [2]Particulate Fluids Processing Centre, Melbourne, AUSTRALIA.

10:00 **257.** Rapid and Accurate Methods for Modeling Hydrodynamic Forces in Constrained Brownian Dynamics Simulations. **A. M. Fiore**, J. W. Swan; Chemical Engineering, MIT, Cambridge, MA.

10:20 **258.** reconciling DLVO and non-DLVO forces and their implications for ion rejection by a polyamide membrane. **Y. Diao**, M. Han, J. Lopez, L. Valentino, B. Marinas, R. M. Espinosa-Marzal; civil and environmental engineering, University of Illinois at Urbana-Champaign, Urbana, IL.

10:40 **259.** Brownian dynamics of a spherical Janus particle near a boundary as a tool to investigate TIRM. **A. Rashidi**, C. L. Wirth; Chemical and Biomedical Engineering, Cleveland State University, Cleveland, OH.

11:00 **260.** Insight into the electrical double layer of an Ionic Liquid on Graphene. **R. Espinosa-Marzal**, A. Jurado; University of Illinois at Urbana-Champaign, Urbana, IL.

11:20 **261.** Study of reactivity suppression of liquid sodium by suspension of metallic nanoparticles. **J. Saito**, K. Nagai, K. Ara; Fast Reactor Technology Development Department, Japna Atomic Energy Agency, Oarai, JAPAN.

Colloids and Surface Science in Medicine and Personal Care Products: Smart / Multifunctional Colloidal Systems for Medical Applications

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 203

Organizers: S. Herman, K. Rege
Presiding: E. Kaufman

9:40 **262.** New visible light photo-switchable molecule provides reversible control over nanostructure of lipid-based liquid crystalline delivery material. **S. Jia**; Monash Institute of Pharmaceutical Sciences, Monash university, Melbourne, AUSTRALIA.

10:00 **263.** Bio-based nanoparticles for broadband UV protection with photo-stabilised UV-filters. D. Hayden[1], A. Imhof[1], **K. Velikov**[2,1]; [1]Soft Condensed Matter, Debye Institute for Nanomaterials Science, Utrecht University, Utrecht, NETHERLANDS, [2]Unilever R&D Vlaardingen, Vlaardingen, NETHERLANDS.

10:20 **264.** Drug Delivery Systems You Can Trigger and Monitor. **Y. Park**, Z. Zhang, M. Taylor, S. Haworth, Z. Shi, Z. Cao; Biomedical, Chemical & Environmental Engineering, University of Cincinnati, Cincinnati, OH.

10:40 **265.** Polypyrrole Coated Nanoemulsions for Sono-Photoacoustic Theranostic. **D. S. Li**[1], S. Yoon[2], I. Pelivanov[2], M. Frenz[3], T. Matula[4], M. O'Donnell[2], L. Pozzo[1]; [1]Chemical Engineering, University of Washington, Seattle, WA, [2]Bioengineering, University of Washington, Seattle, WA, [3]Institute of Applied Physics, University of Bern, Bern, SWITZERLAND, [4]Center for Industrial and Medical Ultrasound, University of Washington, Seattle, WA.

11:00 **267.** Formulation of pH-responsive nanoparticles for oral delivery. R. Smith, **S. Levit**, C. Tang; Chemical and Life Science Engineering, Virginia Commonwealth University, Richmond, VA.

11:20 **268.** Metallic encapsulation of low molecular weight species and associated delivery strategy. **K. Stark**, O. Cayre; School of Chemical and Process Engineering, University of Leeds, Leeds, UNITED KINGDOM.

Directed and Self-assembly at the Colloidal Scale: Magnetic field directed assembly

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: L. Biswal

9:40 **269.** KEYNOTE: Colloidal microworms and microcarpet assembled and propelled via time dependent magnetic fields. F. Martinez-Pedrero, A. Ortiz-Ambriz, I. Pagonabarraga Mora, **P. Tierno**; Department of Física de la Matèria Condensada, University of Barcelona, Barcelona, SPAIN.

10:20 **270.** Equilibrium and out-of-equilibrium phase behavior of dielectric/paramagnetic nanoparticle suspensions. **Z. Sherman**, J. Swan; Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA.

10:40 **271.** Magnetic microlassos for reversible cargo capture, transport and release. **T. Yang**, T. O. Tasci, K. B. Neeves, N. Wu, D. W. Marr; Chemical and Biological Engineering, Colorado School of Mines, Golden, CO.

11:00 **272.** Assembly of superparamagnetic nanoparticles in a rotating magnetic field. **H. D. Robinson**[1], Z. He[1], Y. Zhu[2]; [1]Department of Physics, Virginia Tech, Blacksburg, VA, [2]Bradley Department of Electrical and Computer Engineering, Virginia Tech, Blacksburg, VA.

11:20 **273.** Magnetic aggregation: separating diffusion from magnetic dipole attraction. **T. W. Long**, I. Kretzschmar, J. Koplik; Chemical Engineering, City College of New York, New York, NY.

11:40 **274.** Simultaneous Control of Heterogenous Colloidal Microrobots using Catalytic and Magnetic actuation. **S. Das**[1], E. B. Steager[2], K. Stebe[1], V. Kumar[2]; [1]Chemical and Biomolecular Engineering, University of Pennsylvania, philadelphia, PA, [2]Mechanical Engineering and Applied Mechanics, University of Pennsylvania, philadelphia, PA.

Directed and Self-assembly at the Molecular Scale: Self-Assembly using Polyelectrolytes

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Auditorium

Organizers: L. Leon, R. Ulijn
Presiding: L. Leon

9:40 **275.** KEYNOTE: Tuning complex coacervation using sequence-defined polyelectrolytes - A molecular understanding. T. K. Lytle[1], L. Chang[2], J. Madinya[3], S. L. Perry[2], **C. E. Sing**[3]; [1]Department of Chemistry, University of Illinois at Urbana-Champaign, Urbana, IL, [2]Department of Chemical Engineering, University of Massachusetts Amherst, Amherst, MA, [3]Department of Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL.

10:20 **276.** Charged polymer conformation in polyelectrolyte complexes. **A. Marciel**, S. Srivastava, M. Tirrell; IME, University of Chicago, Chicago, IL.

10:40 **277.** Control of polyelectrolyte complex phase by DNA hybridization. **J. Vieregg**[1], M. Lueckheide[2], A. Marciel[1], L. Leon[3], M. Tirrell[1]; [1]Institute for Molecular Engineering, University of Chicago, Chicago, IL, [2]Department of Chemistry, University of Chicago, Chicago, IL, [3]Dept. of Materials Science and Engineering, University of Central Florida, Chicago, IL.

11:00 **278.** Effects of therapeutically relevant nucleic acid modifications on micelle morphology and stability. **M. J. Lueckheide**[1], J. Vieregg[2], A. Marciel[2], S. Srivastava[2], A. J. Bologna[1], M. V. Tirrell[2]; [1]Chemistry, University of Chicago, Chicago, IL, [2]Institute of Molecular Engineering, University of Chicago, Chicago, IL.

11:20 **279.** Encapsulating cargo using electrospun complex coacervates fibers. **X. Meng**, S. L. Perry, J. D. Schiffman; Chemical Engineering Department, University of Massachusetts Amherst, Amherst, MA.

11:40 **280.** Drying of solutions of charged polymers: A molecular dynamics study. **S. Cheng**, C. Wen; Physics, Virginia Tech, Blacksburg, VA.

Emulsion, Bubbles and Foams: Foams - I

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

9:40 **281.** KEYNOTE: Modeling film drainage of lubricants as a predictor of foam stability. **J. M. Barakat**[1], X. Shi[1], E. S. G. Shaqfeh[1], E. Lizarraga-Garcia[2], A. Kar[2]; [1]Chemical Engineering, Stanford University, Stanford, CA, [2]Shell Global Solutions (US) Inc., Houston, TX.

10:20 **282.** Foam generation by snap-off due to flow across a sharp permeability transition.. **S. Y. Shah**, K. Wolf, W. R. Rossen; Geoscience and Engineering, Delft University of Technology, Delft, NETHERLANDS.

10:40 **283.** Characterizing oil displacement by foam in micromodels. **E. D. Vavra**, Y. Zeng, S. Xiao, D. Du, P. He, M. Puerto, S. L. Biswal, G. J. Hirasaki; Chemical and Biomolecular Engineering, Rice University, Houston, TX.

11:00 **284.** Effect of Elevated Pressures on the Interfacial Dynamics of LS-36 Surfactant at the Water-CO_2 Interface. **Z. R. Hinton**, N. J. Alvarez; Chemical and Biological Engineering, Drexel University, Philadelphia, PA.

11:20 **285.** Surface Forces, Flows and Fluxes Underlying Nanoridge Formation and Instabilities in Stratifying, Micellar Freestanding Films. Y. Zhang, **V. Sharma**; Chemical Engineering, University of Illinois at Chicago, Chicago, IL.

11:40 **286.** Mitigating foam accumulation in cell culture bioreactors. **D. A. Grismer**[1], C. Gregg[1], K. Chang[2], D. Osborne[2], O. D. Velev[1]; [1]Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC, [2]Biogen, Research Triangle Park, NC.

General Papers: Phase behavior and structure in soft matter

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 207

Organizers: P. Dhar, R. Zia
Presiding: P. Dhar

9:40 **287.** KEYNOTE: Phase separation and partitioning in nanoliter droplets. **S. L. Anna**; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.

10:20 **288.** Numerical simulation of contact line dynamics and evaporation for a water droplet on a substrate. **Y. Wang**[1], W. Zhao[2], H. Zhao[1]; [1]Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, [2]Jinan University, Jinan, CHINA.

10:40 **289.** Micromechanical Characterization of Complex Droplets. **J. M. Frostad**[1], M. C. Collins[2], L. G. Leal[3]; [1]University of British Columbia, Vancouver, BC, CANADA, [2]University College Cork, Cork, IRELAND, [3]University of California, Santa Barbara, Santa Barbara, CA.

11:00 **290.** Deformation of Fractal Clusters under mixed shear flows. **M. Lattuada**; Department of Chemistry, University of Fribourg, Fribourg, SWITZERLAND.

11:20 **291.** Nanorheology of Soft materials using Rotational Tracking of Single Gold Nanorods. **M. Molaei, Male**, J. Crocker; Chemical and Biomolecular Engineering, University of Pennsylvania, philadelphia, PA.

11:40 **292.** Rheological and electrical percolation behavior of carbon black suspended in propylene carbonate. **J. J. Richards**[1], J. Hipp[2], J. Riley[1], N. Wagner[2], P. Butler[1]; [1]National Institute of Standards and Technology, Gaithersburgh, MD, [2]University of Delaware, Newark, DE.

Particles at Interfaces: Particles at liquid-liquid interfaces

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 379

Organizers: D. Harbottle, D. Lee
Presiding: D. Harbottle, D. Lee

9:40 **293.** KEYNOTE: Engineering particle coated bubbles and droplets. **J. Vermant**; Chemical Engineering, ETH - Zurich, Zurich, SWITZERLAND.

10:20 **294.** Effect of Degree of Amphiphilicity on Janus Particle-laden Interfaces. **E. Knapp**[1], A. Edberg[2], I. Kretzschmar[1], R. Tu[1]; [1]Chemical Engineering, City College of New York, New York, NY, [2]Chemical Engineering, The Royal Institute of Technology (KTH), Stockholm, SWEDEN.

