

MONDAY EVENING

Section A

Salt Palace Convention Center
Hall 5

General Papers

K. Hayslip, *Organizer*

8:00–10:00

1. TECH: Developing professional bonds. **D. Bailey**
2. The history of the National Chemical Technician Award. **D. Bailey**
3. The many faces of CTA. **V. M. Mautino**
4. The applied chemical technology summit. **M. K. Moore**, **V. M. Mautino**
5. What is a Technician Affiliate Group? **J. Engelman**, **M. K. Moore**, **C. Dunn**
6. Bridging the gap between industry and academia for the improvement of chemical technology programs. **T. Pagano**, **L. K. Quinsland**, **A. Ross**
7. Collaboration between industry and education. **J. K. Galitos**, **E. T. Gradney**

CHAL

Division of Chemistry & the Law

A. I. Ahmed and **J. M. Brown**,
Program Chairs

SUNDAY MORNING

Section A

Salt Palace Convention Center
355 C

Strengthening your Patent Rights in Light of Recent Federal Circuit Court Decisions

J. M. Brown and **X. Pillai**, *Organizers*,
Presiding

- 9:00 1. Strengthening your future patent rights in light of recent federal circuit court decisions. **J. M. Brown**, **X. Pillai**

Plagiarism: What is it? What Can We Do About It? Sponsored by CHED,
Cosponsored by CHAL, ETHC, and CINF

SUNDAY AFTERNOON

Section A

Salt Palace Convention Center
355 C

The Chemistry of Chocolate Cosponsored
by PRES

H. M. Peters, *Organizer, Presiding*

- 1:30 2. Chocolate is the food of the gods. **H. M. Peters**, **S. Peters**
- 2:00 3. The chemistry of cocoa. **W. Hurst**, **M. Payne**, **K. Miller**, **D. Staurt**, **J. Apgar**
- 2:30 4. Chocolate: Is it really good for you? **J. A. Vinson**
- 3:00 5. Making the food of gods. **S. Beckett**
- 3:30 Panel Discussion.

Nontraditional Careers in Chemistry

Sponsored by YCC, Cosponsored by
Chemical Information Careers Committee,
CINF, CHAL, SOCED, CEPA, SCHB[†], and
POLY

The official technical program
for the 237th National Meeting
is available online at
[oasys2.confex.com/acs/237nm/
techprogram/](http://oasys2.confex.com/acs/237nm/techprogram/).

MONDAY MORNING

Section A

Salt Palace Convention Center
355 C

The 25th Anniversary of the Hatch-Waxman Act: Trends in Pharmaceutical Patent Law Over the Past Twenty Five Years: CHAL's 25th Anniversary Series

J. J. Hasford, *Organizer, Presiding*

- 9:00 6. Paragraph IV patent challenges: Undisclosed risks for a blockbuster drug. **J. J. Hasford**
- 9:30 7. The first step to ANDA litigation: Orange Book listability with the FDA. **T. L. Irving**
- 10:00 8. Why Hatch-Waxman is not a model for biosimilars legislation. **S. Watt**
- 10:30 9. Citizen's petitions and their effect on FDA's review of ANDAs. **S. Lee**
- 11:00 Panel Discussion.

MONDAY AFTERNOON

Section A

Salt Palace Convention Center
355 C

The 25th Anniversary of the Hatch-Waxman Act: Trends in Pharmaceutical Patent Law Over the Past Twenty Five Years: CHAL's 25th Anniversary Series

A. I. Ahmed, *Organizer, Presiding*

- 1:30 10. Pharmaceutical patent litigation. **A. I. Ahmed**
- 2:00 11. Patents, competition, antitrust and generic drugs: Resolving Hatch-Waxman Act issues. **K. Drake**
- 2:30 12. FTC scrutiny of patent settlements in Hatch-Waxman cases. **M. McKitthen**
- 3:00 13. Application of eBay injunction standard to pharmaceutical patent litigation. **E. Kunz**

MONDAY EVENING

Section A

Salt Palace Convention Center
Hall 5

Sci-Mix

H. M. Peters, *Organizer, Presiding*

- 8:00–10:00 14. Chocolate is the food of the gods — especially on the Queen Mary 2. **H. M. Peters**
15. National Inventors Hall of Fame Inductees 2009. **H. M. Peters**

TUESDAY MORNING

Section A

Salt Palace Convention Center
355 C

Legal Perspectives on a Shrinking World: Intellectual Property, Business and Regulatory Issues in Nanotechnology

Cosponsored by SCHB and NANO
J. Bunker, *Organizer, Presiding*

- 9:00 Introductory Remarks.
- 9:10 16. When are nanoparticles new chemicals? A size-based criterion for molecular identity. **V. L. Colvin**
- 9:45 17. Biomedical nanotechnology: Patent trends and strategies for protecting your intellectual property. **R. Thiessen**
- 10:20 18. Addressing business and legal issues in nanotechnology start-up companies. **L. Astle**
- 10:55 19. Patenting nanotechnology: A review of recent U.S. Patent Office decisions on nanotech inventions. **J. J. Mallon**

Applications of Crystal Structure Information in Pharmaceutical Materials Development: Honoring Frank Allen Crystal Form Analysis, Experiment and Prediction Sponsored by CINF, Cosponsored by COMP, CHAL, and MEDI

TUESDAY AFTERNOON

Section A

Salt Palace Convention Center
355 C

New Policies Under the Obama Administration Related to Chemistry and the Law

J. Bogart, *Organizer, Presiding*

- 1:00 20. A new light for antitrust developments. **J. Bogart**
- 1:30 21. Emerging issues in clean technology law. **L. Saber**
- 2:00 22. Recent developments for ERIISA and health care plans. **S. Labowsky**
- 2:30 Panel Discussion.

Applications of Crystal Structure Information in Pharmaceutical Materials Development: Honoring Frank Allen Scientific and Regulatory Issues of Crystal Forms Sponsored by CINF, Cosponsored by COMP, CHAL, and MEDI

WEDNESDAY MORNING

Section A

Salt Palace Convention Center
355 C

The Law and Chemistry of Dietary Supplement Regulations

S. Turujman, *Organizer, Presiding*

- 9:00 Introductory Remarks.
- 9:10 23. Overview of the Dietary Supplement Health and Education Act: Definition of a new dietary ingredient. **M. McGuffin**
- 9:40 24. Chemistry review of a new dietary ingredient notification at FDA. **S. Turujman**
- 10:10 25. Dietary supplement cGMPs. **B. Williams**
- 10:40 26. Interaction of dietary supplements with drugs: Adverse events. **M. Hardy**
- 11:10 27. USP monographs for dietary supplements: The USP Dietary Supplement Verification Program. **J. Atwater**
- 11:40 28. Label health claims. **L. Israelsen**

WEDNESDAY AFTERNOON

Section A

Salt Palace Convention Center
355 C

The Many Faces of CHAL: Where Chemistry Meets the Law Cosponsored by Kirton & McConkie

J. M. Brown, *Organizer, Presiding*

- 1:30 29. Intellectual property enforcement and defense. **T. E. Zenger**
- 2:05 30. Patentability of chemical inventions: Obviousness of chemical compounds in view of recent court decisions. **J. R. Marrott**
- 2:40 31. Comprehensive, systematic intellectual property capture and management. **K. E. Horton**
- 3:15 Intermission.
- 3:25 32. Prosecution of chemical patent applications in the United States. **C. Metcalf**
- 4:00 33. Global protection of intellectual property. **E. R. Witt**

THURSDAY MORNING

Section A

Salt Palace Convention Center
355 C

The Many Faces of CHAL: Where Chemistry Meets the Law

A. I. Ahmed, *Organizer, Presiding*

- 9:00 34. Biomonitoring: Its expanding role in public health evaluations and litigation. **L. S. Kurfirst**
- 9:30 35. Design patents as part of a chemical IP portfolio. **S. R. Adams**
- 10:00 36. Nanotechnology in consumer products: An update on regulatory responses and litigation. **L. S. Kurfirst**

THURSDAY AFTERNOON

Section A

Salt Palace Convention Center
355 C

Ethics of Access to Copyrighted Scientific Print Publications Cosponsored by ETHC[‡]

E. S. Slater, *Organizer*

J. M. Brown, *Organizer, Presiding*

- 1:30 37. Ethics of access to copyrighted scientific print publications. **E. S. Slater**, **B. D. Crawford**, **C. P. Lake**, **S. King**

COLL

Division of Colloid & Surface Chemistry

J. Texter, *Program Chair*

SUNDAY MORNING

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials

Surface Enhanced Raman Spectroscopy

Cosponsored by NANO

J. Shumaker-Parry and **M. D. Porter**,
Organizers

C.-J. Zhong, *Organizer, Presiding*

- 8:30 1. Exploring single molecule SERS, the plasmonic periodic table, and plasmon microscopy. **R. P. Van Duyne**
- 9:00 2. Structural control for tuning IR plasmons and local fields of gold and silver nanoscintillators. **R. Bukasov**, **J. Shumaker-Parry**
- 9:20 3. Binding kinetics of antibody-functionalized nanoparticles to a rotating capture surface. **R. J. Lipert**, **G. Wang**, **M. D. Porter**
- 9:50 4. Rapid and sensitive detection of herpes simplex virus using a surface-enhanced Raman scattering based immunoassay platform. **H. P. Wampler**, **E. W. Taggart**, **M. C. Granger**, **M. D. Porter**
- 10:10 Intermission.
- 10:20 5. Molecularly-mediated engineering and assembly of nanoparticles. **C.-J. Zhong**
- 10:50 6. Optical properties and applications of rationally designed metal nanostructures: Hollow gold nanospheres. **J. Z. Zhang**, **A. Schwartzberg**, **T. Y. Olson**, **C. Li**
- 11:20 7. Development of surface enhanced Raman scattering immunoassay labels using gold nanoparticles. **M. M. Bradley**, **R. Narayanan**, **R. J. Lipert**, **J. D. Driskell**, **M. D. Porter**

- 11:50 **8.** Competitive immunoassays utilizing surface enhanced Raman scattering for the detection of small molecules. **E. J. Dufek**, M. C. Granger, T. Sandrock, S. J. Coldiron, M. D. Porter

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F

Structure and Function of Membranes, Proteins, and Lipids Techniques

N. Srividya, *Organizer*

S. Muralidharan, *Organizer, Presiding*

- 8:30 **9.** Molecular interactions between cell membranes and various molecules studied by vibrational spectroscopy techniques. **Z. Chen**

- 9:00 **10.** Total internal reflection with fluorescence correlation spectroscopy. **N. L. Thompson**

- 9:30 **11.** New tools for studies of membrane protein dimerization in mammalian membranes. **K. Kristova**

- 10:00 **12.** Mechanical properties of virulent and avirulent L. monocytogenes investigated by atomic force microscopy. **N. I. Abu-Lail**, B.-J. Park

10:30 Intermission.

- 10:40 **13.** Liposome/aqueous interface. **K. B. Eisenthal**, Y. Rao, M. Subir

- 11:10 **14.** Real-time, nonlinear optical and microscopic probe of molecular transport through living cell membrane and β -amyloid peptide oligomer formation. **H.-L. Dai**

- 11:40 **15.** Developing detection methods for ligand-receptor binding. **P. S. Cremer**, H. Jung

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Solvent Free and Almost Solvent Free Nanofluids Nanofluid Syntheses, Properties, and Applications Cosponsored by NANO

J. Texter, *Organizer, Presiding*

- 9:00 **16. Keynote Address.** Nanoparticle based ionic materials. **E. P. Giannelis**

- 9:40 **17.** Nanofluid rheology: Thermal transitions and reactive curing. **D. Chojnowski**, Z. Qiu, J. Texter

- 9:55 **18.** Liquid-like nanoparticles and their composites. L. Dong, Q. Feng, Q. Li, C. Xiong

10:25 Intermission.

