

253rd ACS National Meeting & Exposition, April 2-6, 2017, San Francisco, CA

ACS Meeting Theme: Advanced Materials, Technologies, Systems and Processes

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

Deadline for online submission of abstracts 7 Nov 2016

Go to <http://abstracts.acs.org> select the San Francisco 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
Claribel Acevedo-Velez, Dow Industrial Solutions R&D, The Dow Chemical Company, 2301 N. Brazosport Blvd., B-1605 Building, Freeport, TX 77541; 979-238-0950; CAcevedo@dow.com Carol E. Mohler, Formulation Science, Corporate R&D, The Dow Chemical Company, Michigan Operations, 1712 Building, Midland, MI 48674; 989-636-4770; cemohler@dow.com Christopher J. Tucker, Formulation Science, Corporate R&D, The Dow Chemical Company, Michigan Operations, 1712 Building, Midland, MI 48674; 989-636-0402; cjtucker@dow.com	Interfacial Phenomena and the Oil-Water Interface
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@ims.uconn.edu John Kastaras, Neutron Sciences Directorate, ORNL, Oak Ridge, TN, USA; kastarasj@ornl.gov	Biomembrane Synthesis, Structure, Mechanics, and Dynamics

<p>Narayanan Srividya, Institute of Biological Chemistry, Washington State University, Pullman, WA 99164; nsrividya@gmail.com</p>	
<p>Shanlin Pan, Department of Chemistry, The University of Alabama, Tuscaloosa, AL 35487; 205-348-6381; span1@bama.ua.edu Nathan I. Hammer, Department of Chemistry & Biochemistry, The University of Mississippi, University, MS 38677; 662-915-3989; nhammer@olemiss.edu</p>	<p>Nanostructure Engineering and Surface Chemistry for Spectroscopy, Imaging, and Alternative Energy Harvesting and Conversion</p>
<p>Shelley A. Claridge, Department of Chemistry and Weldon School of Biomedical Engineering, Purdue University, West Lafayette, IN 47907; claridge@purdue.edu Wei-Ssu Liao, Department of Chemistry, National Taiwan University, Taipei, 10617 Taiwan; wsliaochem@ntu.edu.tw</p>	<p>Nanoscale Chemical Patterning and Characterization</p>
<p>Hongyou Fan, Advanced Materials Laboratory, Sandia National Laboratories, Albuquerque, NM 87106; hfan@sandia.gov Yugang Sun, Department of Chemistry, Temple University, Philadelphia, PA 19122; ygsun@temple.edu Songtao Wu, Toyota Research Institute of North American Toyota Motor Engineering & Manufacturing North American, Inc., Ann Arbor, MI 48105; songtao.wu@tema.toyota.com Han Htoon, Center for Integrated Nanotechnologies, Los Alamos National Lab, Los Alamos, NM; htoon@lanl.gov</p>	<p>Colloidal Nanoparticle Synthesis and Assembly</p>
<p>Ramanathan Nagarajan (NAGU), Natick Soldier Research, Development & Engineering Center, General Greene Avenue, Natick MA 01760; 508-233-6445; Ramanathan.Nagarajan@us.army.mil</p>	<p>Basic Research in Colloids, Surfactants and Nanomaterials</p>
<p>Wolfgang Parak, Biophotonics Group, University of Marburg, D-35037 Marburg, Germany, +49- 6421 28-24161; wolfgang.parak@physik.uni-marburg.de Luis M. Liz-Marzán, Bionanoplasmonics Laboratory, CIC biomaGUNE, Paseo de Miramón 182, 20009 Donostia – San Sebastián, Spain. +34-943-005-300; lizmarzan@cicbiomagune.es Ramon Alvarez Puebla, ICREA, Passeig Lluís Companys 23, 08010 Barcelona, Spain; ramon.alvarez@urv.cat Juan Sagalés, Medcom Advance, S.A, Calle Catalunya, 83-85, 08840 Viladecans (Barcelona), Spain. +34-93.480.33.74; jsagales@medcomtech.es Geoffrey Strouse, Molecular Biophysics, Florida State University, Tallahassee, FL, USA, +1-850-445-9042; strouse@chem.fsu.edu</p>	<p>Applied biosensing based on functional colloids</p>
<p>Steven Tait, Dept. of Chemistry, Indiana University, (812) 855-1302; tait@indiana.edu Amar Flood, Dept. of Chemistry, Indiana University, (812) 856-3642; aflood@indiana.edu</p>	<p>Hierarchical Self-assembly of Organic Monolayers, Bilayers, and Films: Theory and Experiment</p>
<p>Marina Ruths, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA; 978-934-3692; Marina_Ruths@uml.edu</p>	<p>Chemistry and Physics of Tribology</p>

