255th ACS National Meeting & Exposition, March 18-22, 2018, New Orleans. LA

ACS Meeting Theme: Nexus of Food, Energy and Water

Program Chair: Ramanathan Nagarajan (Ramanathan.Nagarajan.Civ@mail.mil)

Deadline for online submission of abstracts 23 October 2017

Go to http://abstracts.acs.org select the New Orleans meeting and then follow instructions to submit your abstract to the selected COLL Division symposium

Sci-Mix

Authors submitting abstracts online, whether for oral or poster presentation, will be asked to indicate during abstract submission, their interest in participating in Sci-Mix. Sci-Mix is a poster session involving all Divisions of ACS, with the Divisions selecting what presentations to include in the Sci-Mix. If you are making an oral presentation in the Division but have been selected to the Sci-Mix. You will also have to prepare the work for the poster presentation at Sci-Mix.

Sci-Mix is traditionally held on Monday evening at 8:00 PM. The number of posters at Sci-Mix to be selected by a Division is limited to 10% of the total number of papers presented in that Division. Therefore, selection to present Sci-Mix posters is a special recognition conferred by the Division to the authors. Sci-Mix poster presentations are duplicates of the presentations made at the oral or poster sessions of the Division. Please note that this is the only kind of duplicate presentation allowed by ACS.

Technical Symposia Scheduled

Symposium Organizer	**Symposium Title**
Bhanu P. S. Chauhan, Department of Chemistry, William Paterson University, Wayne, New Jersey 07470; 973-720-2470; chauhanbps@wpunj.edu	Sol-Gel in Nanotechnology: Theory, Synthesis, Characterization and Applications
Scott K. Shaw, Department of Chemistry, University of Iowa 319-384-1355; scott-k-shaw@uiowa.edu	Micro- to Meso-scale Ionic Liquid Architectures: Equilibrium Structures and Dynamics
Subra Muralidharan, Department of Molecular and Cellular Biology, University of California, Davis, CA 95616; subra.murali@ucdavis.edu Atul Parikh, Department of Biomedical Engineering, University of California, Davis, CA 9561; anparikh@ucdavis.edu Mu-Ping Nieh, Department of Chemical & Biomolecular Engineering, University of Connecticut, Storrs, CT 06269; mu-ping.nieh@uconn.edu	Biomembrane Synthesis, Structure, Mechanics, and Dynamics

John Katsaras, Neutron Sciences Directorate, ORNL, Oak Ridge, TN; katsarasj@ornl.gov	
Rosa M. Espinosa-Marzal, Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL 61801; rosae@illinois.edu James Batteas, Department of Chemistry, Texas A&M University, College Station, TX 77842; batteas@chem.tamu.edu Eddy Tysoe, Department of Chemistry and Biochemistry, University of Wisconsin-Milwaukee, Milwaukee, WI 53211; wtt@uwm.edu	Fundamental Studies of Mechanochemical and Tribochemical Processes at Interfaces
Wolfgang Parak, Department of Physics, University of Hamburg, Hamburg, Germany; CIC biomaGUNE, Donostia – San Sebastián, Spain. wolfgang.parak@physik.uni-marburg.de Luis M. Liz-Marzán, CIC biomaGUNE, Donostia – San Sebastián, Spain. llizmarzan@cicbiomagune.es Neus Feliu, Department of Physics, University of Hamburg, Hamburg, Germany; Karolinska Institute, Stockholm, Sweden. neus.feliu1@gmail.com	Solubility of colloids in different solvents
Hongyou Fan, Sandia National Laboratories, Albuquerque, NM 87106; 505-272-7128; hfan@sandia.gov Feng Bai, Henan University, China; +86-371-2388-5808; baifengsun@126.com Yu Han, King Abdullah University of Science and Technology, Saudi Arabia; +966 2 8082407; yu.han@kaust.edu.sa Mei Cai, General Motors Company, 30500 Mound Road, Warren MI 48090; 586-596-4392; mei.cai@gm.com	Colloidal Nanoparticle Synthesis and Assembly
Marilena Hadjidemetriou, Faculty of Biology, Medicine & Health, University of Manchester, Manchester, UK; marilena.hadjidemetriou@manchester.ac.uk Warren Chan, University of Toronto, Canada; warren.chan@utoronto.ca Kostas Kostarelos, National Graphene Institute, University of Manchester, Manchester, UK: kostas.kostarelos@manchester.ac.uk	Nanoparticle Biomolecule Corona: From Fundamentals to Applications
Bakhtiyor Rasulev, Department of Coatings and Polymeric Materials, North Dakota State University, Fargo, ND 58108; 701-231-6467; bakhtiyor.rasulev@ndsu.edu Mohi Quadir, Department of Coatings and Polymeric Materials, North Dakota State University, Fargo, ND 58108; 701-231-6283; mohiuddin.quadir@ndsu.edu Andriy Voronov, Department of Coatings and Polymeric Materials, North Dakota State University, Fargo, ND 58108, 701-231-9563; andriy.voronov@ndsu.edu	Recent Advances in Particulate and Colloid Materials for Biomedical Applications