- 10:35 **19.** Fullerene fluids: Liquids and liquid crystals. **T. Nakanishi**

- 11:05 **20.** Nanoindenting and AFM studies of nanofluid composites. **W. Shen**, R. Crombez, Z. Qiu, J. Texter

- 11:35 **21.** Metal oxide and sulfide nanoparticles modified with ionic liquid components. **J. Chen**, D. Liu

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

Detection and Monitoring of Engineered Nanoparticles in Environmental and Biological Systems Cosponsored by ENVR[†] and NANO

W. P. Johnson and P. K. Westerhoff, *Organizers, Presiding*

- 9:00 Introductory Remarks.

- 9:05 **22.** Exposure modeling of engineered nanoparticles in the environment. **B. Nowack**, N. C. Mueller, F. Gottschalk, T. Sonderer, R. W. Scholz

- 9:25 **23.** Natural organic matter enhanced mobility of nano zero-valent iron. R. L. Johnson, G. O'Brien Johnson, J. T. Nurmi, P. G. Tratnyek

- 9:45 **24.** Cellular uptake of manganese-based nanomaterials. **M. J. Siegfried**, S. E. Hunyadi, S. Jacobs, J. Liu, J. S. Hudson, T. C.-C. Hu, S. M. Serkiz

- 10:05 Discussion.

- 10:15 **25.** Withdrawn.

- 10:35 **26.** Enhanced environmental mobility of carbon nanotubes in the presence of humic acid and removal from aqueous solution. **A. A. Keller**, P. Wang, Q. Shi, G. Stucky

- 10:55 **27.** Transport of iron-nickel oxide nanoparticles in porous media. **Y. Hong**, R. J. Honda, N. V. Myung, S. L. Walker

11:15 Intermission.

- 11:30 **28.** Transport and application of magnetic permanently confined micelle arrays. **H. Wang**, A. A. Keller, G. D. Stucky

- 11:50 **29.** Predicting fate and transport of nanoparticles (and colloids) in porous media under environmental conditions. **H. Ma**, W. P. Johnson

- 12:10 **30.** Riverbank filtration: Comparison of pilot scale transport with theory. **V. Gupta**, W. P. Johnson, P. Shafieian, H. Ryu, A. Alum, M. Abbaszadegan, S. A. Hubbs, T. Rauch-Williams

Section E

Salt Palace Convention Center
151 G

Polymeric Microcapsules: Theory, Experiment and Applications

T. S. Emrick and A. Alexeev, *Organizers*

A. Balazs, *Organizer, Presiding*

- 9:00 **31.** Manipulation of weak forces for controlled and remote release. **H. Moehwald**

- 9:30 **32.** Using polymeric capsules to create self-healing systems. **A. C. Balazs**, R. Verberg, A. Alexeev, G. Kolmakov, K. Matyjaszewski

- 10:00 **33.** Controlling nanoparticle deposition on substrates using microencapsulation. R. Revanur, R. Tangirala, T. P. Russell, T. Emrick

10:30 Intermission.

- 10:45 **34.** Polymer design and assembly for next-generation particle delivery. **F. Caruso**

- 11:15 **35.** Cells as engineering substrates: Surface modification and interior loading of living microcapsules. **D. J. Irvine**

- 11:45 **36.** Mechanical characterization of microcapsules: AFM force spectroscopy and beyond. **A. Fery**

Chemistry for Catalyst Synthesis

Sponsored by CATL (probationary), Cosponsored by COLL and I&EC

Frontiers in Imaging Biological Nanostructures Sponsored by BIOL,

Cosponsored by ANYL, COLL, PHYS, POLY, and NANO[‡]

Green Nanoscience Sponsored by INOR,

Cosponsored by COLL, POLY, and NANO

Nano Meets Neuro: Novel Challenges for Nanoscience in Probing Brain Chemistry

Sponsored by MEDI, Cosponsored by ANYL, BIOL, COLL, and NANO[‡]

Polymers and Carbon Nanotubes

Tutorial on Carbon Nanotubes Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

Photographing or recording meeting sessions and/or activities other than your own are prohibited at all official ACS events without written consent from ACS.

SUNDAY AFTERNOON

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials

Surface Enhanced Raman Spectroscopy Cosponsored by NANO

J. Shumaker-Parry and C.-J. Zhong, *Organizers*

M. D. Porter, *Organizer, Presiding*

- 2:00 **37.** Design criteria, construction, characterization, and applications of nanoparticulate optical labels based on SERS. **M. J. Natan**

- 2:30 **38.** Templated internal nanoparticle formation for MOF characterization and small molecule sensing using surface enhanced Raman spectroscopy. **R. J. Houk**, B. W. Jacobs, A. A. Talin, M. D. Allendorf

- 3:00 **39.** Increasing heterogeneous immunoassay sensitivity through plasmonic optimization of the surface enhanced Raman scattering of gold nanoparticle labels. **E. J. Dufek**, J. D. Driskell, R. J. Lipert, M. D. Porter

- 3:20 **40.** Novel nanorod array substrates for high sensitivity biomolecular sensing. **R. Dluhy**, J. Driskell, Y. Zhao, P. Rota, R. Tripp

3:50 Intermission.

- 4:00 **41.** Detection of bacterial pathogens using protein shedding in the amplification of a surface enhanced Raman scattering sandwich immunoassay. **A. C. Crawford**

- 4:20 **42.** Modification of gold nanoparticles with stable aryl films for multicolor SERS detection of protein arrays. **M. T. McDermott**, N. Yang, L. Laurentius, R. Adjei

- 4:50 **43.** Design of gold nanoparticles for surface enhanced Raman scattering-based immunodiagnosics. **A. Andreyko**, C.-J. Zhong, J. Anderegg, M. D. Porter

- 5:10 **44.** Strategies for the design and ultra-sensitive readout of dense immunodiagnostic platforms. J. D. Driskell, K. M. Kwarta, B. J. Yakes, J. Uhlenkamp, R. L. Millen, N. Pekas, J. E. Nordling, R. J. Lipert, M. D. Porter

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F

Structure and Function of Membranes, Proteins, and Lipids Techniques

S. Muralidharan, *Organizer*

N. Srividya, *Organizer, Presiding*

- 2:00 **45.** Molecular forces and recognition in adaptive immunity. **D. Leckband**, S. Menon, K. Rosenberg, S. Graham, M. Taylor, K. Drickamer

- 2:30 **46.** Molecular mechanisms of specific membrane targeting by conserved protein domains. **J. J. Falke**, J. D. Knight, K. E. Landgraf

- 3:00 **47.** Photostable single molecule nanoparticle optical biosensors for sensing and imaging of single protein molecules and their binding kinetics. **X. N. Xu**, T. Huang, P. D. Nallathambiy

- 3:30 **48.** NMR properties of a transmembrane model peptide obtained by quantum chemical approaches: Comparison with solid-state NMR experiments. **L. Rougier**, G. Czapliski, A. Milon, O. Sauret, V. Réat, F. Jolibois

- 4:00 Intermission.

- 4:10 **49.** Directed formation of lipid membrane microdomains via metal ion recognition. **D. Sasaki**, C. C. Hayden, M. S. Kent, J. S. Hwang, E. A. Abate

- 4:40 **50.** Lipid nanodomains behave differently from lipid microdomains: A small angle neutron scattering study. **S. Garg**, L. Procar, P. Butler, U. Perez-Salas

- 5:10 **51.** Physical properties of lipid monolayer-bilayer junctions. **A. M. Brozell**, A. N. Parikh

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Solvent Free and Almost Solvent Free Nanofluids

Nanofluids and Materials Cosponsored by NANO

J. Texter, *Organizer*

T. Nakanishi, *Presiding*

- 2:00 **52.** Nanostructured metals from metal nanoparticle-block copolymer assembly. **U. Wiesner**

- 2:30 **53.** Solid-liquid interfacial energy at the nanoscale. **K. Voitchovsky**, J. K. Kuna, F. Stellacci

- 3:00 **54.** Heat conduction mechanism in nanofluids. **S. R. Kal**

3:20 Intermission.

- 3:30 **55.** Nanoparticle organic hybrid materials. **L. A. Archer**

- 4:00 **56.** Conductive nanoparticle liquids: Regenerative surfaces for relays and MEMs. **R. A. Vaia**, M. Jespersen, A. Elsen, J. Kelley, J. Slovic, S. Patton, R. R. Naik, P. Mirau, A. Voevodin

- 4:30 **57.** Bactericidal activity of solvent-free nanofluids. D. Clemans, R. Amad, B. Benhamida, Z. Qiu, J. Texter

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

Detection and Monitoring of Engineered Nanoparticles in Environmental and Biological Systems Cosponsored by ENVR[†] and NANO

W. P. Johnson and P. K. Westerhoff, *Organizers*

- 2:00 Introductory Remarks.

- 2:05 **58.** Characterizing metal-based nanoparticles in surface water by single-particle ICPMS. **E. M. Heithmar**

- 2:25 **59.** Physical-chemical characterization of residues from alteration of engineered nanomaterials: Commercialized sunscreens containing titanium dioxide nanoparticles. **C. Botta**, J. Labille, I. Gatri, J. Feng, E. M. Hotze, S. Chae, P. Chaurand, D. Borschneck, M.-A. Diot, N. Solovitch-Vella, A. Mason, J.-Y. Bottero, M. R. Wiesner, J. Rose

- 2:45 Discussion.

- 2:55 **60.** Real time single particle-inductively coupled plasma-mass spectrometry for detection and characterization of nanoparticles. **J. H. Monserud**, E. K. Leshner, J. F. Ranville

- 3:15 **61.** Detection, separation, and quantification of unlabeled silica nanoparticles in biological media using sedimentation field-flow fractionation. **S. Tadjiki**, S. Assami, C. E. Deering, J. M. Veranthen, J. D. Miller

- 3:35 **62.** Detection of titanium dioxide in wastewater treatment plants. **P. K. Westerhoff**, A. Kiser, T. M. Benn

- 3:55 Intermission.

- 4:10 **63.** Characterization of fullerene C60 nanomaterials within commercial face cream byproducts. **E. M. Hotze**, S. Chae, Y. Xiao, J. Labille, C. Botta, J. Rose, M. R. Wiesner

- 4:30 **64.** Engineered metal nanoparticles size distributions via FFF-ICPMS. **W. Huang**, W. P. Johnson

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

- 4:50 **65.** Flow field-flow-fractionation-inductively coupled plasma-mass spectrometry: A tool for characterizing size dependent elemental concentrations in metal-bearing engineered nanoparticles. **E. K. Leshner**, S. Lee, J. F. Ranville

‡ Cooperative Cosponsorship

- 5:10 **66.** Size and elemental distributions of nano- to micro- particulates in the geochemically-stratified Great Salt Lake, Utah. X. Diaz, **W. P. Johnson**, D. Fernandez, D. Nafz
- 5:30 Discussion.