Filippo Mangolini, Institute of Functional Surfaces, School of Mechanical Engineering, University of Leeds, Leeds, LS2 9JT, UK; +44-(0)113-343-9740; f.mangolini@leeds.ac.uk	
Paul Dubin, Department of Chemistry, University of Massachusetts Amherst, Amherst, MA; 413-577-4167, dubin@chem.umass.edu Russell Stewart, Department of Bioengineering, University of Utah, Salt Lake City, UT; 801-581-8581; russell.stewart@utah.edu	Coacervation: Physics, Chemistry and Biology
D. Howard Fairbrother, Department of Chemistry, Johns Hopkins University; howardf@jhu.edu Amy Walker, Department of Materials Science and Engineering, University of Texas at Dallas; amy.walker@utdallas.edu Lisa McElwee-White, Department of Chemistry, University of Florida; lmwhite@chem.ufl.edu	Deposition and Etching of Nanostructures Cross-sponsored between INOR and COLL
Robert M. Rioux, Department of Chemical Engineering, The Pennsylvania State University, State College, PA 16802; 814-867-2503; rioux@engr.psu.edu Seong H. Kim, Department of Chemical Engineering, The Pennsylvania State University, State College, PA 16802; (814) 863-4809; shkim@engr.psu.edu	Molecular Surface Science, Nanomaterials & Catalysis: Symposium in honor of Gabor Somorjai at 80 (Invited Only) Cosponsored by CATL
Paul Podsiadlo, ExxonMobil Research & Engineering Co., 1545 Rt. 22 East LD 224, Annandale, NJ 08801; 908 730 2461; paul.podsiadlo@exxonmobil.com	ACS Award in Colloid Chemistry: Symposium in Honor of Nicholas Kotov (invited Only)
Silvana Andrescu, Department of Chemistry and Biomolecular Science, Clarkson University, Potsdam, NY 13699; 315-268 2394; eandrees@clarkson.edu	ACS Award for Research at an Undergraduate Institution: Symposium in Honor of Maria Hepel (Invited Only)
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 Only)
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)

Interfacial Phenomena and the Oil-Water Interface

Organizers:

Claribel Acevedo-Velez, Dow Industrial Solutions R&D, The Dow Chemical Company
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The complex interactions that occur at the interface between two immiscible fluids, such as oil and water, play a central role in a wide range of chemical and physical processes. For example, oil-water emulsions are of fundamental and practical interest in many areas, ranging from cleaning applications to the production of crude oil. The self-assembly of surface-active molecules such as surfactants, polymers, and proteins at the oil-water interface changes its properties, which can have important implications for the application of these systems. This symposium explores recent advances on understanding fundamentals of interfacial phenomena at the oil-water interface. In particular, it focuses on understanding the dynamic processes that occur at the oil-water interface, with and without adsorbed surface-active components, which is required in order to optimize these systems for practical applications. Relevant topics include, but are not limited to:

- Fundamental studies of the oil-water interface (e.g., wetting, diffusion, adsorption, kinetic processes)
- Effect of hydrophobic interactions on self-assembly at the oil-water interface
- Stability and coalescence of droplets, bubbles, and emulsions
- Novel experimental methods for investigation of properties and intermolecular interactions at the oil-water interface
- Computational methods to understand molecular processes at the oil-water interface
- Practical applications of processes at the oil-water interface (e.g. separation/recovery processes, enhanced oil recovery, cleaning formulations, emulsions, small molecule delivery, agrochemical formulations, personal care formulations).

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

Organizers:

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@ims.uconn.edu

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

Narayanan Srividya, Institute of Biological Chemistry, Washington State University, Pullman, WA 99164; nsrividya@gmail.com

The structural and mechanical properties of cell membranes are being increasingly recognized to play a vital role in dynamics of cell proteins, lipids, and genes, cellular functions, and disease proliferation such as cancer metastasis. The symposium will focus on biomembrane synthesis, structure, mechanics, and dynamics of cells and model membrane systems to highlight current research. Emphasis will be placed on experimental and theoretical approaches including single molecule force and optical microscopy and spectroscopy methods, neutron and x-ray scattering structural investigations, nanoscale probes, and molecular dynamics simulations.