Latha Venkataraman, Department of Applied Physics and Chemistry, Columbia University, New York 10027; 212 854 1786; lv2117@columbia.edu Gemma C. Solomon, Nano-Science Center and Department of Chemistry, University of Copenhagen, Universitetsparken 5, 2100 Copenhagen Ø, Denmark; +45 35 32 02 15; gsolomon@chem.ku.dk Michael S. Inkpen, Department of Applied Physics, Columbia University, New York 10027; 646 617 4826; msi2109@columbia.edu	The Chemistry of Molecular Electronics
Robert Moglia, Core R&D-Formulation Science, Dow Chemical, 1712 Building Lab 17, Midland MI 48674; 989.638.3179; RSMoglia@dow.com Hari Katepalli, Core R&D-Formulation Science, Dow Chemical, 1712 Building Lab 11, Midland MI 48674; 989.636.6293; HKatepalli@dow.com Liang Chen, Core R&D-Formulation Science, Dow Chemical, 1712 Building Lab xx, Midland MI 48674; 989.636.1740; LiangChen@dow.com	Fundamentals and applications of emulsions at nonstandard conditions
Jennifer A. Hollingsworth, Materials Physics & Applications Division - Center for Integrated Nanotechnologies, MS-K771, Los Alamos National Laboratory; (505) 665-0399; jenn@lanl.gov Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan.civ@mail.mil	Nanomaterials
Steven Tait, Dept. of Chemistry, Indiana University, (812) 855-1302; tait@indiana.edu	Surface Chemistry
Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan.civ@mail.mil	Biomaterials and Biointerfaces
Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan.civ@mail.mil	ACS Award lectures (Invited)
TBD	ACS Award in Colloid Chemistry - Symposium in honor of TBD
TBD	ACS Award in Surface Chemistry - Symposium in honor of TBD

Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan,civ@mail.mil	Fundamental Research in Colloids, Surfaces and Nanomaterials (POSTER SESSION)

Sol-Gel in Nanotechnology: Theory, Synthesis, Characterization and Applications

Organizer:

Bhanu P. S. Chauhan, Engineered Nanomaterials Laboratory, Department of Chemistry, William Paterson University, 300, Pompton Road, Wayne, New Jersey 07470; Email: chauhanbps@wpunj.edu

Nanochemistry of sol gel materials has been a very fascinating area of research due to the unique property profile of resulting materials and their potential applications in industry. This symposium is designed to bring together the scientists working on all aspects of sol gel chemistry in nanotechnology. Special emphasis is placed on the new directions and developments in design and applications of new materials incorporating organic/inorganic, polymer, biopolymers, metallic, and nanoarchitectures. Specific Topics include

- Sol-gel and carbon nanotubes
- Metal/semiconductor hybrids of Silica
- Sol-Gel technology in metal nanoparticles
- Biobased catalysts in Sol-gel technology
- Polymer/biopolymer hybrids of silica
- Silica Biopolymer hybrids
- Hybrid phase catalysts
- Nano silicone/silica colloidal hybrids
- Bioorganic/inorganic Hybrids
- Sol-Gel in surface energy transfer

Micro- to Meso-scale Ionic Liquid Architectures: Equilibrium Structures and Dynamics
Cosponsored by PHYS

Organizer:

Scott K. Shaw, Department of Chemistry, University of Iowa; Email: scott-k-shaw@uiowa.edu

This symposium will consider experimental, computational, and theoretical investigations of ionic liquids' structures, dynamics, and processes. Topics of interest include, but are not limited to:

- Near-surface and bulk phase ordering and dynamics of ionic liquids
- Transitions from interfacial to bulk-phase structures

- Spectroscopy and Microscopy of IL structures and dynamics
- Theoretical simulations of IL structures and dynamics at micro- to meso-length scales
- Roles of intermolecular forces in IL structures and dynamics
- Surfactant, solvent, or substrate effects on structures or dynamics
- New techniques for probing IL structures and dynamics in theory and experiment