10:40 **295.** The freezing transition of colloids on the surface of a spherical droplet. **J. Forth**[1,2], A. B. Schofield[2], P. S. Clegg[2]; [1]Materials Science Division, Lawrence Berkeley National Laboratory, Berkeley, CA, [2]School of Physics and Astronomy, University of Edinburgh, Edinburgh, UNITED KINGDOM.

11:00 **296.** Global strain-field mapping of a carbon nanotube-laden interface using digital image correlation. **S. Chang**[1], S. R. Vora[2], B. Bognet[3], H. S. Patanwala[3], C. Young[2], V. Daux[3], A. W. Ma[2,3]; [1]Chemical and Biomolecular Engineering, University of Connecticut, Mansfield, MA, [2]Chemical and Biomolecular Engineering, University of Connecticut, Storrs, CT, [3]Polymer Program, Institute of Materials Science, University of Connecticut, Storrs, CT.

11:20 **297.** Controlled enrichment of graphene oxide at the air-water interface and enhanced emulsification of oil and water. **T. M. McCoy**; Chemistry, Monash University, Melbourne, AUSTRALIA.

11:40 **298.** Robust gold nanoparticle sheets by ligand cross-linking at the air-water interface. **B. Lin**; CARS and James Franck Institute, University of Chicago, Chicago, IL.

Patchy and Active Colloids: Patchy Colloids II - self-assembly, motion, and applications

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 208

Organizers: J. Conrad, U. Cordova Figueroa
Presiding: C. Wirth

9:40 **299.** Droplets with multi-flavored valences for programmable self-assembly. **Y. Zhang**[1], X. He[1], R. Zhuo[1], R. Sha[2], N. Seeman[2], P. Chaikin[1]; [1]Physics Department, New York University, New York, NY, [2]Chemistry Department, New York University, New York, NY.

10:00 **300.** The evolution of colloidal clusters: From random packings to patchy particles. **Z. Gong**[1], T. Hueckel[1], G. Yi[2], S. Sacanna[1]; [1]Chemistry, New York University, New York City, NY, [2]Chemical Engineering, Sungkyunkwan, Suwon, KOREA, REPUBLIC OF.

10:20 **301.** Self-assembly of DNA-coated Janus particles. **J. Oh**[1], G. Yi[2], D. Pine[1]; [1]Center for Soft Matter Research, New York University, New York, NY, [2]Department of Chemical Engineering, Sungkyunkwan University, Suwon, KOREA, REPUBLIC OF.

10:40 **302.** Directed Motion of Metallodielectric Particles by Contact Charge Electrophoresis. **Y. Dou**[1], C. A. Cartier[2], W. Fei[1], S. Pandey[1], S. Razavi[3], I. Kretzschmar[3], K. J. M.Bishop[1]; [1]Department of Chemical Engineering, Columbia University, New York, NY, [2]Department of Chemical Engineering, Pennsylvania State University, University Park, PA, [3]Department of Chemical Engineering, City College of the City University of New York, New York, NY.

11:00 **303.** Decoration of polystyrene spheres with polyphenylsiloxane patches, and application of the resulting patchy particles in the colloidal synthesis of Au semishells. **P. Buskens**[1,2,3], D. Mann[1], S. Voogt[3], R. van Zandvoort[2], M. Verheijen[4,5], H. Keul[1], M. Möller[1]; [1]DWI - Leibniz Institute for Interactive Materials e.V., RWTH Aachen University, Aachen, GERMANY, [2]The Netherlands Organisation for Applied Scientific Research (TNO), Eindhoven, NETHERLANDS, [3]Zuyd University of Applied Sciences, Heerlen, NETHERLANDS, [4]Philips Innovation Labs, Eindhoven, NETHERLANDS, [5]Eindhoven University of Technology, Eindhoven, NETHERLANDS.

11:20 **304.** Tuning component interactions to control polymer nanocolloid morphology during Flash NanoPrecipitation. **V. E. Lee**, C. Sosa, R. K. Prud'homme, R. D. Priestley; Chemical & Biological Engineering, Princeton University, Princeton, NJ.

Polymers and Biomacromolecules at Interfaces: Biomolecules and Polymers at Interfaces - II

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 376

Organizers: P. Akcora, T. Kuhl
Presiding: T. Kuhl

9:40 **305.** How to use Arabic gum: a story of protein and polysaccharides. **M. A. Atgie**, K. Roger, O. Masbernat; Laboratory of chemical engineering, CNRS, Toulouse, FRANCE.

10:00 **306.** Adsorption of rod-like polyelectrolyte-surfactant aggregates at the air-water interface. **M. L. Davidson**, L. M. Walker; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.

10:20 **307.** PNBA-based photosensitive nanoparticles: a novel devices for controlled drug delivery. **M. El Founi**[1], S. Soliman[1], R. Vanderesse[1], S. Acherard[1], E. Guedon[2], I. Chevalot[2], J. Babin[1], J. Six[1]; [1]Université de Lorraine, CNRS, Laboratoire de Chimie Physique Macromoléculaire LCPM, UMR 7375, Nancy, FRANCE, [2]Université de Lorraine, CNRS, Laboratoire Réactions et Génie des Procédés - UMR 7274, Nancy, FRANCE.

10:40 **308.** Sensing Curvature: Modulation of Phase Morphology of Surfactant Monolayer with Interfacial Curvature. **A. K. Sachan**, J. A. Zasadzinski; Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

11:00 **309.** Molecular dynamics simulations of PEO-PS diblock copolymer assemblies. **K. Chakraborty**[1], S. Loverde[2]; [1]Chemistry, College of Staten Island, CUNY, Staten Island, NY, [2]Chemistry, Biochemistry, Physics, College of Staten Island, Graduate Center, CUNY, Staten Island, NY.

11:20 **310.** On-Surface and In-Solution Effects of Non-complementary Overhang Tails for DNA-DNA and Morpholino-DNA Hybridization. **U. Koniges**, R. Levicky; New York University, Brooklyn, NY.

11:40 **311.** Enhanced interfacial activity of multi-arm poly(ethylene oxide) star polymers relative to linear poly(ethylene oxide) at fluid interfaces. **Y. Huang**, R. D. Tilton; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.

Rheology and Dynamics: Colloidal Fibers and Gels

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: J. Gilchrist

9:40 **312.** KEYNOTE: Sparse fiber gels: Rheology and dynamics. **P. Spicer**; School of Chemical Engineering, University of New South Wales, Sydney, AUSTRALIA.

10:20 **313.** Using μ²rheology to quantify rheological properties during repeated phase transitions of hydrogenated castor oil. **M. Wehrman**[1], S. Lindberg[2], K. Schultz[1]; [1]Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA, [2]Process and Engineering Development, Procter & Gamble, West Chester, OH.

10:40 **314.** Rigidity percolation, gelation and glass transitions of anisotropic colloidal suspensions with thermoreversible, short-range attractions. R. Murphy, **N. Wagner**; University of Delaware, Newark, DE.

11:00 **315.** Accelerated collapse of colloidal gels of fiber networks. J. Song[1], M. Caggioni[2], **P. Spicer**[1]; [1]Chemical engineering, University of New South Wales, Sydney, AUSTRALIA, [2]Complex fluid microstructures group, Procter & Gamble Company, West Chester, OH.

11:20 **316.** Effects of solute/polymer interactions on small-molecule diffusion within hydrogels: measurements and macroscopic models. D. R. Vogus, C. Angulo, **T. R. Squires**; Chemical Engineering, University of California, Santa Barbara, Santa Barbara, CA.

11:40 **317.** The importance of crystalline structure on the tensile properties of UHMWPE fibers. **C. K. Henry**, N. J. Alvarez, G. R. Palmese; Chemical and Biological Engineering, Drexel University, Philadelphia, PA.

Wetting and Adhesion: Fundamentals - II

Tuesday, July 11, 2017, 9:40 AM - 12:00 PM
Shepard Hall 275

Organizers: D. Hu, N. Pesika
Presiding: N. Pesika

9:40 **318.** KEYNOTE: Contact between entangled polymers at short contact times. **C. Creton**, R. Gurney, A. Lindner; ESPCI Paris, Paris, FRANCE.

10:20 **319.** Wetting, dewetting and bouncing on a viscoelastic bitumen surface. **C. Antonini**[1], J. Lee[2], S. dos Santos[3]; [1]Functional Cellulose Material, EMPA, Dübendorf, SWITZERLAND, [2]EMPA, Dübendorf, SWITZERLAND, [3]Laboratory for Road Engineering/ Sealing Components, EMPA, Dübendorf, SWITZERLAND.

10:40 **320.** Underwater stability of superhydrophobic nanopatterned surfaces characterized by in-situ ATR-FTIR. **N. Vrancken**[1,2], S. Sergeant[3], G. Vereecke[2], G. Doumen[2], F. Holsteyns[2], H. Terryn[1], S. De Gendt[2], X. Xu[2]; [1]Faculty of Engineering, Vrije Universiteit Brussel (VUB), Brussels, BELGIUM, [2]IMEC, Leuven, BELGIUM, [3]Chemistry department, UC-Leuven Limburg, Leuven, BELGIUM.

11:00 **321.** Energy dissipation of moving drops on superhydrophobic and superoleophobic surfaces. **H. J. Butt**[1], N. Gao[1], P. Papadopoulos[2], W. Steffen[1], M. Kappl[1], R. Berger[1]; [1]Max Planck Institute for Polymer Research, Mainz, GERMANY, [2]Department of Physics, University of Ioannina, Ioannina, GREECE.

11:20 **322.** Dropwise to filmwise condensation on transparent polycarbonate by surface texturing. **N. Pionnier**, E. Contraires, S. Benayoun, S. Valette; Laboratoire de Tribologie et Dynamique des Systèmes (LTDS), Ecully, FRANCE.

11:40 **323.** Wetting of water on graphene. **B. Bera**[1], N. Shahidzadeh[1], H. Mishra[2], D. Bonn[1]; [1]University of Amsterdam, Amsterdam, NETHERLANDS, [2]King Abdullah University of Science and Technology, Thuwal, SAUDI ARABIA.

Colloids and Surface Science in Medicine and Personal Care Products: Colloidal Systems for Delivery of Therapeutics

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 203

Organizers: S. Herman, K. Rege
Presiding: K. Rege

1:20 **324.** KEYNOTE: Combinatorial-designed nano-systems for Systematic delivery of nucleic acid therapeutics. **M. M. Amiji**; Pharmaceutical Sciences, Northeastern University, Boston, MA.

2:00 **325.** Tissue integration and cell delivery using morphologically unique bijel-derived materials. **T. Thorson**[1], E. Botvinick[2], A. Mohraz[1]; [1]Chemical Engineering and Materials Science, University of California, Irvine, CA, [2]Biomedical Engineering, University of California, Irvine, CA.

2:20 **326.** Aerosolizing DPPC Enables the Transport of Tobramycin against Predeposited Lipid Monolayer. **S. Iasella**[1], A. Stetten[2], T. Corcoran[3], S. Garoff[4], T. Przybycien[1,5], R. Tilton[1,5]; [1]Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, [2]Department of Physics, Carnegie Mellon University, Pittsburgh, PA, [3]School of Medicine, University of Pittsburgh, Pittsburgh, PA, [4]Department of Physics, Carnegie Mellon University, Pittsburgh, PA, [5]Department of Bioengineering, Carnegie Mellon University, Pittsburgh, PA.