Nanostructure Engineering and Surface Chemistry for Spectroscopy, Imaging, and Alternative Energy Harvesting and Conversion

Organizers:

Shanlin Pan, Department of Chemistry, The University of Alabama, AL 35487; 205-348-6381;
span1@bama.ua.edu

Nathan I. Hammer, Department of Chemistry & Biochemistry, The University of Mississippi, University,
MS 38677; 662-915-3989; nhammer@olemiss.edu

This symposium will consider experimental and theoretical research work of metal and semiconductor nanostructures (1D and 2D) and/or their hybrids with materials such as polymers and small molecules for optical spectroscopy enhancement, imaging, and renewable energy harvesting and conversion. Appropriate topics include, but are not limited to, electrocatalysis, surface chemistry for managing energy flow, plasmonic techniques for solar energy, nanostructure engineered solar cells and photoelectrochemistry systems, new plasmonic nanostructure synthesis and characterization, near field optic techniques relevant to surface chemistry toward alternative energy, single molecule fluorescence and imaging of nanoparticles, nanoelectrochemistry, spectroelectrochemistry, electroluminescence, and nanostructured electrodes for solar cells and solar water splitting.

Nanoscale Chemical Patterning and Characterization

Organizers:

Shelley A. Claridge, Department of Chemistry and Weldon School of Biomedical Engineering, Purdue University, West Lafayette, IN 47907, claridge@purdue.edu

Wei-Ssu Liao, Department of Chemistry, National Taiwan University, Taipei, 10617 Taiwan,
wsliaochem@ntu.edu.tw

Controlling and characterizing surface chemistry at small scales has become a central problem for fields ranging from biology to nanoelectronics to organic photovoltaics. A variety of new strategies for nanoscale patterning of interface chemistry have emerged in recent years, including hybrid and soft lithographic techniques, noncovalent functionalization strategies for layered materials, and techniques that leverage external fields and biological structures in novel ways. Interfacial chemistry may impact interactions with analytes in solution, deposition of additional materials for layered device architectures, or may control substrate electronic structure. Chemical patterning down to nano and even molecular length scales naturally raises corresponding characterization challenges. These include the ability to extract both topographic and chemical information from interfaces on this length scale, for instance by multimodal scanning probe microscopy, and to examine changes in interfacial structure and interactions with time. This symposium provides a forum for building connections between researchers who seek to develop and apply rigorous chemical control over interfaces and those who develop new characterization tools and methods.

Colloidal Nanoparticle Synthesis and Assembly

Organizers:

Hongyou Fan, Advanced Materials Laboratory, Sandia National Laboratories, Albuquerque, NM 87106;
hfan@sandia.gov

Yugang Sun, Department of Chemistry, Temple University, Philadelphia, PA 19122; ygsun@temple.edu

Songtao Wu, Toyota Research Institute of North American Toyota Motor Engineering & Manufacturing North American, Inc., Ann Arbor, MI 48105; songtao.wu@tema.toyota.com

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Colloidal nanoparticles (e.g., semiconducting and magnetic particles) 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 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 to manipulate nanoparticle size, shape, and core/shell structure; (2) structural and property characterizations of nanoparticles; and (3) theoretic modeling and computational understanding of nanoparticle interaction.

Tentative listing of topics to be covered

- Controlling over nucleation and growth of colloidal nanoparticles
- Novel seeded growth for synthesis of complex nanoparticles
- Nanoparticle synthesis under extreme conditions (e.g., high pressure)
- In situ probing of colloidal nanoparticle synthesis
- Controlled assembly of colloidal nanoparticles
- In situ study of nanoparticle assembly
- Simulation and computation of nanoparticle formation and assembly

Basic Research in Colloids, Surfactants and Nanomaterials

Organizer:

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

This symposium is scheduled for all national meetings and accepts papers in all areas of colloids, surfactants and nanomaterials that are not already included in other thematic symposia. Experimental, theoretical and computational studies on all areas are encouraged for submission. Past examples of sessions within this symposium include metal, metal oxide, carbon, polymer and bio nanoparticles, nanoparticle synthesis, surfactant and block copolymer self-assembly, nanoparticle assemblies, physics and chemistry of interfaces, surface patterning, colloidal properties of surfactants and block copolymers, emulsions and dispersions and nanomedicine.