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Biomembrane Synthesis, Structure, Mechanics, and Dynamics

Organizers:

Subra Muralidharan, Department of Molecular and Cellular Biology, University of California, Davis, CA 95616; Email: subra.murali@ucdavis.edu

Atul Parikh, Department of Biomedical Engineering, University of California, Davis, CA 9561; Email: anparikh@ucdavis.edu

Mu-Ping Nieh, Department of Chemical & Biomolecular Engineering, University of Connecticut, Storrs, CT 06269; Email: mu-ping.nieh@ims.uconn.edu

John Kastaras, Neutron Sciences Directorate, ORNL, Oak Ridge, TN, USA; Email: katsarasj@ornl.gov

The dynamic structural and mechanical properties of cell membranes strongly regulate functions of proteins, lipids, and genes, signaling pathways, and disease onset and progression. The symposium will focus on the current state of the art in biomembrane synthesis and self-assembly, structure, mechanics, and dynamics of cells and model membrane systems. Experimental and theoretical approaches including single molecule force and optical microscopy and spectroscopy methods, neutron and x-ray structural studies, nanoscale probes, and molecular dynamics simulations exemplify topics that have been presented at this symposium over the last 10 years.

The journal Biointerphases will be sponsoring prizes for the top three student oral presentations at this symposium. The details of judging and prize awarding procedures will be announced before the symposium.

Fundamental Studies of Mechanochemical and Tribochemical Processes at Interfaces

Organizers:

Rosa M. Espinosa-Marzal, Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL 61801; Email: rosae@illinois.edu

James Batteas, Department of Chemistry, Texas A&M University, College Station, TX 77842; Email: batteas@chem.tamu.edu

Eddy Tysoe, Department of Chemistry and Biochemistry, University of Wisconsin-Milwaukee, Milwaukee, WI 53211; Email: wtt@uwm.edu

While mechanically induced reactions have been known for millennia, mechanochemistry is perhaps the least-well understood area of chemistry. Despite this, a large number of organic and inorganic mechanochemical reactions have been discovered empirically. In parallel with these developments, mechanisms for the breakdown of materials in sliding interfaces (wear) as well as the formation of tribofilms that result from the reaction of lubricant additives, can also be mechanochemically driven, and underpin the area of tribochemistry. With economic impacts of ~ $200B/year, it can be argued that tribochemistry has

among the most economically important impacts of mechanochemistry. Additionally, in biology, substantial relations between molecular building blocks and mechanical behaviour have been identified, with several studies showing mechanotransduction mechanisms in cells for sensing their environment.

The goal of this symposium is to bring these various fields of mechanochemistry together to foster an exchange of ideas between them. A multitude of mechanical and chemical interfacial phenomena are coupled on a molecular scale, and hence, mechanochemistry is a topic of intensive research across numerous disciplines from tribology to biomedical applications. Frictional dissipation, wear, and tribochemical reactions rely on an applied force that facilitates the thermal transition of atoms or molecules across an energy barrier, thereby promoting slip or bond dissociation. Boundary lubrication mediated by a tribolayer and mechanically-induced phase transitions of confined molecules and macromolecules exemplify how mechanochemistry can help to reduce friction and wear between sliding (bio)interfaces. More broadly, mechanically-induced polymerization, depolymerization, fullerene reactivity, and formation of organic complexes are subjects of intensive research under the umbrella of organic mechanochemistry at solid surfaces. A fundamental understanding of how mechanical forces alter or control reaction dynamics or mechanisms requires isolating and purifying reaction products as well as in-situ monitoring of mechanochemical reactions.

This symposium will cover a broad range of topics from theory to applications including:

- Mechanochemistry at tribological interfaces (tribochemistry)
- Organic and inorganic mechanochemistry
- Mechanocatalysis
- Small molecule mechanophores and biological force sensors
- Mechanosensing in cell biology
- Mechanosensitive nanomaterials and interfaces
- Mechanochemically processing of nanomaterials

Solubility of colloids in different solvents

Organizers:

Wolfgang Parak, Department of Physics, University of Hamburg, Hamburg, Germany, and CIC biomaGUNE, Donostia – San Sebastián, Spain. Email: wolfgang.parak@physik.uni-marburg.de

Luis M. Liz-Marzán, CIC biomaGUNE, Donostia – San Sebastián, Spain. Email: llizmarzan@cicbiomagune.es