2:40 **327.** Intracellular and Extracellular Delivery of Proteins and Small Biomolecules via Near Infrared Light.. **J. Shin**, J. A. Zasadzinski; Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

Directed and Self-assembly at the Colloidal Scale: Electric field directed assembly

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: S. Das

1:20 **328.** Energetics of tunable colloidal clusters in two dimensions. **E. Hilou**, D. Du, S. Kuei, S. L. Biswal; Rice University, Houston, TX.

1:40 **329.** Examining reversible phase transitions of dielectrophoretically assembled colloidal crystals in local potential wells. **S. Lee**; Chemical Engineering and Materials Science, Stevens Institute of Technology, Hoboken, NJ.

2:00 **330.** Synchronization and traveling waves within arrays of electrostatic oscillators. **S. Pandey**[1], Y. Dou[1], C. Cartier[2], M. Kowalik[2], K. J. Bishop[1]; [1]columbia university, New York, NY, [2]pennsylvania state university, state college, PA.

2:20 **331.** Assembly of chiral colloidal clusters via electrohydrodynamic interactions. **X. Yang**[1], F. Ma[2], N. Wu[1]; [1]Chemical & Biological Engineering Dept., Colorado School of Mines, Golden, CO, [2]Chemical & Biological Engineering Dept., Lawrence Berkeley National Laboratory, Berkeley, CA.

2:40 **332.** Directed Self-Assembly of Dicolloids into Phononically Active Crystals. **H. Kim**[1], E. M. Furst[1], Y. Cang[2], G. Fytas[2]; [1]Chemical and Biomolecular Engineering, University of Delaware, Newark, DE, [2]Max Planck Institute for Polymer Research, Mainz, GERMANY.

Directed and Self-assembly at the Molecular Scale: Peptide Self-Assembly

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Auditorium

Organizers: L. Leon, R. Ulijn
Presiding: R. Ulijn

1:20 **333.** KEYNOTE: Interplay of Order and Disorder Directs Hierarchical Self-assembly of Thermally Sensitive Polypeptides. **A. Chilkoti**; Biomedical Engineering, Duke University, Durham, NC.

2:00 **334.** Structure and Chirality of Supramolecular Nanostructures with Peptide-Drug Amphiphiles. **M. Kang**[1], K. Chakraborty[1], H. Cui[2], S. Loverde[1,3]; [1]Chemistry, College of Staten Island, Staten Island, NY, [2]Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, MD, [3]Ph.D. Program in Chemistry, Biochemistry, and Physics, The Graduate Center of the City University of New York, New York, NY.

2:20 **335.** Coarse-Grained Molecular Dynamics Studies of the Structure and Stability of Peptide-Drug Amphiphile Filaments. M. Kang[1], A. Manandhar[1,2], H. Cui[3], **S. Loverde**[1,4]; [1]Department of Chemistry, College of Staten Island, Staten Island, NY, [2]PhD Program in Biochemistry, The Graduate Center of the City University of New York, New York, NY, [3]Department of Chemical and Biomolecular Engineering, The Johns Hopkins University, Baltimore, MD, [4]PhD Programs in Chemistry, Biochemistry, and Physics, The Graduate Center of the City University of New York, New York, NY.

2:40 **336.** MMP-9 responsive peptide nanocarriers for targeted delivery of metallodrugs. **J. Son**[1,2,3], M. Contel[2,3], R. Ulijn[1,4]; [1]Nanoscience, CUNY Advanced Science Research Center, New York, NY, [2]Department of Chemistry, Brooklyn College, Brooklyn, NY, [3]PhD Program in Chemistry, The Graduate Center, CUNY, New York, NY, [4]Chemistry Department, Hunter College, New York, NY.

Emulsions, Bubbles and Foams: Foams - II

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

1:20 **337.** KEYNOTE: Smart Pickering foams and emulsions stabilized by particles with enhanced shape and functionality. **O. D. Velev**; Department of Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC.

2:00 **338.** Foaming behavior of polymer-coated colloids: The need for thick liquid films. **K. Yu, Sr.**[1], H. Zhang[1], C. Hodges[1], S. Biggs[2], Z. Xu[3], O. Cayre[1], D. Harbottle[1]; [1]School of Chemical and Process Engineering, University of Leeds, Leeds, UNITED KINGDOM, [2]Faculty of Engineering, Architecture and Information Technology, University of Queensland, Queensland, AUSTRALIA, [3]Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, CANADA.

2:20 **339.** Mechanistic insights into foaming in lubricant base oils. **V. Chandran Suja**[1], M. Rodriguez-Hakim[1], A. Kar[2], E. Lizarraga-Garcia[2], G. G. Fuller[1]; [1]Stanford University, Stanford, CA, [2]Shell, Houston, TX.

2:40 **340.** Properties of surfactants used in fire-fighting foam formulations. **C. Hill**, J. Eastoe; Chemistry, University of Bristol, Bristol, UNITED KINGDOM.

General Papers: Functionalized Interfaces

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 207

Organizers: P. Dhar, R. Zia
Presiding: P. Dhar

1:20 **341.** Molecular properties of surface silanols at the silica/water interface: acid/base behavior and dependence on pretreatment history. **L. Dalstein**, E. Potapova, E. Tyrode; Division of Surface and Corrosion Science, KTH Royal Institute of Technology School of Chemical Science and Engineering, Stockholm, SWEDEN.

1:40 **342.** In Situ Calcium Carbonate Coating Micromodel Fabrication and Imaging Oil-Water Phase Behavior in Reservoir Rock Analogues. **S. Chang**, S. L. Eichmann, A. Gizzatov, G. M. Thomas, W. Wang; Reservoir Engineering Technology, Aramco Services Company, Cambridge, MA.

2:00 **343.** Phase Composition Control in Microsphere Supported Biomembranes. **L. Gilchrist**, E. S. Fried; Chemical Engineering, CCNY, New York, NY.

2:20 **344.** Effect of line tension on domain formation of flurocarbon alcohol at oil/water interface. **T. Takiue**[1], S. Takayose[2], K. Mitani[2], T. Ina[3], K. Nitta[3], H. Tanida[3], T. Uruga[3], S. Hiraki[2]; [1]Faculty of Arts and Science, Kyushu University, Fukuoka, JAPAN, [2]Department of Chemistry, Faculty of Science, Kyushu University, Fukuoka, JAPAN, [3]Japan Synchrotron Radiation Research, Hyogo, JAPAN.

2:40 **345.** Raman imaging of lipid bilayers. **M. Possiwan**, E. Eis, C. Bain; Department of Chemistry, Durham University, Durham, UNITED KINGDOM.

Langmuir Oral Session I

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 276

Organizers: N. Alcantar, M. Bevan, D. Velegol
Presiding: S. Anna, M. Antonietti, J. V. Vermant

1:20 **346.** Transition of film thickness from elastic foundation to half-space in elastohydrodynamic contact. **Y. Wang**, M. Tan, J. Frechette; Johns Hopkins University, Baltimore, MD.

1:40 **347.** Tunable wettability and self-cleaning of a polymer mesh toward oily water separation. **J. Xu**, S. Fu, W. Xu, E. Yang; Mechanical Engineering, Stevens Institute of Technology, Hoboken, NJ.

2:00 **348.** Dynamics of Polymer Infiltration in Capillary Rise Infiltration (CaRI). **J. Hor**[1], Y. Jiang[2], D. J. Ring[1], H. Wang[3], Z. Fakhraai[3], R. A. Riggleman[1], K. T. Turner[2], D. Lee[1]; [1]Department of Chemical and Biomolecular Engineering, University of Pennsylvania, Philadelphia, PA, [2]Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, PA, [3]Department of Chemistry, University of Pennsylvania, Philadelphia, PA.

2:20 **349.** A new class of dendrimeric “gecko legs” polymer particles with extraordinary adhesive and structure-building capabilities. **S. Roh**[1], S. D. Stoyanov[2,3], O. D. Velev[1]; [1]Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC, [2]Physical Chemistry and Soft Matter, Wageningen University, Wageningen, NETHERLANDS, [3]Department of Mechanical Engineering, University College London, London WC1E 7JE, UNITED KINGDOM.

2:40 **350.** Path-planning and structure formation inspired by the “lock-and-key” interaction. **Y. Luo**[1], F. Serra[2], K. J. Stebe[1]; [1]University of Pennsylvania, Philadelphia, PA, [2]Johns Hopkins University, Baltimore, MD.

Particles at Interfaces: Particle adsorption to liquid interfaces

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 379

Organizers: D. Harbottle, D. Lee
Presiding: M. Green

1:20 **351.** Rough particles at liquid-liquid interfaces: Arrested adsorption and universal emulsion stabilisation. **M. Zanini**[1], C. Marschelke[2], S. Anachkov[3], E. Marini[1], A. Synytska[2], L. Isa[1]; [1]Material Science, ETH Zürich, Zürich, SWITZERLAND, [2]Leibniz Institute of Polymer Research, Dresden, GERMANY, [3]Sofia University, Sofia, BULGARIA.

1:40 **352.** A Lattice Gas approach for adsorption of macromolecule surfactant at interface. **S. Darjani**[1], J. Koplik[2], V. Pauchard[1]; [1]Chemical Engineering Department and Energy Institute, City College of New York, New York, NY, [2]Department of Physics and Levich Institute, City College of New York, New York, NY.

2:00 **353.** Interfacial activity of non-amphiphilic particles at air-water and oil-water interfaces. **S. Wang**[1], Y. Zhang[2], J. Zhou[1], R. Zhao[1], G. Benz[1], S. Tcheimou[1], J. Meredith[1], S. Behrens[1]; [1]Georgia Institute of Technology, Atlanta, GA, [2]Northwestern University, Evanston, IL.

2:20 **354.** Effect of thermal treatment on asphaltene adsorption by kaolinite. **Q. Chen**[1], M. R. Gray[2], Q. Liu[1]; [1]Chemical and Materials Engineering, University of Alberta, Edmonton, AB, CANADA, [2]The Petroleum Institute, Abu Dhabi, UNITED ARAB EMIRATES.

2:40 **355.** Analysis of asphaltenes adsorption data by means of a mixture diffusional model. **F. Liu**[1,2], N. Akhmetkhanova[1,2], V. Pauchard[1,2]; [1]Chemical Engineering, The City College of New York, New York, NY, [2]Energy Institute, City University of New York, New York, NY.

Polymers and Biomacromolecules at Interfaces: Polymers at Interfaces - II

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 376

Organizers: P. Akcora, T. Kuhl
Presiding: P. Akcora

1:20 **356.** Probing the interaction of poly(ethylene-glycol)-coated silver nanoparticles with air-water interfaces and lipid monolayers. **N. Ganji**, I. Khan, G. Bothun; Chemical Engineering, University of Rhode Island, Kingston, RI.

1:40 **357.** The influence of protein- polymeric surfactant interfacial co-adsorption on thin film drainage and bubble coalescence. **A. Kannan**[1], I. C. Shieh[2], D. L. Leiske[3], C. Kofman[1], G. G. Fuller[1]; [1]Chemical Engineering, Stanford University, Stanford, CA, [2]Late Stage Pharmaceutical Development, Genentech, San Francisco, CA, [3]Early Stage Pharmaceutical Development, Genentech, San Francisco, CA.