Section E

Salt Palace Convention Center
151 G

Polymeric Microcapsules: Theory, Experiment and Applications

A. C. Balazs and A. Alexeev, *Organizers*

T. Emrick, *Organizer, Presiding*

- 2:00 **67.** Polymeric microcapsulates as a platform technology for biomimetic drug delivery. **S. Little**
- 2:30 **68.** Spotted polymersomes and striped micelles induced by ligand binding. **D. E. Discher**, D. A. Christian
- 3:00 **69.** Functional properties of enzyme-loaded polymersomes. **H-P. M. De Hoog**, J. J. L. M. Cornelissen, R. J. M. Nolte, I. W. C. E. Arends
- 3:20 Intermission.
- 3:35 **70.** Leuko-polymersomes. D. A. Hammer, **G. Robbins**, J. B. Haun, W. Qi, L. Smith, J. Lin, M. J. Therien, F. S. Bates
- 4:05 **71.** Polymersomes as multistep reactors. **S. F. M. van Dongen**, M. Nallani, J. J. L. M. Cornelissen, R. J. M. Nolte, J. C. van Hest
- 4:25 **72.** Functionalized PEO based block copolymer vesicles. **K. G. Kinnibrugh**, J. S. Gaspard, J. A. Silas

Chemistry for Catalyst Synthesis
Sponsored by CATL (probationary),
Cosponsored by COLL and I&EC

Frontiers in Imaging Biological Nanostructures Sponsored by BIOL,
Cosponsored by ANYL, COLL, PHYS, POLY,
and NANO[†]

Nano Meets Neuro: Novel Challenges for Neuroscience in Probing Brain Chemistry
Sponsored by MEDI, Cosponsored by ANYL,
BIOL, COLL, and NANO[†]

Nanoscience: Characterization and Applications Sponsored by INOR,
Cosponsored by COLL, POLY, and NANO

Nanotechnology in Catalysis VI Sponsored
by CATL (probationary), Cosponsored by
COLL, FUEL, I&EC, PETR, and NANO

Polymers and Carbon Nanotubes Dispersion and Functionalization
Sponsored by POLY, Cosponsored by COLL,
I&EC, PHYS, PMSE, and NANO

MONDAY MORNING

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials
Catalysis Cosponsored by NANO

J. Shumaker-Parry, C-J. Zhong, and
M. D. Porter, *Organizers*

P. K. Dutta, *Presiding*

- 8:30 **73.** Growth mechanism, structural regulation and functionalization of carbon-based nanotubes. **Z. Hu**
- 9:00 **74.** Assembly of a zeolite-based architecture for photochemical energy conversion. **P. K. Dutta**
- 9:30 **75.** CO oxidation on Rh/SiO₂/Mo(112) model catalysts at elevated pressures. S. M. Mcclure, **M. Lundwall**, F. Yang, Z. Zhou, D. W. Goodman
- 9:50 **76.** Shape controlled nanocrystals of ceria and platinum: Synthesis and growth mechanism. **Z. L. Wang**
- 10:20 Intermission.

- 10:30 **77.** Catalytic reduction of tetrachloroethene dense nonaqueous phase liquid by different types of reactive iron nanoparticles. **S. R. Kanel**, J. Costanza, K. D. Pennell
- 10:50 **78.** Synthesis, characterization and reaction studies on metal nanoparticles in the 0.8-10 nm size range and controlled shape. **G. A. Somorjai**
- 11:20 **79.** Catalysis by palladium-gold alloys: From planar surfaces crystals to nanoparticles. **D. W. Goodman**

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F

Structure and Function of Membranes, Proteins, and Lipids

S. Muralidharan and N. Srividya,
Organizers

Y. Wang, *Presiding*

- 8:30 **80.** Pore-forming antimicrobial peptides: A system almost understood. **H. W. Huang**
- 9:00 **81.** SNARE proteins, nanodomains and their interaction with secretory vesicles during exocytosis. **W. Almers**, M. Knowles, S. Barg, L. Wan
- 9:30 **82.** The aminophospholipid flip-flop: Identification and substrate specificity. **D. L. Daleke**, S. Smriti, J. K. Paterson, N. Venkatraman, S. M. Cook
- 10:00 **83.** What is the mechanism of antimicrobial peptide activity? **W. C. Wimley**
- 10:30 Intermission.
- 10:40 **84.** Self-assembly in biological systems: From neuronal cytoskeletal proteins to curvature stabilizing lipids. **C. R. Safinya**
- 11:10 **85.** Probing the early events in membrane protein folding. **F. Gai**
- 11:40 **86.** FRET Biosensors and computational analysis for studying signaling transduction at the plasma membrane in live cells. **Y. Wang**, J. Seong, S. Lu

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Molecular Rotors and Motors Cosponsored
by PHYS and NANO[†]

E. C. H. Sykes, *Organizer*

- 8:30 **87.** Toward designed surface ferroelectricity. L. Kobr, D. L. Casher, T. F. Magnera, G. Izzet, I. Stibor, J. Chocholoušová, J. Vacek, R. K. Shoemaker, J. C. Price, K. Zhao, P. Sozzani, **J. Michl**
- 9:10 **88.** Light-driven molecular motors at interfaces. **G. T. Carroll**, G. London, J. Vachon, M. M. Pollard, T. Fernández Landaluze, B. L. Feringa
- 9:50 **89.** Thermal and mechanical activation of single-molecule thioether rotors. **A. E. Baber**, H. L. Tierney, E. C. H. Sykes
- 10:10 Intermission.
- 10:20 **90.** Analysis of thermally-induced and photoactivated motion by STM. **K. F. Kelly**
- 11:00 **91.** Thermally-driven nanocars and molecular rotors: What can we learn from molecular dynamics simulations. **A. B. Kolomeisky**, A. Akimov

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

The Influence of Ions and Osmolytes on Aqueous Macromolecules Hofmeister Salts

P. S. Cremer, *Organizer, Presiding*

- 9:00 **92.** Composition and chemistry at the vapor/liquid interface of ionic aqueous solutions. **J. C. Hemminger**, M. A. Brown, M. J. Krisch, H. Bluhm, B. Winter
- 9:35 **93.** Hofmeister effects on polymer and protein aggregation. **Y. Zhang**, L. B. Sagle, J. Kherb, Y. Cho, P. Cremer

- 10:10 **94.** Ions at aqueous interfaces: From water surface to hydrated proteins. J. Heyda, R. Vacha, J. Vondrasek, **P. Jungwirth**
- 10:45 Intermission.
- 10:55 **95.** Molecular dynamics studies of specific ion interactions with polar and hydrophobic molecules at the air-water interface and in aqueous solution. **D. J. Tobias**
- 11:30 **96.** pH of the liquid water surface: Selective adsorption of hydronium and hydroxide. P. B. Petersen, **R. J. Saykally**

Section E

Salt Palace Convention Center
151 G

Polymeric Microcapsules: Theory, Experiment and Applications

A. C. Balazs and T. S. Emrick, *Organizers*

A. Alexeev, *Organizer, Presiding*

- 9:00 **97.** Routes to novel microcapsule morphologies. **P. S. Clegg**
- 9:30 **98.** Formation of multivesicular polymer capsules through instabilities of liquid interfaces. **R. C. Hayward**, J. Zhu
- 10:00 **99.** Alternating polymer capsules. D. Wu, S. Fenimore, D. Danino, C. C. Ho, **C. C. Co**
- 10:30 Intermission.
- 10:45 **100.** Encapsulation using rod-like bionanoparticles: The case of TMV. J. He, Z. Niu, R. Tangirala, J.-Y. Wang, Y. Wei, G. Kaur, Q. Wang, G. Jutz, A. Boeker, B. Lee, S. V. Pingali, P. Thyagarajan, T. S. Emrick, **T. P. Russell**
- 11:15 **101.** Asymmetric charge renormalization and interactions of nanoparticles in aqueous media. **M. Olvera de la Cruz**
- 11:45 **102.** Multistage hierarchical assembly of polymers and nanostructures to afford well-defined, stimulus-responsive and/or reactive nanostructures. S. I. Cauët, C. Cheng, H. Fang, N. S. Lee, P. Lu, G. Sun, K. Zhang, J.-S. A. Taylor, A. V. Walker, **K. L. Wooley**

Section F

Salt Palace Convention Center
155 C

Applications in Nanoscience Gold Particles and Surfaces Cosponsored
by POLY, INOR, and NANO

P. Kral, *Presiding*

- 9:00 **103.** In situ SAXS/WAXS/UV time resolved following of the nucleation and growth of gold nanorods. **F. Hubert**, F. Testard, O. Spalla
- 9:20 **104.** Bioactive glyconanoparticles for the study of biomolecular recognition processes. **R. Narain**, A. Housni, X. Jiang
- 9:40 **105.** Buffer layer assisted deposition of metallic nanoclusters: Characterization and chemical reactivity. **M. Asscher**
- 10:00 **106.** Electrochemically-triggered assembly of gold nanoparticles in solution. **N. T. Flynn**, S. Kim, G. N. Gantost, A. H. Tran
- 10:20 Intermission.
- 10:30 **107.** Fabrication of periodic gold nanoparticle assemblies on silica using selective electroless gold plating combined with nanosphere lithography. **W. Ahn**, P. Blake, D. K. Roper
- 10:50 **108.** Facile synthetic approach to phosphine stabilized gold nanoparticles. **P. M. Shem**, R. Sardar, J. Shumaker-Parry

- 11:10 **109.** High sensitivity protein detection by gold nanoparticles: Aptamer conjugate enhanced surface plasmon resonance. **B. Subramanian**, D. A. Spivak, S. A. Soper
- 11:30 **110.** Stabilization and functionalization of superparamagnetic iron oxide (gold) core(shell) nanoparticles. L. L. **Rouhana**, J. B. Schlenoff
- 11:50 **111.** Self-assembly of hydrogen-bonded molecular moulds on Au(111). **M. Yu**, W. Xu, N. Kalashnyk, R. Barattin, Y. B. Jalal, E. Lægsgaard, I. Stensgaard, M. Hliwa, X. Bouju, A. Gourdon, C. Joachim, T. R. Linderroth, F. Besenbacher
- 12:10 **112.** Small molecule detection by 2-part and 3-part nanoparticle-based sensor. **J. L. Chávez**, W. Lyon, N. Kelley-Loughnane, M. O. Stone

Chemistry for Catalyst Synthesis

Sponsored by CATL (probationary),
Cosponsored by COLL and I&EC

Nanotechnology in Catalysis VI Sponsored
by CATL (probationary), Cosponsored by
COLL, FUEL, I&EC, PETR, and NANO

Polymers and Carbon Nanotubes Processing of Composites Sponsored by
POLY, Cosponsored by COLL, I&EC, PHYS,
PMSE, and NANO

MONDAY AFTERNOON

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials
Organization, Sensing & Characterization
Cosponsored by NANO

M. D. Porter and C-J. Zhong, *Organizers*

J. Shumaker-Parry, *Organizer, Presiding*

- 2:00 **113.** Precise clusters, superatoms, and cluster-assembled materials. **P. S. Weiss**
- 2:30 **114.** Catalytic transformations of biological macromolecules in geometrically confined environments: Simulation and experiment. **P. W. Bohn**, Z. Wang, S. Branagan, T. L. King
- 3:00 **115.** Investigation of under control particle deposition by design of an electrochemical adsorption cell. **E. Bakhshi**, F. Abniki
- 3:20 Intermission.
- 3:30 **116.** Vapor sensing using conjugated molecule-linked Au nanoparticles in a siloxane matrix. **S. M. Dirk**, S. W. Howell, B. K. Price, H. Fan, W. Cody, D. R. Wheeler, J. M. Tour, J. J. Whiting, R. J. Simonson
- 3:50 **117.** Clean the surfaces of oily nanocrystals and their extra high efficiency of removing arsenic out of water. **F. Li**, J. T. Mayo, V. L. Colvin
- 4:10 **118.** Giant magnetoresistive sensors as a molecular recognition platform. **J. A. Williams**, R. L. Millen, M. C. Granger, M. D. Porter
- 4:30 **119.** Tailoring optical properties of plasmonic materials through fabrication and assembly. **J. Shumaker-Parry**

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F

Structure and Function of Membranes, Proteins, and Lipids

S. Muralidharan and N. Srividya,
Organizers

N. I. Abu-Lail, *Presiding*

- 2:00 **120.** Imaging amphiphilic block copolymer interactions with model lipid bilayers. **B. Lee**, **M. A. Firestone**
- 2:30 **121.** Mechanisms of membrane deformation by ENTH and BAR domains. **W. Cho**

The official technical program
for the 237th National Meeting
is available online at
[oasys2.confex.com/acs/237nm/
techprogram/](http://oasys2.confex.com/acs/237nm/techprogram/).