Neus Feliu, Department of Physics, University of Hamburg, Hamburg, Germany; Karolinska Institute, Stockholm, Sweden. Email: neus.feliu1@gmail.com

Colloidal stability is paramount for the functionality and handling of colloidal systems. Colloidal stability of nano- and microparticles is determined by the properties of the particles themselves, but also from the solvent in which they are dispersed. Insufficient dispersion leads to unwanted agglomeration. In order to transfer particles from one solvent to another different approaches exist, which are based on replacement of removal of the original surface chemistry. While phase transfer from organic to aqueous phase has been discussed extensively phase transfer from the aqueous to the organic phase is not less interesting, but has been less focused on. This symposium will address this problem for different types of nanoparticles and in particular different surface chemistries. The symposium will involve the synthesis and surface modifications of nanoparticles, as well as their characterization. Appropriate topics include, but are not limited to:

- Particle synthesis and characterization
- Ligand exchange
- Coating procedures
- Phase transfer
- Biofunctionalization
- Colloidal stability
- Agglomeration
- Controlled aggregation
- Self-assembly of nanoparticles
- Colloidal stability in biofluids
- Protein corona
- Particle degeneration

Colloidal Nanoparticle Synthesis and Assembly

Organizers:

Hongyou Fan, Sandia National Laboratories, Albuquerque, NM 87106; Tel: 505-272-7128, Email: hfan@sandia.gov
Feng Bai, Henan University, China; Tel 86-371-2388-5808, Email: baifengsun@126.com
Yu Han, King Abdullah University of Science and Technology, Saudi Arabia; Tel +966 2 8082407; Email: yu.han@kaust.edu.sa
Mei Cai, General Motors Company, 30500 Mound Road, Warren MI 48090; Tel 586-596-4392, Email: mei.cai@gm.com

Colloidal nanoparticles represent an important class of structural and functional building block for many technologically significant materials and devices. However, technologies that leverage the structural advantages of individual nanoparticles have not been fully realized and have been limited by synthesis method. Fundamental issues related to size, shape, and core/shell structure, surface chemistry, etc. critically determine the property and applications of nanoparticles and their assemblies. To address these issues, this symposium will cover the general topics of colloidal nanoparticle synthesis and assembly. Specifically, this symposium will focus on (1) nucleation and growth for crystal growth and to manipulate nanoparticle size, shape, and core/shell structure; (2) structural and property characterizations of nanoparticles; (3) Integration of nanoparticles in nanoelectronics and nanophotonics; and (4) Advanced spectroscopy and transport studies on optical, electronic, and magnetic structure, carrier dynamics, of nanoparticles/nanowires.

Tentative listing of topics to be covered

- Nanoparticle surface chemistry/functionalization to manipulate particle interactions, packing symmetry, external framework, and property
- Crystal growth and characterizations
- New synthetic processes and integration methods of nanoparticles and nanowires
- Large area of nanoparticle assembly and patterning with long range order
- In-situ observation and characterizations of nanoparticle nucleation and growth
- In-situ characterizations of nanoparticle self-/directed-assembly (GISAXS, TEM, SEM, etc)
- Integration of nanoparticles in nanoelectronics and nanophotonics.

- Advanced spectroscopy and transport studies on electronic and magnetic structure, carrier dynamics, and charge/energy transfers of nanoparticles/nanowires
- Photonic behavior of nanoparticles/nanowires and their assemblies
- Simulation and computation of nanoparticle interactions.

Nanoparticle Biomolecule Corona: From Fundamentals to Applications

Organizers:

Marilena Hadjidemetriou, Faculty of Biology, Medicine & Health, University of Manchester, Manchester, UK; Email: marilena.hadjidemetriou@manchester.ac.uk

Warren Chan, University of Toronto, Canada; Email: warren.chan@utoronto.ca

Kostas Kostarelos, National Graphene Institute, University of Manchester, Manchester, UK: Email: kostas.kostarelos@manchester.ac.uk

Nanoparticles administered in the body are rapidly modified once in contact with the biological milieu due to their surface interaction with various blood constituents. The spontaneous self-assembly and adsorption of biomolecules onto the NP surfaces has been termed the 'biomolecule corona'. This surface bio-transformation of nanomaterials modulates their overall pharmacological and toxicological profile and their potential therapeutic or diagnostic functionality. This symposium will focus on the basic principles of corona formation (i.e. structure, dynamics), the different factors that govern its formation, nanoparticle surface functionalization strategies and corona characterization tools. Emphasis will be given on the biological impact and potential biomedical applications of the biomolecule corona including cellular internalization and cytotoxicity, targeted drug delivery and disease diagnosis. Topics that will be covered include, but are not limited to:

- Nanoparticle functionalization strategies
- Fundamental principles of the nano-bio interface
- Interaction of engineered nanomaterials with biological systems
- Biomolecule corona characterization techniques
- Factors affecting corona formation
- Dynamics/mechanism of biomolecule corona formation
- The impact of biomolecule corona on cell internalization, immunotoxicity and cytotoxicity of nanoparticles
- Exploitation of the biomolecule corona in biomedicine

Recent Advances in Particulate and Colloid Materials for Biomedical Applications

Organizers:

Bakhtiyor Rasulev, Department of Coatings and Polymeric Materials, North Dakota State University, Fargo, ND 58108, Tel: 701-231-6467, Email: bakhtiyor.rasulev@ndsu.edu

Mohi Quadir, Department of Coatings and Polymeric Materials, North Dakota State University, Fargo, ND 58108, Tel: 701-231-6283, Email: mohiuddin.quadir@ndsu.edu

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Engineered colloids and particulate materials, from nano- to microscale, have maintained its sustained traction through the ages for their capacity to interact and intervene with biological processes and events. Hence, there is a continual effort towards synthesizing new polymers and materials that self-assembles to colloidal species with novel form and function suitable for biomedical applications. With a broad-ranging scope of utility, colloid science essentially covers the materials ranging from soft and metallic nanoparticles, to dendritic polymer assemblies and complexes, particulate matters, suspensions and emulsions and protein aggregates. This symposium will focus on the synthetic, chemical, engineering and computational advances achieved in the field of colloid and particulate science pertaining to human health and diseases over the last decade. Emphasis will be provided on bridging the gap between chemistry, materials science and biology through colloid materials research, and how such activity has brought together the fundamental and applied aspects of colloid science to solve unmet biomedical challenges. Appropriate topics include, but are not limited to:

- Self-assembly
- Micelles, polymersomes and polymer colloids
- Metal nanoparticles
- Toxicity and immunogenicity of colloidal materials
- Modeling of colloidal particles and nanomaterials
- Interaction of colloidal species with biological membrane
- Responsive colloids
- Cheminformatics approaches in colloid and nano- science
- Materials informatics, data mining and databases of colloid and particulate materials
- Hybrid colloids and nanomaterials

The Chemistry of Molecular Electronics

Organizers:

Latha Venkataraman - Department of Applied Physics and Chemistry, Columbia University, New York 10027, USA; Tel: 212 854 1786; E-mail: lv2117@columbia.edu

Gemma C. Solomon - Nano-Science Center and Department of Chemistry, University of Copenhagen, Universitetsparken 5, 2100 Copenhagen Ø, Denmark; Tel: +45 35 32 02 15; E-mail: gsolomon@chem.ku.dk

Michael S. Inkpen - Department of Applied Physics, Columbia University, New York 10027, USA; Tel: 646 617 4826; E-mail: msi2109@columbia.edu

The concept of using molecules as electronic components has received significant attention over the past 3 decades, initially motivated by the decreasing size of semiconductor-based circuit elements in line with Moore's Law. It is now recognized that molecular devices can demonstrate properties unique from those observed in conventional electronics, resulting from quantum interference effects, changes in molecular redox state and/or the immediate nanoscale environment (solvent, temperature, light, magnetic field). With robust and reproducible measurement techniques now established, and great gains made in reconciling experimental and theoretical results, attention has turned to the discovery of useful wires, switches, diodes and resistors – and how best to utilize them. This multi-disciplinary symposium, planned as four half day

sessions, will bring together research in molecular electronics from four distinct, yet strongly interconnected areas: synthesis (SY), single-molecule measurements (SM), large area measurements (LA) and theory (TH). Appropriate topics include, but are not limited to:

- Synthetic routes to molecular electronic components
- Single-molecule conductance experiments
- Large-area molecular electronic device characterization
- First principles calculations of molecular charge transport
- Integrating molecules into functional circuits

Fundamentals and applications of emulsions at nonstandard conditions

Organizers:

Robert Moglia, Core R&D-Formulation Science, Dow Chemical, 1712 Building Lab 17, Midland MI 48674, United States of America. Tel: 989.638.3179; Email: RSMoglia@dow.com