Applied biosensing based on functional colloids

Organizers:

Wolfgang Parak, Biophotonics Group, University of Marburg, D-35037 Marburg, Germany, and Biofunctional Materials Laboratory, CIC biomaGUNE, Paseo de Miramón 182, 20009 Donostia – San Sebastián, Spain; +49- 6421 28-24161; wolfgang.parak@physik.uni-marburg.de

Luis M. Liz-Marzán, Bionanoplasmonics Laboratory, CIC biomaGUNE, Paseo de Miramón 182, 20009 Donostia – San Sebastián, Spain; +34-943-005-300; lizmarzan@cicbiomagune.es

Ramon Alvarez Puebla, ICREA, Passeig Lluís Companys 23, 08010 Barcelona, Spain; ramon.alvarez@urv.cat

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Geoffrey Strouse, Molecular Biophysics, Florida State University, Tallahassee, FL, USA; 850-445-9042; strouse@chem.fsu.edu

In the past decade, the rapid development of biosensors capable of precisely detecting molecular targets have appeared. This is largely due to advancements in the chemical fabrication of nanomaterials and the

application of specific properties of such nanosystems allowing the identification of minute amounts of analytes in a wide variety of environments. An additional milestone has been the integration of microfluidics. This symposium will focus on different types of nanoparticle-based sensors, with a focus on practical applications. Different detection techniques are of interest, such as fluorescence-, plasmonic-, SERS-, or magnetic moment-based methodologies. The symposium will involve the synthesis and surface modifications of nanoparticles, their characterization, integration into sensing platforms, device fabrication, marketing strategies, etc. Appropriate topics include, but are not limited to:

- Particle synthesis and characterization
- Biofunctionalization
- SERS tags
- Fluorescence tags
- Plasmonic detection
- Magnetic detection
- Colloidal stability in biofluids
- Dynamic SERS probing of bioprocesses
- SERS vs. fluorescence sensors

Hierarchical Self-assembly of Organic Monolayers, Bilayers, and Films: Theory and Experiment

Organizers:

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

Amar Flood, Dept. of Chemistry, Indiana University; (812) 856-3642; aflood@indiana.edu,

Tentative cosponsors: ORG, PHYS

This symposium will cover current research in the ordering of organic materials in two-dimensional systems and self-organized, crystalline thin films through a variety of strategies to achieve nanostructure control and novel functional properties. A critical facet to the symposium is that it will encompass *both experimental and theoretical work* and will have a high degree of interdisciplinary character. A key theme of the symposium will be on the interplay of various intermolecular interactions to direct ordering and assembly of organic materials in 2D systems, which may include surface, membrane, and other interfaces, as well as the emergence of order under the non-equilibrium conditions of fabrication. The interactions will range from van der Waals contacts to hydrogen bonding to metal-organic coordination to the formation of ordered covalent frameworks. Presenters are encouraged to consider the breadth of audience, including researchers with training in organic synthesis, theory, computation, surface science, physical chemistry, inorganic chemistry, and supramolecular chemistry and also to consider opportunities to move our understanding of hierarchical self-assembly toward functional properties and technological applications.

This symposium is related to two previous symposia: one at the ACS Dallas meeting, which was very successful, "Supramolecular Self-assembly at Surfaces," and another at Pacificchem 2015. The symposium proposed extends this theme in a different direction to draw a more interdisciplinary audience by shifting focus from exclusively surfaces to 2D systems, by emphasizing the hierarchical nature of interactions in organic self-assembly, and by encouraging strong participation by theorists and computational chemists.

Chemistry and Physics in Tribology

Organizers:

Filippo Mangolini, Institute of Functional Surfaces, School of Mechanical Engineering, University of Leeds, Leeds, LS2 9JT, UK; Tel: 0044-(0)113-343-9740; Email: f.mangolini@leeds.ac.uk

Marina Ruths, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA 01854, USA; Tel: 978-934-3692; Fax: 978-934-3013; Email: Marina_Ruths@uml.edu

Tribology is an intrinsically interdisciplinary field, where fundamental explanations of friction, lubrication, and wear phenomena require a detailed understanding of surface chemistry, materials science, physics, and even biology. The complex, non-equilibrium interactions at buried sliding interfaces make tribology a scientifically rich but challenging field.