2:00 **358.** Uranium from seawater: Graft-Chain conformation of Polymeric Adsorbent. A. Wiechert[1], W. Liao[2], E. Hong[2], C. Halbert[2], S. Yiacoumi[1], T. Saito[2], **C. Tsouris**[2]; [1]Georgia Institute of Technology, Atlanta, GA, [2]Oak Ridge National Laboratory, Oak Ridge, TN.

2:20 **359.** Interactions of Polymeric Nanomedicine with Environmentally Significant Surfaces. **M. Akbulut**; Texas A&M University, College Station, TX.

2:40 **360.** Characterization of surface interactions using multi-parametric surface plasmon resonance. A. Jokinen, N. Granqvist, **J. Kuncova-Kallio**; BioNavis Ltd, Tampere, FINLAND.

Rheology and Dynamics: Active and Aging Systems

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: D. Velegol

1:20 **361.** Superfluid behavior of active suspensions. **J. F. Brady**, S. C. Takatori; Chemical Engineering, California Institute of Technology, Pasadena, CA.

1:40 **362.** Controlling the dynamics of actuated semi-flexible colloidal particle chains. **S. Kuei**, S. L. Biswal; Rice University, Houston, TX.

2:00 **363.** Linear viscoelasticity of a dilute active suspension. T. M. Bechtel, **A. S. Khair**; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.

2:20 **364.** A thixotropic model for transient blood rheology. **J. S. Horner**[1], A. N. Beris[1], N. J. Wagner[1], D. S. Woulfe[2]; [1]Chemical & Biomolecular Engineering, University ofDelaware, Newark, DE, [2]Biological Sciences, University ofDelaware, Newark, DE.

2:40 **365.** A constitutive equation for thixotropic suspensions with yield stress by coarse-graining a population balance model. P. Mwasame, A. Beris, **N. Wagner**; University of Delaware, Newark, DE.

Wetting and Adhesion: Application II

Tuesday, July 11, 2017, 1:20 PM - 3:00 PM
Shepard Hall 275

Organizers: D. Hu, N. Pesika
Presiding: Y. Min

1:20 **366.** Mix-and-melt core-shell colloids. **T. Hueckel**[1], Z. Xu[1], J. Kim[2], S. Sacanna[1]; [1]Chemistry, New York University, New York, NY, [2]Chemistry, Sungkyunkwan University, Seoul, KOREA, REPUBLIC OF.

1:40 **367.** In-situ precipitation for enhanced retention of droplets. **M. Damak**, S. Mahmoudi, M. Hyder, K. Varanasi; Massachusetts Institute of Technology, Cambridge, MA.

2:00 **368.** Droplet wetting transitions on inclined substrates in the presence of external shear and substrate permeability. L. Espin, **S. Kumar**; Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

2:20 **369.** Effect of particle size distribution on the wetting behavior of pharmaceutical powders measured by the droplet penetration method. **Y. Han**; Department of Chemical and Biochemical Engineering, Rutgers University, piscataway, NJ.

2:40 **370.** Photocatalytically active PDMS-coated-TiO_2 and its use in lubricant impregnated surfaces. S. Wooh, N. Encinas, D. Vollmer, **H. J. Butt**; Max Planck Institute for Polymer Research, Mainz, GERMANY.

Colloids and Surface Science in Medicine and Personal Care Products: Novel Colloidal Systems for Medical Applications

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Shepard Hall 203

Organizers: S. Herman, K. Rege
Presiding: K. Rege

3:20 **371.** KEYNOTE: Tools for accelerated innovation. **J. Karp**; Brigham and Women's Hospital, Boston, MA.

4:00 **372.** Synthesis and characterization of 10 nm hollow gold nanoshells. **J. A. Zasadzinski**, J. Shin, M. Ogunyankin; Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

4:20 **373.** Quantifying the effects of nanoparticle surface ligand density on tumor-targeted and off-site delivery. **L. Z. Wang**[1], H. D. Lu[1], T. L. Lim[1], B. K. Wilson[1], A. Heinmiller[2], R. K. Prud'homme[1]; [1]Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Chemical and Biological Engineering, FUJIFILM VisualSonics, Toronto, ON, CANADA.

4:40 **374.** Ultrasmall core-shell nanostructures for bimodal NIR optical-T_1 MR imaging. **J. A. Damasco**[1,2], T. Ohulchanskyy[2,3], G. Chen[2], H. Kutscher[2], F. Schweser[4,5], P. Prasad[1,2]; [1]Chemistry, University at Buffalo, The State University of New York, Buffalo, NY, [2]Institute for Lasers Photonics and Biophotonics, University at Buffalo, The State University of New York, Buffalo, NY, [3]College of Optoelectronic Engineering, Shenzhen University, Shenzhen, CHINA, [4]Neurology, University at Buffalo, The State University of New York, Buffalo, NY, [5]MRI Clinical and Translational Research Center, University at Buffalo, The State University of New York, Buffalo, NY.

Directed and Self-assembly at the Colloidal Scale: External field directed assembly

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: K. Bishop

3:20 **375.** Effect of Shape Asymmetry on the Packing Structure of Electric-Field Assembled Two-Dimensional Colloidal Crystals. **Z. jia**[1], S. Sacanna[2], S. S. Lee[1]; [1]Department of Chemical Engineering and Materials Science, Stevens institute of technology, JERSEY CITY, NJ, [2]Department of Chemistry, New York University, New York, NY.

3:40 **376.** Armoring confined bubbles in the flow of colloidal suspension. **Y. E. Yu**, S. Khodaparast, H. A. Stone; Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ.

4:00 **377.** Selective positioning of hierarchical reinforcement in polypropylene-alumina-CNT composites. **J. L. Faust**, M. L. Minus, R. M. Erb; Materials Science, Northeastern University, Boston, MA.

4:20 **378.** Directed assembly of patchy particles: Toward new colloidal molecules and colloidal crystals. **P. Rouet**[1], E. Duguet[2], S. Ravaine[1]; [1]Centre de Recherche Paul Pascal - CNRS, France, FRANCE, [2]Institut de Chimie de la Matière Condensée de Bordeaux - CNRS, France, FRANCE.

4:40 **379.** Anisotropic particle interactions with surfaces, other particles, and external fields. **I. Torres Diaz**, B. Rupp, M. A. Bevan; Department of Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, MD.

Directed and Self-Assembly at the Molecular Scale: Surfactants and Lubricants

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Auditorium

Organizers: L. Leon, R. Ulijn
Presiding: R. Ulijn

1:20 **380.** Insight into acidity driven third phase formation of TBP in organic solutions by MD simulation. **A. D. Kanthe**[1,2], M. B. Singh[2], V. G. Gaikar[2]; [1]Chemical Engineering, City University of New York, City College, New York, NY, [2]Chemical Engineering, Institute of Chemical Technology, Mumbai, INDIA.

1:40 **381.** Gemini-like amphiphiles formed in aqueous mixtures of dicarboxylic acid and alkylamine: Interfacial chemical properties and applications. **H. Sakai**, A. Manabe, R. Michikawa, M. Akamatsu, K. Tsuchiya, K. Sakai; Faculty of Science and Technology, Tokyo University of Science, Noda, Chiba, JAPAN.

2:00 **382.** Platonic micelles: monodisperse micelles with discrete aggregation numbers corresponding to regular polyhedra. **K. Sakurai**; Department of Chemistry and Biochemistry, University of Kitakyushu, Kitakyushu, JAPAN.

2:20 **383.** The free energy of adsorption of lubricant additives on iron oxide surfaces. **A. Jaishankar**, A. Jusufi, J. Vreeland, S. Deighton, A. Schilowitz; ExxonMobil Research and Engineering, Annandale, NJ.

2:40 **384.** Atomisctic simulations of the coil-globule transition of polystyrene chains in solution. **T. Morozova**, A. Nikoubashman; Johannes Gutenberg University Mainz, Mainz, GERMANY.

Emulsions, Bubbles and Foams: Emulsions - I

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

3:20 **385.** Twist fluctuations and rotational diffusion of the director near hedgehog defects in nematic droplets. **A. de la Cotte**[1], P. J. Collings[2], T. C. Lubensky[1], A. G. Yodh[1]; [1]Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA, [2]Department of Physics and Astronomy, Swarthmore College, Swarthmore, PA.

3:40 **386.** Arrested Collapse of Non-Spherical Viscoelastic Droplets: Microstructure and Stability. **V. Poulichet**[1], M. Terkel[1], D. Traini[2], P. Young[2], P. Spicer[1]; [1]Chemical Engineering, UNSW Autralia, Sydney, AUSTRALIA, [2]Woolcock Institute of Medical Research, The University of Sydney, Sydney, AUSTRALIA.

4:00 **387.** Path dependent self-assembly of crystalline emulsions three-dimensional microfluidic flows. **P. Parthiban**[1,2], M. Hashimoto[2], P. S. Doyle[1]; [1]Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, [2]Engineering Product Development, Singapore University of Technology and Design, Singapore, SINGAPORE.

4:20 **388.** Packing structure of monodisperse compressed emulsions and resultant polyhedral microgels. **J. Fan**[1], S. Kim[2], D. Weitz[3]; [1]City College of CUNY, New York, NY, [2]KAIST, Daejeon, KOREA, REPUBLIC OF, [3]Harvard University, Cambridge, MA.

4:40 **389.** Designing functional emulsions with internal structures. **T. A. Prileszky**, E. M. Furst; Chemical and Biomolecular Engineering, University of Delaware, Philadelphia, PA.

General Papers: Charge, Chemistry and Colloids

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Shepard Hall 207

Organizers: P. Dhar, R. Zia
Presiding: C. Wirth

3:20 **390.** Complex of polyethyleneimine and anionic surfactant as a surface modifier usable under various nanoparticle processing conditions. **M. Iijima**, M. Kataoka, T. Tsutsumi, J. Tatami; Graduate School of Environment and Information Sciences, Yokohama National University, Yokohama, JAPAN.

3:40 **391.** The mechanochemistry in the enhancement of ferroelectric properties of BaTiO3 nanoparticles. **Y. A. Barnakov**[1], F. Williams[1], I. Idehenre[2,3], S. A. Basun[2,3], R. Ziolo[4], D. Evans[2]; [1]School of Engineering, Tennessee State University, Nashville, TN, [2]Materials and Manufacture Directorate, Air Force Research Laboratory, Wright Patterson AFB, OH, [3]Azimuth Corporation, Beavercreek, OH, [4]Centro de Investigasion Quimica Aplicada, Saltillo, Coahuila, MEXICO.

4:00 **392.** Planarization (CMP) process challenges for BEOL interconnects in 7nm & beyond semiconductor manufacturing nodes. **P. S. Bhosale**, R. Patlolla, C. B. Peethala, K. Motoyama, N. A. Lazillo; IBM Research, Albany, NY.

4:20 **393.** Water treatment and coagulant optimization using on-line zeta potential. **A. Morfesis**; Malvern Instruments, Inc, Pittsburgh, PA.