- 3:00 122.** Influence of cell mechanics on cellular processes. **N. Srividya**, C. Bandaranayake, G. Balandaram, S. Muralidharan
- 3:30 123.** Cluster size regulates protein sorting in the immunological synapse. **N. C. Hartman**, J. A. Nye, J. T. Groves
- 4:00** Intermission.
- 4:10 124.** Mechanical perturbation of T cell membrane and actin retrograde flow. **C-H. Yu**, B. Manz, J. T. Groves
- 4:40 125.** Molecular engineering of interfaces with hydrophobins. **M. Linder**, G. R. Szilvay, K. Kurppa, A. Paananen
- 5:10 126.** Effect of surface chemistry on monoclonal antibody adsorption. **X. Wang**, Y. Wang, H. Xu, H. Shan, J. R. Lu

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Molecular Rotors and Motors Cosponsored by PHYS and NANO[†]

E. C. H. Sykes, *Organizer*

- 12:30 127.** Crystalline arrays of molecular gyroscopes: Toward the limit of barrierless rotation in solid state materials. **M. A. Garcia-Garibay**
- 1:10 128.** Generalized fluctuation-dissipation relations for Brownian sieves and molecular machines. **R. D. Astumian**
- 1:50 129.** Rotary molecular motion at the nanoscale: Motors, propellers, wheels. **P. Kral**
- 2:30** Intermission.
- 2:40 130.** Maximum force obtainable from a molecular photoactuator. **R. Boulatov**
- 3:00 131.** Molecular rotors: TICT fluorophores with mechanosensitive properties. **M. Haidekker**, E. A. Theodorakis, J. Sutharsan, W. C. Cho

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

The Influence of Ions and Osmolytes on Aqueous Macromolecules
Osmolytes

P. S. Cremer, *Organizer, Presiding*

- 2:00 132.** Effects of urea, glycine betaine (GB), trifluoroethanol (TFE) and Hofmeister salts on biopolymer processes. **M. T. Record Jr.**, L. M. Pegram, M. W. Capp, J. G. Cannon
- 2:35 133.** Infrared-visible sum frequency generation spectroscopy as a tool for probing small molecule denaturants and stabilizers at the protein-water interface. **L. B. Sagle**, X. Chen, S. C. Flores, P. S. Cremer
- 3:10 134.** Molecular transfer model for osmolyte effects on protein folding. **D. Thirumalai**
- 3:45** Intermission.
- 3:55 135.** Soft and hard interactions. **G. J. Pielak**, C. Li, A. C. Miklos
- 4:30 136.** Structure of aqueous osmolyte solutions near peptides. **B. M. Pettitt**

Section E

Salt Palace Convention Center
151 G

Polymeric Microcapsules: Theory, Experiment and Applications

T. S. Emrick and A. Alexeev, *Organizers*

A. C. Balazs, *Organizer, Presiding*

- 2:00 137.** Self-exploding microcapsules. **B. G. De Geest**, S. C. De Smedt, W. E. Hennink
- 2:30 138.** Self-motile colloidal particles: From random walks to directed propulsion and chemotaxis. **J. R. Howse**, R. A. L. Jones, A. J. Ryan, R. Golestanian

- 3:00 139.** Self-propelled motion of multiple interacting microcapsules. **A. Bhattacharya**, O. B. Usta, A. C. Balazs
- 3:30** Intermission.
- 3:45 140.** Designing patterned substrates to regulate movement of compliant microcapsules. **A. Alexeev**, O. B. Usta, A. C. Balazs
- 4:15 141.** Dynamic processes on the surfaces of microcarriers: Adhesive features critical to transport and release. **M. M. Santore**
- 4:45 142.** Modeling the adhesion of deformable cells to surfaces under flow. **M. R. King**, D. J. Gee

Section F

Salt Palace Convention Center
155 C

Applications in Nanoscience
Films and Surfaces Cosponsored by POLY, INOR, and NANO

R. D. Tilton, *Presiding*

- 2:00 143.** Formation and arrangement of nano-objects on a substrate for wetting control. **X. Bulliard**, A. Benayad, K-H. Lee, Y-H. Choi, J-J. Park, J. Lee, Y. Jin, S. Lee
- 2:20 144.** Sum frequency generation and catalytic reaction studies of the influence of UV-ozone cleaning of organic capped platinum nanoparticles. **C. E. Aliaga**, G. A. Somorjai
- 2:40 145.** Electrostatic properties of nonideal polar organic monolayers: Implications for electronic devices. **S. R. Punireddi**, N. Gozlan, **H. Haick**
- 3:00 146.** Highly stable organic monolayer for reacting Si with further functionalities. **S. R. Punireddi**, O. Assad, H. Haick
- 3:20** Intermission.
- 3:30 147.** Multiscale modeling of the self-assembly of nonionic poly(oxyethylene) alkyl ether surfactants in bulk and on solid surfaces. **J. D. Moore**, K. E. Gubbins
- 3:50 148.** Silicon nanoplate arrays: Implications for biosensing and electronic label-free detection. **B. Dorvel**, B. Reddy Jr., O. Eilbol, F. Butler, D. Bergstrom, M. Alam, R. Bashir
- 4:10 149.** Simultaneous detection of surface coverage by helium atom diffraction and quartz crystal microbalance techniques. **M. F. Danisman**, G. Scoles
- 4:30 150.** Surface-enhanced vibrational investigation of analgesics adsorbed on silver nanofilms. **D. A. Perry**

Catalysis for Cellulosic Feedstock Conversion Sponsored by CATL (probationary), Cosponsored by CELL, COLL, FUEL, I&EC, and PETR

Frontiers in Imaging Biological Nanostructures Sponsored by BIOL, Cosponsored by ANYL, COLL, PHYS, POLY, and NANO[†]

Nanoscience: Characterization and Applications
Energy and Magnetism Sponsored by INOR, Cosponsored by COLL, POLY, and NANO

Nanotechnology in Catalysis VI Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

Polymers and Carbon Nanotubes Properties of Composites Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

MONDAY EVENING

Section A

Salt Palace Convention Center
Hall 1

Fundamental Research in Colloid and Surface Chemistry
General Papers Cosponsored by NANO

J. Texter, *Organizer*

D. E. Leckband, *Presiding*

6:00-8:00

- 151.** Liquid-like polymers. **Q. Li**, **L. Dong**, **J. Huang**, **C. Xiong**

- 152.** Effect of macromolecular crowding on the thermodynamics of DNA duplex formation. **D. B. Knowles**, M. T. Record Jr.
- 153.** A new class of supported lipid bilayers: Lipid coated porous silica microspheres. **E. L. Kendall**, J. Liu, J. C. Brinker, A. N. Parikh
- 154.** Aerogel catalysts prepared via rapid supercritical extraction. **M. S. Bono**, A. M. Anderson, M. K. Carroll
- 155.** Anisotropic dewetting on rice leaf-like surfaces. **S. G. Lee**, H. S. Lim, D. Y. Lee, K. Cho
- 156.** Application of alternating pulse current in preventing passivation of aluminium electrode. **L. J. Wen**
- 157.** Characterization of designed nanoscale test platforms of organosilanes using a new approach for frequency modulation AFM. **K. L. Lusker**, J-R. Li, J. C. Gamo
- 158.** Coulomb blockade and bias-induced switching of zinc coordinated thiol-tethered tripyridyl porphyrins on Au(111). **A. E. Schuckman**, L. M. Pérez, M. Vinodu, J. P. Tomé, L. H. Yu, C. M. Drain, J. G. Kushmerick, J. D. Batteas
- 159.** Degradation of NH₂-terminated self-assembled monolayer on gold. **W-C. Lin**, S-H. Lee, M. Karakachian, B-Y. Yu, K-J. Lo, Y-C. Lin, C-H. Kuo, J-J. Shyue
- 160.** Effect of rafts-like lipid domains present in the one leaflet of a lipid bilayer on the organization and dynamics of the adjacent leaflet. **S. Garg**, J. Ruehe, C. A. Naumann
- 161.** Flexible aerogel synthesized by bis[3-triethoxysilylpropyl]disulfide and diglycidyl ether terminated poly(dimethylsiloxane). **H. Guo**, D. A. Scheiman, B. N. Nguyen, M. A. B. Meador
- 162.** Fluorescent studies on the properties of lipid bilayers supported on colloidal crystals. **T. James**, E. E. Ross
- 163.** Formation of viologen-functionalized monolayers in nanoporous anodic alumina for reagentless multiplexed biosensing. **K. R. Gade**, R. D. Long, J. Yan
- 164.** Immobilization of molecular rotors to glass substrates as a viscosity sensor platform. **D. Lichlyter**, **M. Haidekker**
- 165.** Interfacial solvatochromic behavior of acrylodan-modified SAMs on glass. **A. Mudalige**, J. E. Pemberton
- 166.** Investigation of interfacial interactions of solid-state benzene with low work function metals by Raman spectroscopy and mass spectrometry. **M. C. Schalnait**, J. E. Pemberton
- 167.** Microemulsion templating of metal microstructures. **B. O'Neal**, L. MacKenzie, F. Maddox, C. Cook, C. Redden, M. G. Bakker
- 168.** Multiscale ordering of supported lipid bilayers via lipoprotein self-assembly and surface patterning. **D. A. Bricarello**
- 169.** Nitroaromatic actuation of pyruvate bioelectrocatalysis for explosive sensing. **M. N. Germain**, S. D. Minter
- 170.** Nucleophilic and electrophilic additions to the Si-rich β -SiC(100) surface. **L. N. Adhikari**, S. M. Casey
- 171.** Preferential adsorption at solid-liquid interfaces: Mixtures of linear and branched alkanes on Au(111). **S. Wenzel**, **K. E. Anderson**, J. I. Siepmann
- 172.** Preparation of functional aptamer films and multilayered shells using layer-by-layer self-assembly. **Y. Sultan**, R. Walsh, C. Monreal, M. Schnitzer, M. DeRosa
- 173.** Reduced *Candida albicans* adhesion via polymeric nitric oxide release. **B. J. Privett**, C. D. Chouinard, M. H. Schoenfisch
- 174.** Specific cationic effects on phase transition temperature of biomacromolecules. **J. Kherb**, Y. Zhang, Y. Cho, P. Cremer

- 175.** Structure-activity relationships for a series of dopamine-related cationic lipids for gene delivery. **S. Savarala**, S. L. Wunder, M. A. Ilies
- 176.** Structure-property investigations of electropolymerizable 2,2'-carbonyldithiophenes using current-sensing AFM. **Z. M. LeJeune**, **K. L. Lusker**, T. Brown, E. Hao, E. Hwang, B. Fabre, M. G. H. Vicente, E. E. Nesterov, J. C. Gamo
- 177.** Study of the behavior of miscible and partially miscible systems using spinning drop tensiometry. **G. Viner**, J. A. Pojman
- 178.** Synthesis and properties of nickel and rhodium phosphide hydrotreating catalysts. **A. F. Gaudette**, E. P. Gleason, K. Senevirathne, S. L. Brock, M. E. Bussell
- 179.** Synthesis of PdO-doped SnO₂ nanomaterial for creation of an active surface of adsorption-semiconductor hydrogen sensor operating at a low temperature. **A. I. Buvallo**, L. P. Oleksenko, N. P. Maksimovich, I. P. Matushko, E. Borguett
- 180.** Withdrawn.
- 181.** The preparation and chemical reaction kinetics of microcrystalline tungsten bronze thin films with nitrobenzene and iron(III) solutions. **N. Materer**, A. Applett, K. Hays, K. Kashif
- 182.** Thin fluorescent films for sensor application. **M. Chyasnovichyus**, V. Tsyalkovskiy, B. Zdyko, V. Klep, I. Luzinov
- 183.** Tuneable buckling in polymer-tethered lipid bilayers creates diffusion barriers and a platform for studying hot diffusion. **A. P. Siegel**, M. J. Murcia, J. Ruehe, R. Jordan, C. A. Naumann

Section B

Salt Palace Convention Center
Hall 1

Fundamental Research in Colloid and Surface Chemistry
Structure and Function of Membranes, Proteins, and Lipids Cosponsored by NANO

S. Muralidharan, N. Srividya, and J. Texter, *Organizers*

D. E. Leckband, *Presiding*

6:00-8:00

- 184.** Effect of imposed geometrical patterns on the lipid membrane organization and dynamics. **S. Garg**, R. Divan, U. Perez-Salas
- 185.** Single lipid bilayers inside nanoporous anodic alumina: An electrochemical study on the lateral diffusion kinetics of membrane components. **L. D. Chinnam**, J. Yan
- 186.** Size and charge-based transport selectivity through free-standing colloidal membranes. **P. A. Ignacio-de Leon**, I. Zharov
- 187.** Surface characterization of bovine milk phospholipid monolayers and native milk fat globule membrane by microscopy techniques. **S. Gallier**, D. E. Gragson, D. W. Everett, R. Jimenez-Flores
- 188.** Asymmetries, topologies, and substrate interactions of supported lipid bilayers via FLIC. **M. I. Hoopes**, R. Fallner, M. L. Longo
- 189.** Coarse-grained modeling of phospholipid membrane to understand line tension. **K. Dorrance**, N. Srividya, S. Muralidharan
- 190.** Effects of temperature on alcohol-induced interdigitation in supported lipid bilayers. **J. M. Vanegas**, D. E. Block, R. Fallner, M. L. Longo
- 191.** Investigation of the mechanism of phosphatidylserine translocation in cells. **S. Patel**, N. Srividya, S. Muralidharan
- 192.** Molecular lego nanosensors for the detection of biotoxins. **E. J. Sanchez**, N. Srividya, S. Muralidharan
- 193.** Molecular simulation approaches to gel-LC phase equilibria in phospholipid bilayers. **P. S. Coppock**, J. T. Kindt
- 194.** Quantitative determination of variations in lipid composition during anaerobic fermentation of commercial wine yeast strains by tandem mass spectrometry. **C. M. Henderson**, **M. L. Longo**, D. E. Block

Photographing or recording meeting sessions and/or activities other than your own are prohibited at all official ACS events without written consent from ACS.