Innovations in materials, novel analytical methods, and an emerging convergence of the length and time scales accessible to computational methods and experiments are enabling the advancement of tribology from a largely phenomenological discipline to one based on understanding the fundamental processes occurring at the nano- and micrometer level. Recent advances include effects of chemical bond formation and surface microstructure, adhesion, surface roughness and deformation, phononic and electronic excitations, and biomimetic and bioinspired structures and coatings.

To promote further development of a cohesive understanding of the physico-chemical phenomena occurring at sliding interfaces, the symposium will bring together researchers with diverse backgrounds, but with a common interest in gaining insights into the origins and modeling of friction, lubrication, and wear of materials of technological interest.

Topics that will be covered include:

- Tribochemical phenomena
- Lubricants and lubrication: from macro to nano
- Chemistry and physics of solid lubricants
- Biotribology, biomimetic systems, and lubrication in aqueous media
- Nanoscale contact mechanics
- Advanced analytical methods for tribological studies
- Tribology in extreme environments
- Theoretical and computational advances in tribology

Coacervation: Physics, Chemistry and Biology

Organizers:

Paul Dubin, Department of Chemistry, University of Massachusetts Amherst, Amherst, MA; 413-577-4167; dubin@chem.umass.edu

Russell Stewart, Department of Bioengineering, University of Utah, Salt Lake City, UT; 801-581-8581; russell.stewart@utah.edu

Deposition and Etching of Nanostructures

Co-sponsored between INOR and COLL

Organizers:

D. Howard Fairbrother, Department of Chemistry, Johns Hopkins University; howardf@jhu.edu

Amy Walker, Department of Materials Science and Engineering, University of Texas at Dallas; amy.walker@utdallas.edu

Lisa McElwee-White, Department of Chemistry, University of Florida; lmwhite@chem.ufl.edu

The speakers will be a mix of academic, industrial, and government leaders in this area. This interdisciplinary symposium will cover the design and synthesis of new precursors, along with methods to deposit and/or pattern nanoscale materials using a variety of methods including electron beam induced deposition (EBID), atomic layer deposition (ALD) and chemical vapor deposition (CVD). By bridging the

symposium across divisions, we hope to facilitate new collaborations between materials scientists, chemical engineers, physical chemists, and inorganic chemists in this exciting area.

Molecular Surface Science, Nanomaterials & Catalysis: Symposium in honor of Gabor Somorjai at 80 (Invited Only)

Cosponsors: CATL

Organizers:

Robert M. Rioux, Department of Chemical Engineering, The Pennsylvania State University, State College, PA 16802; 814-867-2503; rioux@enr.psu.edu
Seong H. Kim, Department of Chemical Engineering, The Pennsylvania State University, State College, PA 16802; (814) 863-4809; shkim@enr.psu.edu

This Symposium will recognize Prof. Gabor Somorjai's long career in research and education in the fields of surface science, nanomaterials and heterogeneous catalysis, and will also serve as a celebration of his 80th birthday. Only invited papers will be presented in this symposium.

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

Organizers:

Paul Podsiadlo, ExxonMobil Research & Engineering Co., 1545 Rt. 22 East LD 224, Annandale, NJ 08801; 908 730 2461; paul.podsiadlo@exxonmobil.com

ACS Award for Research at an Undergraduate Institution: Symposium in Honor of Maria Hepel (Invited Only)

Organizers:

Silvana Andrescu, Department of Chemistry and Biomolecular Science, Clarkson University, Potsdam, NY 13699; 315-268 2394; eandrees@clarkson.edu

ACS Award Lectures

Co-sponsor: CATL

Organizers:

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

Award lectures will be presented by the following.

ACS Award in Colloid Chemistry Lecture - Nicholas Kotov
(Award sponsored by Colgate-Palmolive Company)

ACS Award in Surface Chemistry Lecture - Cynthia Friend
(Award sponsored by the ACS Division of Colloid and Surface Chemistry)

ACS Award for Research at an Undergraduate Institution Lecture - [Maria Hepel](#)
(Award sponsored by Research Corporation for Science Advancement)

Nano Letters Award Lecture - [Jennifer Dionne](#)
(Award sponsored by the ACS journal Nano Letters)

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.