4:40 **394.** Ionization of nonpolar liquids by adding amphiphiles: Surfactants, alcohols. **S. Parlia**[1,2], A. Dukhin[2], P. Somasundaran[1]; [1]Earth and Environmental Engineering, Columbia University, New York, NY, [2]Dispersion Technology Inc., Bedford Hills, NY.

Langmuir Oral Session II

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Shepard Hall 276

Organizers: N. Alcantar, M. Bevan, D. Velegol
Presiding: S. Anna, M. Antonietti, J. V. Vermant

3:20 **395.** A New Class of Active Colloidal Structures Assembled from Metallo-Dielctric Patchy Microcubes. **K. Han**[1], C. W. Shields[1,2], B. Bharti[1,3], G. P. López[4], P. E. Arratia[5], O. D. Velev[1]; [1]Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC, [2]Mechanical Engineering and Materials Science, Duke University, Durham, NC, [3]Chemical Engineering, Louisiana State University, Baton Rouge, LA, [4]Chemical and Biological Engineering, University of New Mexico, Albuquerque, NM, [5]Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, PA.

3:40 **396.** Surfactant self-assembly in deep eutectic solvents. **A. Sanchez-Fernandez**[1,2], A. J. Jackson[2], T. Arnold[3], K. J. Edler[1]; [1]University of Bath, Bath, UNITED KINGDOM, [2]European Spallation Source, Lund, SWEDEN, [3]Diamond Light Source, Didcot, UNITED KINGDOM.

4:00 **397.** Influence of salt on stratification in micellar foam films. **S. Yilixiati**, Y. Zhang, R. Rafiq, V. Sharma; Chemical Engineering, University of Illinois at Chicago, Chicago, IL.

4:20 **398.** Modeling a hydrodynamic instability in freely settling colloidal gels. **Z. Varga**, J. L. Hofmann, J. W. Swan; Chemical Engineering, MIT, Cambridge, MA.

4:40 **399.** Toward a Langevin dynamics approach for metastable wetting and adhesion in colloidal and multiphase systems. **A. M. Rahmani**, C. E. Colosqui; Mechanical Engineering, Stony Brook University, Stony Brook, NY.

Particles at Interfaces: Applications of particle-laden interfaces

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Shepard Hall 379

Organizers: D. Harbottle, D. Lee
Presiding: B. Lin

3:20 **400.** Engineering Pickering O/W emulsions with intact or fused whey protein microgel particles: Towards controlled lipid digestion. **A. Sarkar**, B. Murray, M. Holmes, R. Ettalaie; Food Colloids and Processing Group, School of Food Science and Nutrition, University of Leeds, Leeds, UNITED KINGDOM.

3:40 **401.** Hydrate growth inhibition by anti-adhesive effects of hydrophobic silica nanoparticles at the water-oil interface. **J. Min**, S. Baek, J. W. Lee; Chemical & Biomolecular Eng, KAIST, Daejeon, KOREA, REPUBLIC OF.

4:00 **402.** Microwave induced heating of Carbon Nanotubes localized at 3D-printed thermoplastic interfaces. **M. Green**[1], C. B. Sweeney[1], M. Saed[2]; [1]Texas A&M University, College Station, TX, [2]Texas Tech University, Lubbock, TX.

4:20 **403.** Encapsulation and controlled-release using particle-stabilized water-in-air powders. R. Singh, **K. Panthi**, K. K. Mohanty; Petroleum and Geosystems Engineering, The University of Texas at Austin, Austin, TX.

4:40 **404.** Deterministic lateral displacement systems with anchored liquid bridges. **S. Du**[1], S. Shojaei-Zadeh[2], G. Drazer[1]; [1]Mechanical Engineering, Rutgers University, Piscataway, NJ, [2]Mechanical Engineering, Rutgers University, Picataway, NJ.

Polymers and Biomacromolecules at Interfaces: Biomolecules and Polymers at Interfaces - III

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Shepard Hall 376

Organizers: P. Akcora, T. Kuhl
Presiding: T. Kuhl

3:20 **405.** Identifying and Classifying DNA aptamers for Phosphatase Proteins. **V. Milam**[1], R. Sullivan[1], J. Peraza[1], L. Kippner[2], A. Bronson[1], Y. Manoharan[2], M. Kemp[2]; [1]Materials Science & Engineering, Georgia Institute of Technology, Atlanta, GA, [2]Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA.

3:40 **406.** Confinement effect on structure and elasticity of proteins interfacing polymers. **H. Wang**, P. Akcora; Department of Chemical Engineering and Materials Science, Stevens Institute of Teqchnology, Hoboken, NJ.

4:00 **407.** Interdependent conformational changes of proteins and oil molecules at oil-'protein solution' interface. P. Patra, **P. Somasundaran**; Columbia University, New York, NY.

4:20 **408.** Effect of water hardness on adsorption of fractionated *Moringa oleifera* seed protein extracts to silica surfaces. **B. A. Nordmark**[1], T. M. Bechtel[1], T. M. Przybycien[1,2], R. D. Tilton[1,2], D. Velegol[3], S. B. Velegol[3]; [1]Center for Complex Fluids Engineering, Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, [2]Center for Complex Fluids Engineering, Department of Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA, [3]Department of Chemical Engineering, The Pennsylvania State University, University Park, PA.

4:40 **409.** Structure of proteins and phospholipid monolayers in deep eutectic solvents. **A. Sanchez-Fernandez**[1,2], T. Arnold[3], A. McCluskey[1,3], A. Jackson[2], K. Edler[1]; [1]Department of Chemistry, University of Bath, Bath, UNITED KINGDOM, [2]European Spallation Source, Lund, SWEDEN, [3]Diamond Light Source, Didcot, UNITED KINGDOM.

Rheology and Dynamics: Interacting Polymers, Particles and Gels

Tuesday, July 11, 2017, 3:20 PM - 5:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: A. Khair

3:20 **410.** The unique mechanism of covalently adaptable hydrogel degradation characterized with multiple particle tracking microrheology. F. Esocobar[1], K. S. Anseth[2], **K. M. Schultz**[1]; [1]Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA, [2]Chemical and Biological Engineering, University of Colorado at Boulder, Boulder, CO.

3:40 **411.** Multiple particle tracking microrheology of thermally gelling nanoemulsions. **L. Cheng**[1], L. C. Hsiao[2], P. S. Doyle[1]; [1]Massachusetts Institute of Technology, Cambridge, MA, [2]North Carolina State University, Raleigh, NC.

4:00 **412.** Linear viscoelasticity and creep-recovery of complementary-DNA-strand crosslinked polyacrylamide hydrogels. **C. Du**, R. J. Hill; Chemical Engineering, McGill University, Montreal, QC, CANADA.

4:20 **413.** Mechanical Evolution in alpha helical peptide tethered linear- and star-block PEG. **S. O'Neill**, R. Tu; City College of New York, New York, NY.

4:40 **414.** Structure, Microrheology and Instability of Fibrin Clot Infected by *Staphylococcus epidermidis*. **T. M. Ma**[1], J. VanEpps[2], M. J. Solomon[1]; [1]Chemical Engineering, University of Michigan, Ann Arbor, Ann Arbor, MI, [2]Emergency Medicine, University of Michigan, Ann Arbor, Ann Arbor, MI.

Unilever Award Lecture

Tuesday, July 11, 2017, 5:15 PM - 6:05 PM
Great Hall

Organizers: I. Kretzschmar, G. John, R. Tu
Presiding: P. Somasundaran

5:15 **415.** UNILEVER: Self-assembling nanocomposite tectons. **R. Macfarlane**; Department of Materials Science and Engineering, Massachusetts Institute of Technology, Boston, MA.

Victor K. LaMer Award Lecture

Wednesday, July 12, 2017, 8:30 AM - 9:20 AM
Great Hall

Organizers: G. John, I. Kretzschmar, R. Tu
Presiding: J. Frechette

8:30 **416.** LAMER: Understanding and Engineering Molecular Interactions at 2D Materials Interfaces. **C. Shih**; Institute of Chemical and Bioengineering, ETH - Zurich, Zurich, SWITZERLAND.

Colloids and Surface Science in Medicine and Personal Care Products: Science Applied to Issues in Medical Applications and Personal Care

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Shepard Hall 275

Organizers: S. Herman, K. Rege
Presiding: E. Kaufman, K. Rege

9:40 **417.** Destabilizing hand sanitizer: Salt induced microgel collapse. **A. Nowbahar**[1], A. O'Connor[2], V. Mansard[3], P. Spicer[4], T. Squires[1]; [1]Chemical Engineering, University of California Santa Barbara, Santa barbara, CA, [2]Merck Sharp & Dohme Corp, Ballydine Co., IRELAND, [3]Laboratory for Analysis and Architecture of Systems, Toulouse, FRANCE, [4]Chemical Engineering, University of New South Wales, Sydney, AUSTRALIA.

10:00 **418.** Complexation effects on antimicrobial-microgel interactions. **J. Liang**, M. Libera; Chemical Engineering and Materials Science, Stevens Institute of Technology, Hoboken, NJ.

10:20 **419.** Design of a cholesterol-binding peptide to inhibit bacterial toxin activity. E. Koufos, **A. C. Brown**; Lehigh University, Bethlehem, PA.

10:40 **420.** Semi-amorphous curcumin nano-particles with enhanced antioxidative and anti-bacterial properties. **D. No**, P. Takhistov; Rutgers University, New Brunswick, NJ.

11:00 **421.** Beta-glucan for therapeutic functional oligonucleotides: immunocyte targeting DDS with dectin-1. **K. Sakurai**, S. Mochizuki; University of Kitakyushu, Kitakyushu, JAPAN.

11:20 **422.** Novel hybrid nanomaterials based on the conjugation of polymeric amphiphiles to boron nitride nanotubes for drug delivery applications. D. Abu Saleh[1], J. Niskanen[2], Y. Xue[3], D. Golberg[3], F. Winnik[4], **A. Sosnik**[1]; [1]Department of Materials Science and Engineering, Technion-Israel Institute of Technology, Haifa, ISRAEL, [2]Faculty of Pharmacy, University of Helsinki, Helsinki, FINLAND, [3]MANA, National Institute of Materials Science (NIMS), Tsukuba, JAPAN, [4]Faculty of Pharmacy, University of Montreal, Montreal, QC, CANADA.

11:40 **423.** Adsorption of Polysorbate 20 and Proteins on Hydrophobic Surfaces by Neutron Reflectometry. **Z. Zhang**[1,2], A. Woys[3], S. Orski[2], I. Zarraga[3], G. Yuan[4,2], N. Wagner[1], Y. Liu[1,2]; [1]University of Delaware, Newark, DE, [2]NIST, Gaithersburg, MD, [3]Genentech, San Francisco, CA, [4]University of Akron, Akron, OH.

Directed and Self-assembly at the Colloidal Scale: Evaporation induced assembly - I

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: S. Lee

9:40 **424.** Formation of Vertical Stripes and Hybrid Patterns of Colloidal Particles by Convective Self-Assembly. **S. Watanabe**, K. Shimizu, M. Miyahara; Chemical Engineering, Kyoto University, Kyoto, JAPAN.

10:00 **425.** Vibration-assisted convective deposition of binary suspensions for structured coatings. T. Kaewpetch, **J. Gilchrist**; Department of Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA.