† Cooperative Cosponsorship

195. Quantum dots coupled with peptides and proteins as probes for phosphatidylserine in cells. **A. Towleron**, N. Srividya, S. Muralidharan
196. Role of mechanotransduction in cancer metastasis. **C. Bandaranayake**, N. Srividya, S. Muralidharan
197. Stochasticity in gene expression in response to external forces. **G. Balandaram**, N. Srividya, S. Muralidharan

Section C

Salt Palace Convention Center
Hall 1**Fundamental Research in Colloid and Surface Chemistry Nanoparticles, Particles and Particle-Based Materials** Cosponsored by NANOJ. Texter, *Organizer*D. E. Leckband, *Presiding*

6:00–8:00

198. Withdrawn.
199. Fluorophore-gold nanoparticle conjugates formed using a pyrene-based fluorophore in a dual role as reducing and stabilizing agent in a single step aqueous phase synthesis. **C. Pecchia-Bekum**, R. Sardar, N. S. Bjorge, J. Shumaker-Parry
200. Internal functionalization and surface modification of omosil nanoparticles. **E. M. Brozek**, I. Zharov
201. Novel nanoparticle silver oxide cathodes for fast-discharge batteries. **M. Hepel**, V. Landau
202. Withdrawn.
203. Withdrawn.
204. Unexpected effect of CNT exfoliation on adsorption kinetics of small organic molecules bundles vs. isolated carbon nanotubes. **M. Komarneni**, A. Sand, M. Lu, U. Burghaus
205. Aggregation behavior of water soluble CdSe quantum dots in aquatic system. **A. B. M. Giasuddin**, J. J. Locklin, C. Ray
206. Artificial polymers mimic bacteriophage capsid proteins and encapsulate nucleic acids. **D. B. Robinson**, G. M. Buffleben, R. N. Zuckermann
207. Atomic force microscopy for functionalized particles on biological surfaces. **C-Y. Chiang**, S. Moses, R. Bianchini
208. Conducting probe atomic force microscopy study of electrical and mechanical properties of single ferritin nanoparticles. **L. Ditzler**, A. V. Tivanski
209. Engineered metallic and bimetallic nanoparticles for the detection of organophosphorus pesticides. **T. A. Samuels**, C. De, S. O. Obare
210. Engineered PLGA nanoparticles for the delivery of siRNA. **E. M. Enlow**, P. A. Ropp, S. Tian, J. M. DeSimone
211. Enhancement of colloidal stability of magnetite (Fe₃O₄) nanoparticles using an amphiphilic polymer. **M. Kim**, J. Jung, J. Lee, K. Na, S. Park, J. Hyun
212. Fabrication and characterization of silicon nanoplates for biosensing applications. **B. Dorvel**, B. Reddy Jr., O. Eilbol, P. Nair, F. Butler, D. Bergstrom, M. Alam, R. Bashir
213. Facile synthesis of asymmetric hybrid colloidal particles. **A. Ohnuma**, E. C. Cho, P. H. C. Camargo, L. Au, B. Ohtani, Y. Xia
214. Gold nanoclusters deposited on silica via water as a buffer layer: Carbon monoxide-infrared reflection absorption spectroscopy and temperature programmed desorption characterization. **M. Lundwall**, E. Gross, M. Asscher, D. W. Goodman
215. Growth and morphology of metal nanoparticles on CeO_x(111) thin films. **Y. Zhou**, P. J. Riedel, J. Zhou
216. Increase in photoluminescence of ZnO nanoparticle by laser irradiation. **H. Wada**, S. Takahashi, A. Noguchi, O. Odawara

217. Magnetic Fe₂O₃ Au core-shell nanoparticles used for bioseparation and surface-enhanced Raman spectroscopy studies. **R. Gu Sr.**, F. Bao, J.-L. Yao Sr.
218. PEGylated Si nanoparticles. **P. K. Sudeep**, **Z. A. Page**, T. Emrick
219. Photoinduced cross-linking of diacetylene-coated nanoparticles. **T. W. Hanks**, R. Leach, W. M. Pryor, W. Gillespie, L. L. Wright
220. Polymer single crystal as nanoparticle sticker. **B. Li**, C. Y. Li
221. Preparation and characterization of visible-light active Fe-doped SiO₂/TiO₂ nanoparticles. **C. Su**, P. S. Yu, H.-S. Chen
222. Preparation of inherently fluorescent silica-silsesquioxane nanoparticles. **J. T. Wertz**, D. J. Boday, D. A. Loy
223. Preparation of surface modified gold nanoparticles with polystyrene and their incorporation in polystyrene nanocomposite films for organic memory devices. **S. K. Bae**, T. H. Lim, S. Pyo, D.-H. Hwang, S. C. Hong
224. Reactive curing of nanofluid-based resins. **D. Chojnowski**, Z. Qiu, W. Shen, J. Texter
225. Spatially selective tuning of quantum dot thin film optical properties by photopatterning. **J. Chen**, Y.-H. Chan, D. H. Son, P. S. Cremer, J. D. Bateas
226. Withdrawn.
227. Synthesis and characterization of hydrophobic CaCO₃ nanoparticles in situ. **X. Zhai**, **C. Wang**, W. Che
228. Synthesis and electrochemical characterization of bimetallic nanoparticles. **K. E. Crawford**, M. Liu, S. O. Obare
229. Synthesis of nanoparticles in chiral ionic liquids. **A. Querejeta**, F. del Monte, J. M. González-Calbet, M. Parras, A. Varela, N. Kotov
230. Synthesis of nitric oxide-releasing S-nitrosotriol silica nanoparticles. **D. A. Riccio**, J. L. Nugent, M. H. Schoenfish
231. The effect of pH value on colloidal stability of polyaniline nanorods. **Q. Zhang**, W. Li
232. The property of ultrafine aluminum particles encapsulated with PS. **S. Li**
233. Waterborne polyurethanes. **M. L. Auad**, B. Demir, R. M. Broughton
234. Spectroscopic study of size dependent properties of TiO₂ nanoparticles. **J. Pettibone**, V. H. Grassian
235. pH-Sensitive, ortho ester-based cationic lipoplexes for gene delivery. **X. Guo**, H. Chen, A. H. Franz, H. Zhang, F. C. Szoka Jr., V. V. Samoshin

Section D

Salt Palace Convention Center
Hall 1**Fundamental Research in Colloid and Surface Chemistry Surfactants and Applications** Cosponsored by NANOJ. Texter, *Organizer*D. E. Leckband, *Presiding*

6:00–8:00

236. trans-2-Aminocyclohexanol as a pH-sensitive conformational switch in lipid amphiphiles. **X. Guo**, B. Brazdova, N. Zhang, **V. V. Samoshin**
237. Aliphatic carboxylic acids as new modifiers for separation of 2,4-dinitrophenyl amino acids by micellar liquid chromatography. **M. Prezhdo**, A. P. Boichenko, L. P. Loginova
238. Corrosion inhibition performance of cationic gemini surfactant 1,6-hexanediol(decyl morpholinium bromide). **J. Wang Sr.**, X. Yang Sr., G. Li Sr., L. Luan Sr.
239. Deliquescence of pharmaceutical and food ingredients: The relationship between relative humidity and surface properties of single and binary systems. **K. Kwok**, A. Stoklosa, D. E. Nivens, L. Mauer, L. S. Taylor
240. Detergent localization in model proteoliposomes. **A. C. Kimble-Hill**, D. Singh, P. D. Laible, D. K. Hanson, L. Porcar, P. D. Butler, U. Perez-Salas
241. Quartz crystal microbalance investigations of co-adsorption of aqueous surfactants and low-molecular-weight solutes on gold. **L. Shi**, A. Striolo, **B. P. Grady**
242. Study on synthesis and surface activity of cationic gemini surfactants. **J. Wang Sr.**, G. Li Sr., X. Yang Sr., L. Luan Sr.
243. Synthesis and properties of gemini surfactants containing hydroxyl. **G. Li Sr.**, J. Wang Sr., X. Yang Sr., L. Luan Sr.

Section E

Salt Palace Convention Center
Hall 1**Fundamental Research in Colloid and Surface Chemistry Polymers: Films, Adsorption, and Nanostructures** Cosponsored by NANOJ. Texter, *Organizer*D. E. Leckband, *Presiding*

6:00–8:00

244. Comparison of tannin and polyacrylic acid polarity and structure influence on filtration performance of a polyvinylchloride ultrafiltration membrane. **X. Guo**, H. Shao Sr., **W. Hu**, W. Gao, X. Chen, H. Liu
245. Determining the absolute molar mass of gradient random copolymers. **A. M. Striegel**, I. A. Haidar Ahmad
246. Dual-beam polarization interferometry resolves mechanistic aspects of polyelectrolyte adsorption. **W. R. Fletcher**, T. J. Lane, M. V. Gormally, M. S. Johal
247. Effect of chemico-geometrical criterion on fabrication of polymeric nanoarrays from porous templates during release. **D. Y. Lee**, D. H. Lee, H. S. Lim, S. G. Lee, K. Cho
248. Effects of macromolecule adsorption on the surface properties of human hair. **S. M. Daly**, T. Polefka, R. Bianchini, J. Jachowicz
249. Hierarchical pattern formation in diffusion-controlled reduction of tetrachloroauric acid in poly(vinyl alcohol) hydrogel matrices. **I. Yoon**, A. M. Zimmerman, **W. Chen**
250. Immunoglobulin affinity adsorption on modified silica surfaces with peptide ligands. **F. Shen**, J. Genzer, O. J. Rojas, P. V. Gurgel, R. G. Carbonell
251. Interaction of polymer micelles with cyclodextrins. **A. Hashizume**, D. Taura, A. Harada
252. Interactions between nonionic block polymers and thin films. **J. Song**, O. J. Rojas, J. P. Hinestroza
253. Lipid-coordination-polymers that self-organize into toroids in water and exhibit gene-delivery properties. **A. Arzola**, A. Varela-Ramirez, R. Aguilera, A. Metta, J. C. Noveron
254. Partially functionalized 1, 2 addition polybutadiene attached to hydrogen terminated silicon(111) by visible light. **T. D. Wickard**, E. Nelson, M. R. Linford
255. Polymer coatings as enrichment layers for evanescent wave sensors. **B. Zdyrko**, J. Hu, A. Agarwal, L. C. Kimerling, N. Carlie, L. Petit, K. Richardson, T. Anderson, M. Richardson, I. Luzinov
256. Synthesis and characterization of nitric oxide-releasing biodegradable polyesters. **P. N. Coneski**, M. H. Schoenfish
257. Use of in situ IR and UV spectroscopies to understand the behavior of poly(sodium 4-styrene-sulfonate) at the TiO₂/water interface over a broad range of concentrations of the surfactant cetylpyridinium bromide monohydrate. **D. Rivera**, M. Hase, R. Scheffelmair, S. Hayden, B. Best
258. Use of polyethylene glycol modified surfaces for bacterial chemotactic microslides. **V. G. Kmetsch**, **L. C. Mounteer Jr.**, A. Zhou