Hari Katepalli, Core R&D-Formulation Science, Dow Chemical, 1712 Building Lab 11, Midland MI 48674, United States of America. Tel: 989.636.6293; Email: HKatepalli@dow.com

Liang Chen, Core R&D-Formulation Science, Dow Chemical, 1712 Building Lab xx, Midland MI 48674, United States of America. Tel: 989.636.1740; Email: LiangChen@dow.com

From advancing our understanding of biology to meeting energy demands, colloid science has worked its way into many parts of our daily lives. The expansion of products and applications enabled by colloid science has equally increased our understanding of fundamentals in the field. The interplay between fundamental advances and application science is a never ending cycle as every discovery yields more questions and their answers pave the way for future breakthroughs. Some of the most prevalent questions relate to the behavior of particles in concentrated systems, systems with high ionic strength, and/or at elevated temperatures, as most theories fall short in these regimes. Developing theories that capture phenomena at these uniquely challenging conditions is critical to addressing needs in many practical applications. This symposium's purpose is to highlight the creation or use of emulsions in nonstandard situations and understanding their stability in different environments such as concentrated emulsions, non-aqueous systems, high temperature, high salinity and pressure. Unique or novel use of analytical techniques to study such systems are also welcome. Suggested topics include, but are not limited to:

- High temperature rheology
- Interfacial rheology
- Emulsion formation and stability
- Nanofluids
- High internal phase emulsions and concentrated suspensions
- Interfacial rheology of surfactants and polymers
- Surfactant design and structure properties relationships
- Surfactant phase behavior at high temperatures and pressures
- Formation and characterization of emulsions in Micro and nanofluidic systems
- Novel emulsification techniques
- High temperature/pressure applications of emulsions

Nanomaterials

Organizers:

Jennifer A. Hollingsworth, Materials Physics & Applications Division - Center for Integrated Nanotechnologies, MS-K771, Los Alamos National Laboratory; (505) 665-0399; jenn@lanl.gov

Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan.Civ@mail.mil

Nanoscale confinement of dimensionality in three, two and even only one dimension affords new and emergent properties that impact the fundamental chemistry and physics of nanomaterials. Basic research in nanomaterials synthesis, interactions and properties, especially those related to the colloidal nature of the nanomaterial or to effects governed by chemistry at nanoscale surfaces and interfaces will be appropriate for this symposium. Topics of interest include but are not limited to:

- Fundamentals of nanomaterials synthesis
- Surface modification
- Self-assembly: influences of surface chemistry, shape, solution additives
- Directed assembly: influences of functionalization, shape and structure-directing/ templating agents, and substrate effects
- Advanced characterization techniques to probe nanomaterials synthesis and assembly
- Basic research into functional properties of nanomaterials
- Multi-component nanomaterials, e.g., heterostructured (comprising semiconducting, metallic and/or dielectric segments) and doped nanocrystals
- 0-dimensional materials (e.g., quantum dots, metal nanoparticles), 1-dimensional materials (e.g., nanowires, nanotubes), and 2-dimensional materials (e.g., graphene, transition metal dichalcogenides, nanoplatelets, nanosheets, colloidal quantum wells)

Topics covered by other nanomaterials related thematic symposia within the COLL Division will not be emphasized in this symposium.

Surface Chemistry

Organizers:

Steven Tait, Dept. of Chemistry, Indiana University, (812) 855-1302; tait@indiana.edu

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Biomaterials and Biointerfaces

Organizers:

Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan.Civ@mail.mil

ACS Award in Colloid Chemistry: Symposium in Honor of TBD (Invited Only)

Organizers:

TBD

ACS Award in Surface Chemistry: Symposium in Honor of TBD (Invited Only)

Organizers:

TBD

ACS Award Lectures

Organizers:

Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan.Civ@mail.mil

This is a plenary session where award lectures will be presented by the ACS National Awards winners (TBD) including winners of the ACS Award in Colloid Chemistry and ACS Award in Surface Chemistry.

Fundamental Research in Colloids, Surfaces and Nanomaterials (Poster Session)

Organizer:

Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan.Civ@mail.mil

Posters addressing any aspect of colloids, surfaces and nanomaterials will be appropriate for submission to this symposium. All posters presented by graduate and undergraduate students will be judged by a panel of scientists. Student poster presenters should be prepared to give a 3 minute pitch to the judges who may come to review the posters. Based on the technical content of the poster and the effectiveness of the pitch, the judges will select the best 4 or 5 poster presentations for the COLL Division awards. Awards will be given for graduate students and for undergraduate students.