10:20 **426.** Understanding evaporation-induced colloidal crystallization by machine learning. **W. Reinhart**[1], M. Howard[1], A. Nikoubashman[2], A. Panagiotopoulos[1]; [1]Chemical & Biological Engineering, Princeton University, Princeton, NJ, [2]Institute of Physics, Johannes Gutenberg University Mainz, Mainz, GERMANY.

10:40 **427.** Evaporation-induced stratification in binary mixtures of nanoparticles. **S. Cheng**[1], Y. Tang[1], G. S. Grest[2]; [1]Physics, Virginia Tech, Blacksburg, VA, [2]Sandia National Laboratories, Albuquerque, NM.

11:00 **428.** Post-deposition coffee ring formation in droplets on thin polyester films. **S. Islam**, O. D. Velev; Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC.

11:20 **429.** Crack propagation in anisotropic composites textured by directed-assembly of micron-size particles. **C. Pan**[1], A. Mesgarnejad[2], R. Erb[1], S. Shefelbine[1], A. Karma[2]; [1]Mechanical and Industrial Engineering Department, Northeastern University, Boston, MA, [2]Physics Department, Northeastern University, Boston, MA.

11:40 **430.** Micro-evaporators: A powerful tool to control the growth of dense organized colloidal materials A powerful tool to control the growth of dense organized colloidal materials. **C. Burel**; UPenn/CNRS/Solvay, Philadelphia, PA.

Directed and Self-assembly at the Molecular Scale: Low Molecular Weight Gelatores an gels

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Auditorium

Organizers: L. Leon, R. Ulijn
Presiding: R. Ulijn

9:40 **431.** KEYNOTE: Using self-assembly in localised cancer drug therapeutics. **M. Marlow**; School of Pharmacy, University of Nottingham, Nottingham, UNITED KINGDOM.

10:20 **432.** Designing multifunctional sugar alcohol-based oleogels as solid fat substitutes. **M. Samateh**[1,2], S. S. Sagiri[1], R. Sanni[1], D. Pulido[1], G. John[1,2]; [1]Department of Chemistry & Center for Discovery and Innovation (CDI), The City College of New York, New York, NY, [2]Ph.D. Program in Chemistry, The Graduate Center of the City University of New York, New York, NY.

10:40 **433.** LAMER: Polymer metal-organic-cage gels. **A. V. Zhukhovitskiy**[1], J. Zhao[2], M. Zhong[3], E. Keeler[2], E. Alt[2], P. Teichen[2], R. G. Griffin[2], M. Hore[2], A. P. Willard[2], J. A. Johnson[2]; [1]Chemistry, UC Berkeley, Berkeley, CA, [2]Chemistry, MIT, Cambridge, MA, [3]Chemical and Environmental Engineering, Yale University, New Haven, CT.

Electrokinetics and Microfluidics: Interfacial and Microfluidic Flows

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Shepard Hall 381

Organizers: K. Bishop, A. Khair
Presiding: K. Bishop

9:40 **434.** KEYNOTE: From trees to clouds: The roles of nanoporous materials in mediating transport processes and phase behavior in the environment. **A. Stroock**; Chemical and Biomolecular Engineering, Cornell University, Ithaca, NY.

10:20 **435.** The Effect of Tilt Angle Orientation on the Meaurement of Interfacial Tension at the Microscale. **Z. R. Hinton**, N. J. Alvarez; Chemical and Biological Engineering, Drexel University, Philadelphia, PA.

10:40 **436.** Graphene Microfluidics for Room Temperature Crystallography. **S. L. Perry**; Department of Chemical Engineering, University of Massachusetts Amherst, Amherst, MA.

11:00 **437.** Microfluidic droplet-based tool to rapidly map phase behavior of an organic-inorganic system. **B. J. Bleier**[1], L. M. Walker[2], S. L. Anna[2]; [1]Carnegie Mellon University, Pittsburgh, PA, [2]Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.

11:20 **438.** Microfluidic desalination on a chip: Influence of geometry. **A. M. Benneker**[1], B. C. Gumuscu[2], S. S. Haase[1], J. A. Wood[1], J. C. Eijkel[2], R. G. Lammertink[1]; [1]Soft Matter, Fluidics and Interfaces, University of Twente, Enschede, NETHERLANDS, [2]BIOS Lab-on-a-Chip Group, University of Twente, Enschede, NETHERLANDS.

Emulsions, Bubbles and Foams: Emulsions - II

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

9:40 **439.** KEYNOTE: Microstructure and rheology of solid-stabilized emulsions: From concentrated systems to biliquid foams. **M. Kaganyuk**, A. Mohraz; Chemical Engineering and Materials Science, University of California, Irvine, CA.

10:20 **440.** Ultrasound synthesis of nano Pickering emulsions investigated via in situ SAXS. **Y. Lee**, D. S. Li, L. D. Pozzo; Chemical Engineering, University of Washington, Seattle, WA.

10:40 **441.** Emulsion stabilized by particle mixtures: Influence of hydrophobicity distribution. **Q. Chen**[1], M. R. Gray[2], Q. Liu[1]; [1]Chemical and Materials Engineering, University of Alberta, Edmonton, AB, CANADA, [2]The Petroleum Institute, Abu Dhabi, UNITED ARAB EMIRATES.

11:00 **442.** Preparation of novel film forming polymer latexes using colloidal nanoparticles as emulsion stabilisers. **H. Shiraz**[1], N. Cameron[2], R. Tabor[3]; [1]Materials Engineering/ Chemistry, Monash University, Clayton, AUSTRALIA, [2]Materials Engineering, Monash University, Clayton, AUSTRALIA, [3]Chemistry, Monash University, Clayton, AUSTRALIA.

11:20 **443.** Nonionic surfactant-particle interactions - competition between synergy and antagonism in emulsion stabilization. **H. Katepalli**[1,2], A. Bose[3], A. Hatton[2], D. Blankschtein[2]; [1]Formulation Science, The Dow Chemical Company, Midland, MI, [2]Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, [3]Chemical Engineering, University of Rhode Island, Kingston, RI.

11:40 **444.** Transient stability of the Water-in-oil emulsion using partially reduced Graphene oxide. **T. D. Gamot**[1,2,3], A. R. Bhattacharyya[2], T. Sridhar[4], F. Beach[5], G. Rigby[5], R. Tabor[6], M. Majumder[3]; [1]IITB-Monash Research Academy, IIT Bombay, Powai, Mumbai 400076, INDIA, [2]Metallurgical Engineering and Materials Science Department, IIT Bombay, Powai, Mumbai 400076, INDIA, [3]Nanoscale Science and Engineering Laboratory, Mechanical and Aerospace Engineering Department, Monash University, Clayton, VIC 3800, AUSTRALIA, [4]Chemical Engineering Department, Monash University, Clayton, VIC 3800, AUSTRALIA, [5]Orica Mining Services, George Booth Drive, NSW 2327, AUSTRALIA, [6]School of Chemistry, Monash University, Clayton, VIC 3800, AUSTRALIA.

Environmental Catalysis and Energy Science: Carbon capture and conversion & Carbon-free fuel synthesis

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Shepard Hall 204

Organizers: F. Jiao, A. Park
Presiding: F. Jiao

9:40 **445.** KEYNOTE: Converting Carbon Dioxide by Catalysis & Electrocatalysis. **J. Chen**; Columbia University, New York, NY.

10:20 **446.** CO2 electrochemical reduction on porous carbon. T. Bandosz[1], **W. Li**[2]; [1]CCNY/CUNY, New York, NY, [2]Ph.D. Program in Chemistry, CUNY, New York, NY.

10:40 **447.** Novel liquid-like nano-scale hybrid materials for combined CO_2 capture and conversion. M. Gao, **A. Park**; Columbia University, New York, NY.

11:00 **448.** Polymers as a novel platform for CO_2 electroreduction. **I. Chernyshova**[1], P. Somasundaran[1], S. Ponnurangam[2]; [1]Columbia University, New York, NY, [2]University of Calgary, Calgary, AB, CANADA.

11:20 **449.** Hierarchical catalyst for hydrogen production. **P. Taboada-Serrano**[1], X. Li[2], C. Tsouris[3]; [1]Chemical Engineering, Rochester Institute of Technology, Rochester, NY, [2]Microsystems Engineering, Rochester Institute of Technology, Rochester, NY, [3]Oak Ridge National Laboratory, Oak Ridge, TN.

11:40 **450.** Engineered nanoporous materials for enhanced CO_2 capture and separations. **T. Bae**; Chemical and Biomedical Engineering, Nanyang Technological University, Singapore, SINGAPORE.

General Papers: Directed Assembly

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Shepard Hall 203

Organizers: P. Dhar, R. Zia
Presiding: K. Schultz

9:40 **451.** Self-assembly of multi-flavored DNA-functionalized particles into binary superlattices. **H. Zerze**[1], N. Mahynski[2], E. Pretti[1], V. Shen[2], J. Mittal[1]; [1]Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA, [2]Chemical Sciences Division, National Institute of Standards and Technology, Gaithersburg, MD.

10:00 **452.** Novel techniques for etching and morphology manipulation of MXene nanosheets. **M. Green**, S. Shah, W. Sun, M. Radovic; Texas A&M University, College Station, TX.

10:20 **453.** Modulating the surfactant structure around single wall carbon nanotubes for selective interactions with hydrogel surfaces. **K. Ziegler**[1], Y. Zhao[1], J. Xu[1], J. Bonzongo[1], J. Clar[2]; [1]University of Florida, Gainesville, FL, [2]Elon University, Elon, NC.

10:40 **454.** Functional Janus tubes. **M. Youssef**, S. Sacanna; New York University, New York, NY.

11:00 **455.** Colloidal Aggregation of Asphaltenes Studied through Computer Simulations. **K. P. Santo**, A. Vishnyakov; Chemical & Biochemical Engineering, Rutgers, the State University of New Jersey, Piscataway, NJ.

11:20 **456.** Highly effective adsorption of Cs^+ from aqueous solutions by the immobilization of potassium copper hexacyanoferrate in a cellulose-based hydrogel. **Y. Kim**[1], Y. Kim[1], S. Kim[1], D. Harbottle[2], J. W. Lee[1]; [1]Chemical & Biomolecular Eng, KAIST, Daejeon, KOREA, REPUBLIC OF, [2]University of Leeds, Leeads, UNITED KINGDOM.

11:40 **457.** Identifying Secondary Structure Patterns Among Gold Nanorod DNA Aptamers Selected via CompELS Screening. **V. Milam**[1], R. Sullivan[1], P. Dennis[2], R. Naik[2]; [1]Materials Science & Engineering, Georgia Institute of Technology, Atlanta, GA, [2]AFRL, WPAFB, OH.

Particles at Interfaces: Particle interactions at fluid interfaces

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Shepard Hall 379

Organizers: D. Harbottle, D. Lee
Presiding: D. Harbottle, H. Zhang

9:40 **458.** KEYNOTE: Understanding Petroleum Emulsions. **Z. Xu**[1], D. Harbottle[2], Q. Liu[1], J. Masliyah[1]; [1]Chemical and Materials Engineering, University of Alberta, Edmonton, AB, CANADA, [2]School of Chemical and Process Engineering, University of Leeds, Leeds, UNITED KINGDOM.

10:20 **459.** Capillary interactions between dynamically forced particles adsorbed at fluid fluid interface. **M. De Corato**, A. Huerre, V. Garbin; Chemical Engineering, Imperial College London, London, UNITED KINGDOM.