Sci-Mix Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, and PETER

TUESDAY MORNING

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C**Frontiers in Nanoparticle and Nanoporous Materials Drug Delivery and Imaging** Cosponsored by NANOJ. Shumaker-Parry, C.-J. Zhong, and M. D. Porter, *Organizers*H. Ghandehari and S. J. Coldiron, *Presiding*

- 8:30 **259.** Size and geometry-dependent toxicity and cellular uptake of gold and silica nanoparticles. **H. Ghandehari**, A. Malugin, A. Fnu, T. Yu, A. Gormley, A. Nan, S. B. Lee, D. Sweet
- 9:00 **260.** Properties and applications of Nanopartz gold nanorods. **S. J. Coldiron**, C. Schoen
- 261.** Withdrawn.
- 9:30 **262.** Cell membrane penetration by nanoparticles: The role of ligand shell structure. **A. Verma**, O. Uzun, D. J. Irvine, F. Stellacci
- 10:00 Intermission.
- 10:10 **263.** Developing multifunctional magnetic nanoparticles for imaging and delivery applications. **S. Sun**
- 10:40 **264.** Ligand-directed bismuth nanobeacons for X-ray K-edge-based molecular imaging. **D. Pan**, E. Roessel, R. Proksa, J.-P. Schlomka, A. Senpan, S. D. Caruthers, M. J. Scott, E. T. Choi, P. J. Gafney, S. A. Wickline, G. M. Lanza
- 11:00 **265.** Utilization of protein cages as cellular specific imaging agents. **M. Uchida**, M. Terashima, H. Kosuge, M. Young, M. McConnell, T. Douglas
- 11:20 **266.** Nanoparticle-to-nanoparticle signaling for amplified tumor targeting and therapy. **G. von Maltzahn**, J.-H. Park, M. Sailor, E. Ruoslahti, S. N. Bhatia

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F**Structure and Function of Membranes, Proteins, and Lipids Nanoscale Phenomena**S. Muralidharan and N. Srividya, *Organizers*M. D. Porter, *Presiding*

- 8:30 **267.** Lipid bilayers supported on colloidal crystals. **M. J. Wirth**, A. R. Soemo
- 9:00 **268.** Nanostructural issues related to the nucleation and growth of self-assembled alkanethiolate monolayers on gold. **A. J. Bergren**, G. A. Edwards, E. J. Cox, **M. D. Porter**
- 9:30 **269.** Polymer interactions with the cell plasma membrane. **M. Banaszak Holl**
- 10:00 **270.** Light induced destruction of polymersome/porphyrin/ferritin composite membranes. **D. A. Hammer**, G. Robbins, M. Jimbo, J. Swift, M. J. Therien, I. J. Dmochowski
- 10:30 Intermission.

The official technical program for the 237th National Meeting is available online at techsys2.confex.com/acs/237nm/techprogram/.

10:40 271. Induction of phase separation in micropatterned composite membranes of polymerized and fluid lipid bilayers.

K. Morigaki

11:10 272. Complex transport within a supported polyelectrolyte membrane.

C. F. Landes

11:40 273. Dynamics of lipid microtubules.

L. Tayebi, G. Miller, A. N. Parikh

12:10 274. Protein recruitment to and from raft-mimicking domains studied using polymer-ethered membranes.
C. A. Naumann, A. C. Kimble-Hill, S. Garg, A. P. Siegel, K. Luedtke, **R. Jordan**

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Molecular Rotors and Motors Cosponsored by PHYS and NANO²

E. C. H. Sykes, *Organizer*

9:00 275. Designing, measuring, assembling, and operating synthetic molecular motors.
P. S. Weiss

9:40 276. Single molecule rotors: Electrical control of motion and efforts to create 2-D arrays. **H. L. Tierney, A. E. Baber, D. O. Bellisario, A. D. Jewell, E. C. H. Sykes**

10:00 277. Controlled motion and manipulation of cargo using catalytic nanomotors.
J. Burdick, R. Laocharoensuk, J. Wang, J. D. Posner

10:20 Intermission.

10:30 278. Controlling adsorbate motion at metal surfaces. **G. Pawin, K-Y. Kwon, K. L. Wong, E. Chu, Z. Cheng, L. Bartels**

11:10 279. Observing dynamics of surface-mounted molecules via sensitive dielectric spectroscopy. **L. I. Clarke**

11:50 280. Force spectroscopy without macromolecules. **R. Boulatov**

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

The Influence of Ions and Osmolytes on Aqueous Macromolecules Polymers

P. S. Cremer, *Organizer, Presiding*

9:00 281. Mechanisms of polyelectrolyte adsorption. **T. J. Lane, W. R. Fletcher, M. V. Gormally, M. S. Johal**

9:35 282. Prediction of Hofmeister salt effects on biopolymer processes using the salt ion partitioning model. **L. M. Pegram, M. T. Record Jr.**

10:10 283. Investigation on the role of hydration in hydrophobic collapse. **Y. Cho, L. B. Sagle, P. S. Cremer**

10:45 Intermission.

10:55 284. Self-diffusion of aqueous polymers as a function of added salt.
P. Russo, N. J. Edwin, R. L. McCarter, R. P. Hammer, X. Tong

11:30 285. Stimuli responsive nanolatexes.
N. Tambe, D. England, J. Texter

Section E

Salt Palace Convention Center
151 G

Polymeric Microcapsules: Theory, Experiment and Applications

A. C. Balazs, *Organizer*

T. Emrick and A. Alexeev, Organizers, Presiding

9:00 286. Polyelectrolyte capsules for antigen delivery. **B. G. De Geest, S. De Koker, S. C. De Smedt**

9:30 287. Skis with surface modifications to reduce friction. **P. Styring, A. F. Routh, R. C. Coupe**

9:50 288. Effect of molecular architecture on soft nanomembrane mechanics.
J. K. Ferri, A. D. Cramer

10:10 Intermission.

10:25 289. Simultaneous microparticle formation, suspension stabilization with cellulose and subsequent film formation.
X. Meng, G. D. Benedetto, P. M. Armenante, R. N. Dave, S. Mitra

10:45 290. Elastic moduli of *Escherichia coli* D21g biofilms under chemostatic conditions at the aqueous-air interface.
J. K. Ferri, S. E. Mylon, S. L. Walker

11:05 291. Hydrophobic modification of silica gel toward inducing conformation transitions of encapsulated beta-lactoglobulin.
Y. Peng, H. Dhruv, D. W. Britt

Section F

Salt Palace Convention Center
150 G

Section F

Salt Palace Convention Center
150 G

National Fresenius Award: Symposium in Honor of Teri W. Odom Cosponsored by WCC and NANO

C. J. Murphy, *Organizer, Presiding*

9:00 292. Using the fabrication technologies from the microelectronics industry to address the unmet needs in drug delivery.
J. M. DeSimone

9:30 293. Some new developments in synthesis of gold nanostructures. **Y. Xia**

10:00 Intermission.

10:10 294. Electrostatics of plasmonic materials. **G. C. Schatz**

10:40 295. Unconventional nanofabrication. **G. M. Whitesides, D. J. Lipomi, M. Dickey, R. Rioux**

11:10 296. Award Address (National Fresenius Award, sponsored by Phi Lambda Upsilon, the National Honorary Chemical Society). Pyramidal shells: A platform for designing multifunctional plasmonic particles. **T. W. Odom**

George A. Olah Award in Hydrocarbon or Petroleum Chemistry: Symposium in Honor of Cynthia M. Friend

Catalysis and Reaction Mechanisms Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, WCC, and PHYS

Nanoscience: Characterization and Applications
Biological and Biomedical Applications Sponsored by INOR, Cosponsored by COLL, POLY, and NANO

Nanotechnology in Catalysis VI Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

Polymers and Carbon Nanotubes Applications Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

TUESDAY AFTERNOON

Section A

Salt Palace Convention Center
150 G

ACS Award in Colloid and Surface Chemistry: Symposium in Honor of Jacob N. Israelachvili

D. T. Wasan and J. A. Zasadzinski, *Organizers*

2:00 297. Peptide amphiphile micelles for targeting pathological tissue. **M. Tirrell**

Photographing or recording meeting sessions and/or activities other than your own are prohibited at all official ACS events without written consent from ACS.

2:25 298. Membrane adhesion: The role of spacers and ligand-receptor bond strength.
T. L. Kuhl

2:50 299. Mechanical and frictional properties of nanostructured polymer thin films.
S. Giasson, B. Liberelle, X. Banquy, B. Lego

3:15 300. Wetting of microspheres, rods and nanotubes using the AFM.
P. M. McGuiggan, J. Ma

3:40 301. Capillary adhesion from atomically thin films. **M. O. Robbins, S. Cheng**

4:05 302. Binding mechanism and allosteric regulation of intercellular adhesion.
D. E. Leckband, V. Maruthamurthi, F. Li, Q. Shi

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

4:30 303. Award Address (ACS Award in Colloid and Surface Chemistry, sponsored by the Procter & Gamble Company). Breakthroughs and belly flops of surface science. **J. N. Israelachvili**

Polymers and Carbon Nanotubes Sponsored by POLY, Cosponsored by NANO, COLL, I&EC, PHYS, and PMSE

WEDNESDAY MORNING

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials

Nanoporous Materials and Foams Cosponsored by NANO

J. Shumaker-Parry, C-J. Zhong, and M. D. Porter, Organizers

I. Zharov, Presiding

8:30 312. Colloidal crystals for sensitive capture of biomarkers. **M. J. Wirth, D. Egas, D. Malkin**

9:00 313. Nanostructure and properties of concentrated nanoparticle and colloidal gels and glasses. **N. J. Wagner, A. Eberle**

9:20 314. Highly accessible Ni-silica core-shell nanocatalysts. **L. Z. Whaley, G. Vesper**

9:40 315. Principles of pore formation in inorganic-organic hybrid silica gels: Self-assembly by noncovalent interactions and potential applications. **H. Koller, J. Heimink, S. Ulke, N. Wichner**

10:00 Intermission.

10:10 316. Colloidal nanoporous materials. **I. Zharov**

10:40 317. Synthesis of SBA-15 silica with very large cylindrical mesopores. **L. Cao, B. Adewale, T. Man, M. Kruk**

11:00 318. Development of new generation nuclear waste form: Material synthesis, characterization and testing. **H. Gao, Y. Wang, M. Rodriguez, D. N. Benceo, C. J. Brinker**

11:20 319. Polypeptide — OMS nanocomposite materials. **J. D. Lunn, D. F. Shantz**

11:40 320. Synthesis of porous polyurethane particles in nonaqueous emulsion. **M. Klapper, R. Haschick, Y. Zhao, K. Müller, K. Müllen**

Section B

Structure and Function of Membranes, Proteins, and Lipids

S. Muralidharan and N. Srividya, Organizers

M. A. Firestone, Presiding

8:30 321. Genetically-modified collagen triple helix peptides for room temperature semiconductor nanowire synthesis. **H. Matsui**

9:00 322. Exogenous lipids can stimulate endocytosis in different cell lines. **P. F. Devaux**

9:30 323. Lipid bilayer technologies for high throughput ion channel screening. **J. Schmidt**

10:00 324. Evidence of nanoclusters in phospholipid/cholesterol mixtures. **K. Y. C. Lee, M. Ratajczak, S. L. Frey, E. Y. Chi, K. Cao, L. Hawk, J. Majewski, K. Kjaer**

10:30 Intermission.