10:40 **460.** Colloidal Hydrodynamics At A Fluid-Fluid Interface. A. Dani[1], **C. Maldarelli**[2]; [1]University of Minnesota, Minneapolis, MN, [2]City College of New York, New York, NY.

11:00 **461.** Molecular dynamics simulation on particle re-entrainment by a moving contact line. **T. Yin**[1], J. Frechette[2], C. Colosqui[3], G. Drazer[4]; [1]Chemical and Biochemical Engineering, Rutgers University, PISCATAWAY, NJ, [2]Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, MD, [3]Mechanical Engineering, Stony Brook University, Stony Brook, NY, [4]Mechanical & Aerospace Engineering, Rutgers University, PISCATAWAY, NJ.

11:20 **462.** Nanoparticle motion at liquid/vapor interfaces. **J. Koplik**[1], C. Maldarelli[2]; [1]Physics, City College of New York, New York, NY, [2]Chemical Engineering, City College of New York, New York, NY.

11:40 **463.** Effect of film thickness on stokes flow past a spherical particle along the fluid-fluid Surface of a thin liquid film. **S. Das**[1], R. Farinato[2], D. Nagaraj[2], C. Maldarelli[3], J. Koplik[3], P. Somasundaran[1]; [1]Langmuir Center of Colloids and Interfaces, Columbia University, New York, NY, [2]Solvay Technology Solutions, Stamford, CT, [3]Chemical Engineering, Levich Institute, City University of New York, New York, NY.

Rheology and Dynamics: Interfacial Rheology

Wednesday, July 12, 2017, 9:40 AM - 12:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: J. Frostad

9:40 **464.** Modulation of Dilatational Rheology with Interfacial Curvature and Phase Morphology. **A. K. Sachan**, J. A. Zasadzinski; Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN.

10:00 **465.** Rheology and morphology of mixed monolayers of lung surfactant and serum protein. **I. Williams**, T. M. Squires; Chemical Engineering, University of California, Santa Barbara, Santa Barbara, CA.

10:20 **466.** To yield or not to yield: Predicting and measuring non-Newtonian responses of DPPC monolayers to steady shear. **A. Raghunandan**[1], P. T. Underhill[2], J. M. Lopez[3], A. H. Hirsa[1]; [1]Mechanical Engineering (MANE), Rensselaer Polytechnic Institute, Troy, NY, [2]Chemical and Biological Engineering (CHBE), Rensselaer Polytechnic Institute, Troy, NY, [3]Mathematics, Arizona State Univeristy, Tempe, AZ.

10:40 **467.** Morphological and mechanical studies of multicomponent phospholipid monolayers containing 27-hydroxycholesterol. **B. L. Stottrup**[1], A. K. Sachan[2], J. A. Zasadzinski[2]; [1]Physics, Augsburg College, Minneapolis, MN, [2]Department of Chemical Engineering & Materials Science, University of Minnesota, Minneapolis, MN.

11:00 **468.** In-situ SANS: Rheology of complex fluids in a slit rheometer. **K. Weigandt**[1], J. Weston[2,1], S. D. Hudson[1]; [1]National Institute of Standards and Technology, Gaithersburg, MD, [2]Georgetown University, Washington, DC.

11:20 **469.** Self-assembly of particle strings at a fluid interface driven by ultrafast deformation. **A. Huerre**, M. De Corato, V. Garbin; Chemical Engineering, Imperial College London, London, UNITED KINGDOM.

11:40 **470.** Bulk fluid mixing using surface shear viscosity. **S. Gulati**[1], A. Hirsa[1], J. Lopez[2]; [1]MANE, Rensselaer Polytechnic Institute, Troy, NY, [2]School of Mathematics and Statistics, Arizone State University, Tempe, AZ.

Directed and Self-assembly at the Colloidal Scale: Evaporation induced assembly - Session II

Wednesday, July 12, 2017, 1:20 PM - 3:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: S. Watanabe

1:20 **471.** Morphological control of melting gel materials by electrospray deposition. **L. Lei**[1], J. Ryu[1], K. A. Marzoki[1], D. Sullivan[1], M. Kareem[1], L. Klein[1], A. Pelegri[1], J. P. Singer[1], G. Rodriguez[2], A. Jitianu[2]; [1]Rutgers University, New Brunswick, NJ, [2]Lehman College-CUNY, New York, NY.

1:40 **472.** Estimation of drying length during particle assembly by convective deposition. K. Joshi, **J. Gilchrist**; Department of Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA.

2:00 **473.** Structural evolution of the surface pattern in an evaporating nanofluid sessile drop: An *in situ* synchrotron GIXS study. **P. Wasik**[1], W. H. Briscoe[2]; [1]Bristol Centre for Functional Nanomaterials, University of Bristol, Bristol, UNITED KINGDOM, [2]School of Chemistry, University of Bristol, Bristol, UNITED KINGDOM.

2:20 **474.** 3D printing of adaptive, structured liquids. **J. Forth**[1], K. Miszta[2], A. Toor[3], B. A. Helms[1,2], T. P. Russell[4,1,5]; [1]Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA, [2]Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA, [3]Materials Sciences Division, Berkeley, CA, [4]Polymer Science and Engineering Department, University of Massachusetts, Amherst, MA, [5]Beijing Advanced Innovation Center for Soft Matter Science and Engineering, Beijing University of Chemical Technology, Beijing, CHINA.

Electrokinetics and Microfluidics: Electrohydrodyamics and Phoretic Motion

Wednesday, July 12, 2017, 1:20 PM - 3:00 PM
Shepard Hall 381

Organizers: K. Bishop, A. Khair
Presiding: A. Khair

1:20 **475.** KEYNOTE: Electrohydrodynamic instabilities of viscous drops. **P. Vlahovska**; Northwestern University, Evanston, IL.

2:00 **476.** The role of surface charge convection in the electrohydrodynamics and breakup of prolate drops. **R. Sengupta**, L. M. Walker, A. S. Khair; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.

2:20 **477.** Diffusiophoresis of a charged drop. **F. Yang**[1], S. Shin[2], H. A. Stone[1]; [1]Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ, [2]Department of Mechanical Engineering, University of Hawaii at Manoa, Honolulu, HI.

2:40 **478.** Colloid Transport by Diffusiophoresis in Composite Solute Gradients. **N. Shi**; Chemical Engineering, University of California, Santa Barbara, CA.

Emulsions, Bubbles and Foams: Emulsions - III

Wednesday, July 12, 2017, 1:20 PM - 3:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

1:20 **479.** KEYNOTE: Adhesive emulsions: connections between microfluidics and direct force measurement. C. Fewkes, E. Jamieson, J. Berry, **R. Dagastine**; Chemical Engineering, University of Melbourne, Melbourne, AUSTRALIA.

2:00 **480.** Polymer-induced contact line breakdown and phase separation in evaporating emulsion droplets. H. Li, D. Chen, **P. Takhistov**; Rutgers University, New Brunswick, NJ.

2:20 **481.** Water-in-oil Emulsion Stabilized by Model Asphaltene Compound C5PeC11: A Study of Approach Velocity, Wettability and Temperature on Thin Liquid Film Drainage Between Water Droplet and Solid Surface. **N. Ivanova**, Z. Xu; Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, CANADA.

2:40 **482.** Mechanistic study of water droplet coalescence and flocculation in crude oil emulsions treated with additives through the use of microfluidic techniques. A. Nowbahar[1], **K. Whitaker**[2], A. Schmitt[2], T. Kuo[2]; [1]University of California, Santa Barbara, Santa Barbara, CA, [2]The Dow Chemical Company, Midland, MI.

Environmental Catalysis and Energy Science: Energy storage and electrochemistry for energy and environmental catalysis

Wednesday, July 12, 2017, 1:20 PM - 3:00 PM
Shepard Hall 204

Organizers: F. Jiao, A. Park
Presiding: F. Jiao

1:20 **483.** KEYNOTE: Nanoscale Organic Hybrid Materials: Structure, Dynamics, and Transport Properties. **L. Archer**; School of Chemical & Biomolecular Engineering, Cornell University, Ithica, NY.

2:00 **484.** Design of nanocomposites for use in capacitors. **S. Obrien**; The City College of New York, CUNY, New York, NY.

2:20 **485.** Manipulating the d-band electronic structure of platinum-functionalized nanoporous gold bowls: Synergistic intermetallic interactions enhance catalysis. **Z. Yang**; Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, SINGAPORE.

2:40 **486.** Design, synthesis and characterization of mixed ionic/electronic conducting surface layers adsorbed on metal oxide particles. **J. J. Richards**[1], N. Wagner[2], P. Butler[1]; [1]National Institute of Standards and Technology, Gaithersburgh, MD, [2]University of Delaware, Newark, DE.

General Papers: Spectroscopy and Imaging

Wednesday, July 12, 2017, 1:20 PM - 3:00 PM
Shepard Hall 203

Organizers: P. Dhar, R. Zia
Presiding: A. Mohraz

1:20 **487.** LAMER: NMR characterization of metal nanoparticle formation,structure, and performance. **L. E. Marbella**[1,2], J. E. Millstone[2]; [1]Chemistry, University of Cambridge, Cambridge, UNITED KINGDOM, [2]Chemistry, University of PIttsburgh, Pittsburgh, PA.

2:00 **488.** Integrating 3D bioprinting and nanomaterials for complex vascularized tissue regeneration. **L. Zhang**; Department of Mechanical and Aerospace Engineering, The George Washington University, Washington, DC.

2:20 **489.** Optical properties of triangular gold nanoframes. **M. M. Shahjamali**[1], N. Zaraee[1], G. C. Schatz[2], N. Large[3]; [1]Applied physics and Physics, Harvard University, Cambridge, MA, [2]Applied physics and Physics, Northwestern University, Cambridge, MA, [3]Applied physics and Physics, The University of Texas at San Antonio, Cambridge, MA.

2:40 **490.** Superresolution microscopy of pNIPAM microgels. **G. M. Conley**[1], P. Aebischer[1], S. Nöjd[2], M. Braibanti[1], P. Schurtenberger[2], F. Scheffold[1]; [1]Physics, University of Fribourg, Fribourg, SWITZERLAND, [2]Chemistry, Lund University, Lund, SWEDEN.

Particles at Interfaces: Particles in multiphasic systems

Wednesday, July 12, 2017, 1:20 PM - 3:00 PM
Shepard Hall 379

Organizers: D. Harbottle, D. Lee
Presiding: Y. Min

1:20 **491.** Non-monotonic dependence of Pickering emulsion gel rheology on particle loading. M. Kaganyuk, **A. Mohraz**; Chemical Engineering and Materials Science, University of California, Irvine, CA.

1:40 **492.** Microfluidic microcapsule fabrication by interfacial complexation of polymers, particles and proteins. G. Kaufman[1], A. C. Schloss[2], W. Liu[3], D. M. Williams[2], K. A. Montejo[4], R. Boltyanskiy[5], M. Loewenberg[1], E. C. Yan[3], L. Regan[2], **C. O. Osuji**[1]; [1]Chemical and Environmental Engineering, Yale University, New Haven, CT, [2]Molecular Biophysics and Biochemistry, Yale University, New Haven, CT, [3]Chemistry, Yale University, New Haven, CT, [4]Biomedical Engineering, Florida International University, Miami, FL, [5]Physics, Yale University, New Haven, CT.

2:00 **493.** Building bridges driven by solvent transfer between droplets. **J. Otero Marquez**, A. T. Brown, P. Clegg; University of Edinburgh, Edinburgh, UNITED KINGDOM.

2:20 **494.** Stratification dynamics in drying colloidal mixtures. **M. P. Howard**[1], A. Nikoubashman[2], A. Z. Panagiotopoulos[1]; [1]Department of Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Institute of Physics, Johannes Gutenberg University Mainz, Mainz, GERMANY.

2:40 **495.** Metastability, Physical Aging, and Thermally Activated Processes in Colloidal and Multiphase Systems with Nanostructured Surfaces. **C. E. Colosqui**[1,2], V. N. Manoharan[3,4]; [1]Department of Mechanical Engineering, Stony Brook University, Stony Brook, NY, [2]Department of Applied Mathematics & Statisics, Stony Brook University, Stony Brook, NY, [3]John A. Paulson School of Engineering and Applied Sciences, Harvard University, Boston, MA, [4]Department of Physics, Harvard University, Boston, MA.

Rheology and Dynamics: Soft and Deformable Particles

Wednesday, July 12, 2017, 1:20 PM - 3:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: V. Sharma

1:20 **496.** Shear-induced structural transitions in ultra-low interfacial tension microemulsions. **J. Weston**[1], K. Weigandt+[2]; [1]Physics, Georgetown University/NIST, Washington, DC, [2]NIST Center for Neutron Research, Gaithersburg, MD.

1:40 **497.** Can polymer-grafted nanoparticles be described as soft colloids? **R. Poling-Skutvik**[1], K. N. Olafson[1], S. Narayanan[2], L. Stingaciu[3], A. Faraone[4], R. Krishnamoorti[1], J. C. Conrad[1]; [1]Chemical and Biomolecular Engineering, University of Houston, Houston, TX, [2]Advanced Photon Source, Argonne National Lab, Argonne, IL, [3]Spallation Neutron Source, Oak Ridge National Lab, Oak Ridge, TN, [4]Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD.

2:00 **498.** Activation, softness, and local structure in supercooled colloidal liquids. **X. Ma**[1,2], Z. S. Davidson[1], T. Still[1], R. Ivancic[1], S. S. Schoenholz[1], D. M. Sussman[1], A. J. Liu[1], A. G. Yodh[1]; [1]Department of Physics & Astronomy, University of Pennsylvania, Philadelphia, PA, [2]Complex Assemblies of Soft Matter Lab, CNRS-Solvay-Upenn, Philadelphia, PA.

2:20 **499.** Influence of mechanical and electrochemical history on the performance of colloidal battery fluids. **M. H. Duits**, A. Narayanan, F. Mugele; Science and Technology, University of Twente, Enschede, NETHERLANDS.

2:40 **500.** Wide Concentration Liquid Crystallinity of Graphene Oxide Aqueous Suspension with Interacting Polymers. **Y. Shim**[1], K. Lee[2], S. Kim[2], S. Kim[1]; [1]The school of Energy and Chemical Engineering, UNIST (Ulsan Naitonal Institute of Science and Technology), Ulsan, KOREA, REPUBLIC OF, [2]Materials Science, KAIST, Daejeon, KOREA, REPUBLIC OF.

Directed and Self-assembly at the Colloidal Scale: Self-assembly in complex fluids and interfaces

Wednesday, July 12, 2017, 3:20 PM - 5:00 PM
Great Hall

Organizers: L. Biswal, N. Wu
Presiding: N. Wu

3:20 **501.** Hierarchically structured advanced material via block copolymer self-assembly in ionic liquid. **R. Chen**, C. R. López-Barrón, N. J. Wagner; Chemical and Biomolecular Engineering, University of Delaware, Newark, DE.

3:40 **502.** Self-assembly of matchstick nanoparticles at a solid-liquid interface. **A. Widmer-Cooper**; School of Chemistry, The University of Sydney, Sydney, NSW, AUSTRALIA.

4:00 **503.** Self-organized structural colloids of nematic liquid crystal polymer. **W. Wei**[1], Y. Xia[2], S. Yang[2], A. Yodh[1]; [1]Department of Physics and Astronomy & LRSM, University of Pennsylvania, Philadelphia, PA, [2]Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA.

4:20 **504.** Colloidal photonic crystals to induce phosphorescence emission in BAlq. **L. Gonzalez-Urbina**; Chemistry, Borough of Manhattan Community College - CUNY, New York, NY.

4:40 **505.** Site-specifically magnetic NPs-patchy Janus microparticles for recoverable Pickering emulsions. **H. Kim**, J. Cho, J. Cho, J. Kim; Hanyang university, Ansan, KOREA, REPUBLIC OF.

Electrokinetics and Microfluidics: Polymer Dynamics and Ion-Selective Transport

Wednesday, July 12, 2017, 3:20 PM - 5:00 PM
Shepard Hall 381

Organizers: K. Bishop, A. Khair
Presiding: N. Alvarez

3:20 **506.** Non-Newtonian Flows over Superhydrophobic Surfaces. **J. Wood**, A. S. Haase, L. Sprakel, R. Lammertink; Soft Matter, Fluidics and Interfaces, University of Twente, Enschede, NETHERLANDS.

3:40 **507.** DNA-Amphiphile Electrophoresis in Entangled Micelle Networks. **J. W. Schneider**, R. Gamble, L. Yan; Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA.

4:00 **508.** Rhodamine dye chemotaxing toward PEG Polymer. **F. Mohajerani**[1], R. Guha[1], M. Collins[2], A. Sen[2], D. Velegol[1]; [1]Chemical Engineering, Pennsylvania State University, State College, PA, [2]Chemistry, Pennsylvania State University, State College, PA.

4:20 **509.** Geometric effects on electrohydrodynamics near ion-selective nanochannels. **A. M. Benneker**[1], J. A. Wood[1], P. A. Tsai[2], R. G. Lammertink[1]; [1]Soft Matter, Fluidics and Interfaces, University of Twente, Enschede, NETHERLANDS, [2]Department of Mechanical Engineering, University of Alberta, Edmonton, AB, CANADA.

4:40 **510.** Nonlinear ion depletion in bulk electrolyte by capacitive deionizaion : Capacitive Deionizaion(CDI). **H. Lee**[1,2], N. Hwang[3], J. Kang[1], K. Bong[2], S. Lee[1], R. Kwak[1]; [1]Center for BioMicrosystems, Korea Institute of Science and Technology, Seoul, KOREA, REPUBLIC OF, [2]Department of Chemical and Biological Engineering, Korea University, Seoul, KOREA, REPUBLIC OF, [3]Department of Electronics and IT Media Engineering, Seoul National University of Science and Technology, Seoul, KOREA, REPUBLIC OF.

Emulsions, Bubbles and Foams: Emulsions - IV

Wednesday, July 12, 2017, 3:20 PM - 5:00 PM
Shepard Hall 210

Organizers: S. Behrens, M. Borden
Presiding: S. Behrens, M. Borden

3:20 **511.** Surfactant-dependent nucleation kinetics in monodisperse hexadecane emulsions. **S. Abedi**, C. Chen, S. A. Vanapalli; Texas Tech University, Lubbock, TX.

3:40 **512.** A General Route for Nanoemulsion Synthesis Using Low Energy Methods at Constant Temperature. **A. Badruddoza**, A. Gupta, P. S. Doyle; Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA.

4:00 **513.** Formation of nanoparticle based PET contrast agents by spontaneous chelation of radiotracers. **L. Z. Wang**[1], H. D. Lu[1], B. K. Wilson[1], S. A. McManus[1], P. K. Padakanti[2], A. Alavi[2], R. H. Mach[2], R. K. Prud'homme[1]; [1]Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Radiology, University of Pennsylvania, Philadelphia, PA.

4:20 **514.** Encapsulation ofOZ439 into Nanoparticles for Supersaturated Drug Release in Oral MalariaTherapy. **K. Ristroph**[1], H. Lu[1], E. Dobrijevic[1], S. McManus[1], Y. Zhang[1], J. Feng[1], W. Mulhearn[1], H. Ramachandruni[2], A. Patel[2], N. Bowers[3], R. Prud'homme[1]; [1]Chemical and Biological Engineering, Princeton University, Princeton, NJ, [2]Medicines for Malaria Venture, Meyrin, SWITZERLAND, [3]Bill & Melinda Gates Foundation, Seattle, WA.

4:40 **515.** Green emulsions using low molecular weight self-assembling sugar alcohol-based amphiphiles. **S. S. Sagiri**[1], M. Samateh[1,2], R. Rivas[1], G. John[1,2]; [1]Chemistry, The City College of New York, New York, NY, [2]Ph.D. program in Chemistry, The Graduate Center of the City University of New York, New York, NY.

Environmental Catalysis and Energy Science: Nano-scale materials for sustainable energy and environment

Wednesday, July 12, 2017, 3:20 PM - 5:00 PM
Shepard Hall 204

Organizers: F. Jiao, A. Park
Presiding: F. Jiao

3:20 **516.** Smart textiles of MOF/g-C_3N_4 nanospheres for CWAs detection/ detoxification. T. Bandosz[1], **D. Giannakoudakis**[2]; [1]CCNY/CUNY, New York, NY, [2]Ph.D. program in Chemistry, CUNY, New York, NY.

3:40 **517.** Toxic gas sensing on nanoporous carbons. T. Bandosz[1], **N. Travlou**[2]; [1]CCNY/ CUNY, New York, NY, [2]Ph.D. Program in Chemistry, CUNY, New York, NY.

4:00 **518.** Adsorption Modeling for Nuclear Energy Applications. A. Ladshaw[1], **S. Yiacoumi**[1], C. Tsouris[2]; [1]School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA, [2]Oak Ridge National Laboratory, Oak Ridge, TN.

4:20 **519.** An Asymmetric Restricted Primitive Model of Ionic Liquids. **H. Lu**[1], S. Nordholm[2], C. E. Woodward[3], J. Forsman[1]; [1]Lund University, Lund, SWEDEN, [2]The University of Gothenburg, Gothenburg, SWEDEN, [3]University of New South Wales, Canberra, AUSTRALIA.

Rheology and Dynamics: Rheology of Complex Fluids

Wednesday, July 12, 2017, 3:20 PM - 5:00 PM
Shepard Hall 304

Organizers: J. Gilchrist, T. Squires
Presiding: K. M. Schultz

3:20 **520.** Active microrheology in an emulsion glass. **N. Senbil**, C. Zhang, F. Scheffold; Department of Physics, University of Fribourg, Fribourg, SWITZERLAND.

3:40 **521.** Active Microrheology of Dense Suspensions: Kinematics and Stresses. **O. Sedes**[1], A. Singh[1], B. Chakraborty[2], J. F. Morris[1]; [1]Levich Institute, the City College of New York, New York, NY, [2]Martin A. Fisher School of Physics, Brandeis University, Waltham, MA.

4:00 **522.** Shape and orientation dependent dielectric properties of non-ionic triblock copolymer micelles studied by Dielectric RheoSANS. **J. K. Riley**[1], J. J. Richards[1], N. J. Wagner[2], P. D. Butler[1]; [1]NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, [2]Chemical and Biomolecular Engineering, University of Delaware, Newark, DE.

Author Index