10:40 325. Synthetic organic transporters that function in bilayer membranes. **G. W. Gokel**

11:10 326. Domain coupling in asymmetric lipid bilayers. **L. K. Tamm, C. Wan, V. Kiessling**

11:40 327. Probing the protein-protein interactions at high resolution on living organisms. **R. Wang**

‡ Cooperative Cosponsorship

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Lipid Assemblies: Preparation, Characterization and Applications

J. C. Conboy, *Organizer, Presiding*

- 9:00 328.** Calcinated chips for rapid prototyping of tethered membrane arrays and assessment of membrane stability with SPR. **Q. Cheng**, J. Taylor, J. H. Han
- 9:25 329.** Carbohydrate-modified surfactant vesicles: Novel materials for probing multivalent binding at a biomimetic interface. **D. English**, G. B. Thomas, L. Rader, J. Park, P. DeShong
- 9:50 330.** Characterization of suspended lipid bilayers on modified pipettes. **B. A. Heitz**, C. A. Aspinwall, S. S. Saavedra
- 10:15** Intermission.
- 10:30 331.** Creation, dynamics, and annihilation of oxidation-induced pore defects in single supported lipid bilayers. **M. C. Howland**, A. N. Parikh
- 10:55 332.** Detection of drug-lipid membrane interactions with ultraviolet-visible sum frequency generation spectroscopy. **T. T. Nguyen**, J. C. Conboy
- 11:20 333.** Generating mimics of biological membranes using nanoparticle phospholipid conjugates. **S. M. Reed**, M. R. Mackiewicz, S. Sitaula, B. R. Ayres, P. R. Joseph

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

Frontier Applications of Nanotechnology in Engineering Extracellular Matrices
Cosponsored by ANYL, BIOT, and NANO⁺

C. L. Berrie and J. D. Batteas, *Organizers*

G-Y. Liu, *Organizer, Presiding*

- 9:00 334.** Fibronectin conformations and dynamics on surfaces. **W. Shi**, J. W. C. Cheung, **G. C. Walker**
- 9:30 335.** Nanoscale manipulation of protein adsorption at interfaces. **C. L. Berrie**
- 10:00 336.** Engineering cellular contacts: Lessons from a simple but well-characterized system. **M. M. Santore**
- 10:30** Intermission.
- 10:45 337.** Integrin-specific nanoclustered fibronectin-mimetic ligands to engineer cell responses. **A. Garcia**
- 11:15 338.** Investigations into fibrinogen adsorption on surfaces: Affinity, kinetics, and conformation. **C. L. Berrie**, **J. K. Settle**
- 11:35 339.** Nanoscale test platforms of proteins produced with particle lithography. **J. C. Garbo**

Section E

Salt Palace Convention Center
151 G

Applications in Nanoscience Diagnostics and Delivery Cosponsored by POLY, INOR, and NANO

A. E. Ostafin and D. K. Roper, *Presiding*

- 9:00 340.** Controlling nanoparticle-protein association via poly(ethylene glycol) chain length. **D. Benoit**, V. Colvin, Y. Shamoo
- 9:20 341.** Corrugated and nanoporous nanospheres for drug delivery and biosensing applications. **T. Asefa**
- 9:40 342.** Development of biomimetic polymersomes from AB₂ type 3-miktoarm star polymers. **H. Yin**, Y. H. Bae
- 10:00 343.** FePt magnetic virus like particles synthesis characterization and application. **X. Huang**, B. Samanta, V. Rotello, B. Dragnea
- 10:20** Intermission.
- 10:30 344.** Getting under the skin: Micro-nanoprojection skin patches for biomarker detection. **S. Corrie**, M. Kendall
- 10:50 345.** Manganese-based nanomaterials as positive cell labeling contrast agents for magnetic resonance imaging. **S. E. Hunyadi**, M. J. Siegfried, S. M. Serkiz, S. Jacobs, J. Liu, T. C.-C. Hu

- 11:10 346.** Multifunctional silver nanoparticles in vitro and in vivo bioimaging. **J. Zheng**, J. Yu, Y. Qin
- 11:30 347.** Nanostructured implant surface coating with antimicrobial properties. **K. M. Fromm**, P. Brunetto, T. Vig Slenters
- 11:50 348.** Nanoreactors in Life Science & Medicine. **A. E. Ostafin**
- 12:10 349.** Nonadhesive polymer brush-nanocoatings modified by a natural antimicrobial peptide. **K. Glinel**, A. M. Jonas, T. Jouenne, J. Leprince, L. Galas, W. T. S. Huck

George A. Olah Award in Hydrocarbon or Petroleum Chemistry: Symposium in Honor of Cynthia M. Friend
Bimetallics and Electroanalysis Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, WCC, and PHYS

Nanotechnology in Catalysis VI Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

WEDNESDAY AFTERNOON

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials
Synthesis, Functionalization, and Characterization Cosponsored by NANO

J. Shumaker-Parry and M. D. Porter, *Organizers*

C.-J. Zhong, *Organizer, Presiding*

- 2:00 350.** Fabrication and surface modification of metal-based nanoparticles of well-defined sizes and shapes. **C. J. Murphy**
- 2:30 351.** Smelting in the age of nano: Iron aerogels. **N. Chandrasekaran**, N. Leventis, C.-S. Leventis, A. Mumtaz
- 2:50 352.** Synthesis of nearly monodisperse gold nanorods and their colloidal crystallization. **E. Zubarev**
- 3:20 353.** Self-assembly of cytokinin derivatives for the development of morphology controlled nanoparticles. **E. M. Smoak**, A. D. Carlo, C. C. Fowles, I. A. Banerjee
- 3:40** Intermission.
- 3:50 354.** Photothermal initiation of hybrid organic/inorganic metastable interstitial composites. **M. L. Mileham**, C. D. Park, B. Van De Burgt, M. P. Kramer, A. E. Stieglman
- 4:10 355.** Shape control of colloidal metal nanocrystals. **P. Yang**
- 4:40 356.** Janus gold nanoparticles via combining "solid state grafting-to" and "grafting-from" methods: Molecular weight effect and surface areal chain density study. **B. Wang**, B. Li, B. Zhao, C. Y. Li
- 5:00 357.** Surface modification of nanoparticles toward their complete dispersion in various solvents. **M. Iijima**, M. Kobayakawa, H. Kamiya
- 5:20 358.** Diffusion of CO confined in 2-D boxes. **M. Luo**, L. Bartels

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F

Structure and Function of Membranes, Proteins, and Lipids
Membranes and Lipids

S. Muralidharan and N. Srividya, *Organizers*

M. Mayer, *Presiding*

- 2:00 359.** Mechanics of signal transduction in cell membranes. **J. T. Groves**
- 2:30 360.** Biophysical basis of biological membrane organization: Protein and lipid sorting in composition and curvature gradients. **T. Baumgart**, A. Tian
- 3:00 361.** Lipid-protein interplay at the plasma membrane during cellular apoptosis. **A. N. Parikh**
- 3:30 362.** Profiling ion channel activity in primary human lymphocytes. **M. Mayer**

4:00 Intermission.

- 4:10 363.** Designer ion channels based on semisynthetic derivatives of Gramicidin A. **S. Blake**, R. Capone, X. Jiang, T. Mayer, M. Macrae, M. Mayer, **J. Yang**
- 4:40 364.** Selective vesicle fusion guided by hydrogen bonding lipids and small-molecule recognition. **D. Bong**
- 5:10 365.** DNA-mediated fusion of lipid vesicles. **B. van Lengerich**, Y.-H. M. Chan, S. G. Boxer

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Frontiers in Nanoparticle and Nanoporous Materials
Nanoporous Materials and Foams
Cosponsored by NANO

J. Shumaker-Parry, C.-J. Zhong, and M. D. Porter, *Organizers*

H. S. White, *Presiding*

- 2:00 366.** Functionalization of nanoporous gold thin films. **M. C. Dixon**, M. Maitani, R. A. Fry, K. T. Mueller, D. L. Allara
- 2:30 367.** Controlling atomic layer deposition of TiO₂ in aerogels through reversible surface functionalization. **S. Ghosal**
- 2:50 368.** Foamable microemulsions for polymeric nanofoams. **E. Khazova**, O. Klemm, R. Strey
- 3:10 369.** Development of new generation nuclear waste form: Nano-immobilization and nanoencapsulation. **Y. Wang**, H. Gao, C. J. Brinker
- 3:30** Intermission.
- 3:40 370.** Soft-template synthesis of mesoporous carbons under acidic conditions. **X. Wang**, S. Dai
- 4:00 371.** Nanoporous gold electrodes demonstrate important supercapacitor design principles. **D. B. Robinson**, C.-A. M. Wu, B. W. Jacobs, M. D. Ong, K. L. Tran, B. E. Pierson
- 4:20 372.** Chemical sensing using synthetic and biological nanopores. **H. S. White**, W. Lan, D. A. Holden

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

Frontier Applications of Nanotechnology in Engineering Extracellular Matrices
Cosponsored by ANYL, BIOT, and NANO⁺

G-Y. Liu and C. L. Berrie, *Organizers*

J. D. Batteas, *Organizer, Presiding*

- 2:00 373.** Surface and interfacial studies of plant protective membranes. **J. D. Batteas**
- 2:30 374.** Controlled assembled viruses as matrixes to modulate the cellular response. **Q. Wang**
- 2:50 375.** Imaging engineered nanoscale surfaces for biological applications with nearfield scanning optical microscopy. **T. J. Mullen**, W.-F. Lin, V. Lulevich, G.-Y. Liu
- 3:10 376.** Molecular level investigation of bone mineral dissolution. **S.-W. Lee**, K.-Y. Kwon, E. Wang
- 3:40** Intermission.
- 3:55 377.** Mass transport of macromolecules from self-assembling peptide hydrogels. **M. C. Branco**, D. J. Pochan, J. P. Schneider, N. J. Wagner
- 4:15 378.** Nanoparticles, cells and gels. **C. J. Murphy**

The official technical program for the 237th National Meeting is available online at oasys2.confex.com/acs/237/nm/techprogram/.

- 4:45 379.** Regulation of integrin clustering and tensin localization via engineered ECM. **L. Shi**, Z. Deng, Y.-P. Shih, V. Lulevich, S. H. Lo, G.-Y. Liu

Section E

Salt Palace Convention Center
151 G

Applications in Nanoscience Particles and Quantum Dots Cosponsored by POLY, INOR, and NANO

R. G. Harrison, *Presiding*

- 2:00 380.** Synthetic methodology for architecturally complex nanorods to optimize the heterostructure for optical and catalytic performance. **K. Park**, M. L. Jespersen, J. Slocik, R. R. Naik, R. A. Vaia
- 2:20 381.** Strategy for shape control of FePt nanocrystal: cuboctahedral particle, octapod FePt and filled-nanocube. **S. W. Chou**
- 2:40 382.** Mechano-optical response of individual quantum dots. **J. M. Gerton**, C. Mu, E. Shafran
- 3:00 383.** Multiphoton-excited sensing and imaging of biochemical parameters with biocompatible quantum dot energy transfer systems. **A. B. Greytak**, E. J. McLaurin, R. C. Somers, W. Liu, R. M. Lanning, M. G. Bawendi, D. G. Nocera
- 3:20** Intermission.
- 3:40 384.** CdTe nanocrystals: Synthesis and their behavior at the air/water interface. **M. D. Goodman**, L. Zhao, J. Wang, Z. Lin
- 4:00 385.** Small-molecule crystallization detection by second harmonic generation microscopy. **D. Wanapun**, V. J. Hall, N. Ingram, G. J. Simpson
- 4:20 386.** Withdrawn.
- 4:40 387.** Forces behind nanocrystal self-assembly. **P. Schapotschnikow**, T. J. H. Vlugt
- 5:00 388.** Synthesis of zinc sulfide nanocrystals and their application to environmentally and biologically relevant photoreactions. **A. L. Marsh**, M. W. Porambo, C. M. Berg, H. R. Howard

George A. Olah Award in Hydrocarbon or Petroleum Chemistry: Symposium in Honor of Cynthia M. Friend
Surface Characterization and Chemistry Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, WCC, and PHYS

Nanoscience Synthesis Sponsored by INOR, Cosponsored by COLL, POLY, and NANO

Nanotechnology in Catalysis VI Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

WEDNESDAY EVENING

Nanoscience: Characterization and Applications Sponsored by INOR, Cosponsored by COLL, POLY, and NANO

THURSDAY MORNING

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials
Organization in Solution and on Surfaces
Cosponsored by NANO

J. Shumaker-Parry, C.-J. Zhong, and M. D. Porter, *Organizers*

C. D. Keating, *Presiding*

- 8:30 389.** Heterogeneous integration of bioprobe-coated nanowires. **C. D. Keating**, T. S. Mayer
- 9:00 390.** Optical properties of individual noble metal nanoparticle assemblies synthesized using asymmetrically functionalized building blocks. **J.-W. Park**, J. Shumaker-Parry

9:20 391. Bifunctional Fe₃O₄-Ag heterodimer nanoparticles for two-photon fluorescence imaging and magnetic separation. **J. Jiang**, H. Shao, A. Lin, H. Gu, E. Devlin, G. C. Papaefthymiou, J. Y. Ying

9:40 392. Lithographically patterned nanowire electrodeposition. **C. Xiang**, R. M. Penner

10:10 393. Stoichiometric functionalization of gold nanoparticles in solution through a free radical polymerization approach. **A. Greiner**, S. Agarwal

10:30 Intermission.

10:40 394. Robust synthesis of uniform sub-100 nm silica particles with a Stöber process via a modified LaMer model. **J. E. Pemberton**, Y. Huang

11:10 395. Organic monolayers as template for in situ generation of 2-D metal nanoparticle arrays. **K. Bandyopadhyay**, N. Wasio, M. Khalid, T. Chase

11:30 396. Metal nanoparticle arrays with tunable interparticle spacing. **L. Chi**, B. Yang, L. Jiang, D. Qi, N. Lu

11:50 397. Electric field driven assembly of ellipsoidal titania particles. **M. Mittal**, E. M. Furst

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F

Structure and Function of Membranes, Proteins, and Lipids Modeling and Simulation

S. Muralidharan and N. Srividya, *Organizers*

F. Brown, *Presiding*

8:30 398. Multiscale simulation of membrane remodeling by BAR domain proteins. **G. A. Voth**

9:00 399. Determining monolayer phase diagrams of binary saturated PC and DSPE-PEG2000 to understand dissolution behavior of lipid-stabilized medical microbubbles. **M. L. Longo**, M. Lozano

9:30 400. Simple models for biomembrane structure and dynamics. **F. L. H. Brown**

10:00 401. Cholesterol-induced demixing of saturated and unsaturated phosphatidylcholine lipids: Insights from atomistic simulation. **J. T. Kindt**, J. de Joannis, F. Yin, P. S. Coppel, W.-J. Lee, A. Zamorano

10:30 Intermission.

10:40 402. Nanopatterns in tethered membranes of polyelectrolyte with hydrophobic backbones. **D. Zhang**, M. Olvera de la Cruz

11:10 403. Investigating the structure and gating of membrane proteins via simulation of mixed-resolution models. **S. Jakobtorweihen**, E. Lyman, L. Lu, G. A. Voth

11:40 404. Structure and domain behavior of multicomponent lipid bilayers studied by systematic coarse-grained modeling. **L. Lu**, G. A. Voth

12:10 405. Multiscale parameterization of mixed resolution membrane models. **E. Lyman**, L. Lu, G. A. Voth

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Lipid Assemblies: Preparation, Characterization and Applications

J. C. Conboy, *Organizer, Presiding*

9:00 406. Induced asymmetry in lipid bilayers examined by sum frequency vibrational spectroscopy. **K. L. Brown**, M. P. Cooper, J. C. Conboy

9:25 407. Lipid nanotube formation from protein-membrane interactions. **D. Sasaki**, H. Liu, A. Carroll-Portillo, G. D. Bachand, C. C. Hayden, E. A. Abate

9:50 408. Micropatterned fluid lipid bilayer arrays created using a continuous flow microspotter. **K. Smith**, B. K. Gale, J. Conboy

10:15 Intermission.

10:30 409. Probing membrane structure and domains using novel X-ray scattering methods. **T. L. Kuhl**, C. Miller, E. Watkins, D. Mulder, J. Majewski

10:55 410. TIR Raman spectroscopy of planar supported lipid bilayers. **C. D. Bain**, J. H. Churchwell, E. C. Tyrode, R. A. Walker

11:20 411. PCB association with model phospholipid bilayers. **A. S. Campbell**, Y. Yu, S. Granick, A. A. Gewirth

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

Frontier Applications of Nanotechnology in Engineering Extracellular Matrices

Cosponsored by ANYL, BIOT, and NANO²

G.-Y. Liu and J. D. Batteas, *Organizers*

C. L. Berrie, *Organizer, Presiding*

9:00 412. Cell growth control by plasma-assisted surface chemical modification and role of mechanotransduction in protein secretion in articular cartilage. **K. Komvopoulos**

9:30 413. Employing lipopolymers in supported lipid bilayers. **P. S. Cremer**

10:00 414. A7r5 cell differentiation, contraction and mRNA regulation on native and crosslinked polyelectrolyte multilayers. **M. D. Moussallem**, S. G. Olenych, S. L. Scott, T. C. S. Keller, J. B. Schlenoff

10:20 Intermission.

10:35 415. Nonlinear optical methods for monitoring biophysical interactions of drugs and nanoparticles with supported lipid membranes. **K. A. Briggman**

11:05 416. Hierarchical relationship of Src and Rac1 in live cells on extracellular matrix patterns. **Y. Wang**, M. Ouyang, J. Sun, S. Chien

11:35 417. Biodegradable polymer nanofiber and microfiber arrays prepared by nondestructive molding as synthetic extracellular matrices. **S. Grimm**, J. Martin Pérez, G. Rodriguez, K. Mathwig, J. San Roman, C. Mijangos, U. Gösele, M. Steinhardt

Section E

Salt Palace Convention Center
151 G

Applications in Nanoscience One-Dimensional Materials

Cosponsored by POLY, INOR, and NANO

A. E. Ostafin, *Presiding*

9:00 418. Evaporative templating in confined geometries. **W.-S. Liao**, X. Chen, J. Shi, J. Chen, H. P. Pace, P. Cremer

9:20 419. Modification of single-walled carbon nanotubes with transition metal complexes. **J. I. Goldsmith**, E. McQueen, R. Patel

9:40 420. Nucleotide-lanthanide self-assembly: Nanofiber formation from dimeric guanine nucleotide. **C. Aimé**, R. Nishiyabu, N. Kimizuka

10:00 421. Positioning and parallel alignment of single carbon nanotubes in cylindrical droplets of nanometer diameter. **R. Sharma**, M. S. Strano

10:20 Intermission.

10:30 422. Self-assembly of monosubstituted perylene imides into 1-D nanostructures and their applications. **K. Balakrishnan**, A. S. Sayyad, P. M. Ajayan

Photographing or recording meeting sessions and/or activities other than your own are prohibited at all official ACS events without written consent from ACS.

10:50 423. Self-assembly of perylene-tetracarboxylic dianhydride into 1-D nanostructures. **A. S. Sayyad**, K. Balakrishnan, P. M. Ajayan

11:10 424. Single-walled carbon nanotube dispersion with electrostatically tethered inorganic nanoplatelets. **D. Sun**, H.-J. Sue

11:30 425. The testbed substrates for directed sequential self-assembly. **M. Rahman**, H. Zhong, D. Neff, M. L. Norton

11:50 426. Tumor targeting and imaging using multifunctional dendrimer-modified multiwalled carbon nanotubes. **X. Shi**, S. H. Wang, M. Shen

12:10 427. Tuning stability of mesoporous silica films under biologically relevant conditions through processing with supercritical CO₂. **X. Li**, B. D. Vogt

THURSDAY AFTERNOON

Section A

Salt Palace Convention Center
Combo Rooms 150 A-C

Frontiers in Nanoparticle and Nanoporous Materials Nanoparticles in Sensing

Cosponsored by NANO

J. Shumaker-Parry, C.-J. Zhong, and M. D. Porter, *Organizers*

A. Ivanisevic, *Presiding*

2:00 428. Nanoparticles, nanowires and SPR diffraction gratings for ultrasensitive surface bioaffinity sensing measurements. **R. M. Corn**, I. Sendriou, L. K. Gifford, L. Niu, N. Nishi

2:30 429. Fabrication and characterization of multicomponent DNA-templated nanowires. **A. Ivanisevic**

3:00 430. Magneto-resistive sensors for biorecognition: A novel chip-scale diagnostic platform. **M. C. Granger**, J. A. Williams, R. L. Millen, J. E. Nordling, M. Tondra, M. D. Porter

3:20 431. Molecularely imprinted biosensors based on metal nanoparticle enhancement of piezoelectric and capacitive transduction. **M. Stobiecka**, **M. Hepel**

3:50 Intermission.

432. Withdrawn.

4:00 433. Nanopartz gold nanorods for label free sensors and diagnostics. **C. Schoen**, S. J. Coldiron

4:30 434. Influence of solution chemistry on the aggregation kinetics of bacteriophage MS2. **S. E. Mylon**, T. H. Nguyen, C. I. Rincio, L. A. Gutierrez

435. Withdrawn.

Section B

Salt Palace Convention Center
Combo Rooms 150 D-F

Frontiers in Nanoparticle and Nanoporous Materials Synthesis, Functionalization and Characterization

Cosponsored by NANO

J. Shumaker-Parry, C.-J. Zhong, and M. D. Porter, *Organizers*

R. L. McCarley, *Presiding*

2:00 436. Use of electrospray-differential mobility analysis to characterize biologically conjugated nanoparticles. **L. F. Pease III**, D.-H. Tsai, R. A. Zangmeister, M. R. Zachariah, **M. J. Tarlov**

2:30 437. Controlling surface potential of gold nanoparticles by self-assembled monolayers with mixed functional group. **Y.-C. Lin**, B.-Y. Yu, W.-C. Lin, S.-H. Lee, C.-H. Kuo, J.-J. Shyue

2:50 438. Study of the stability and mechanism during thiol adsorption on gold nanorods. **R. Wampler**, M. D. Porter

3:10 439. Metal-metal oxide nanocomposite materials. **M. A. Tarr**, B. L. Oliva, A. Pradhan

3:40 Intermission.

3:50 440. Synthetic control of nanoparticle size through slow addition of precursor. **D. L. Huber**, J. M. Lavin, T. C. Monson

4:10 441. Liposome disassembly via electron-transfer reactions. **R. L. McCarley**, N. Hollabaugh, J. C. Forsythe, W. Ong, Y. Yang, A. C. Cruciano

4:40 442. Room temperature synthesis of Ag-Ni alloy nanoparticles. **Z. Zhang**, T. M. Nenoff, J. Huang, D. T. Berry, P. P. Provencio

5:00 443. Multifunctional mesoporous nanoparticles for intracellular controlled release delivery and biofuel applications. **V. S.-Y. Lin**

Section C

Salt Palace Convention Center
Combo Rooms 151 B-C

Lipid Assemblies: Preparation, Characterization and Applications

J. C. Conboy, *Organizer, Presiding*

2:00 444. Redox-induced release of liposomal contents. **J. C. Forsythe**, N. Hollabaugh, M. F. Mendoza, Y. Yang, R. L. McCarley

2:25 445. Role of spatial organization in receptor function: Eph-ephrin signaling. **K. Salaita**, P. M. Nair, J. W. Gray, J. T. Groves

2:50 446. Structure, functional properties, and analytical applications of poly(lipid) bilayer membranes. **S. S. Saavedra**

3:15 Intermission.

3:25 447. Structure, organization and miscibility in phospholipid monolayers. **R. A. Walker**, E. H. Jensen, T. Aliyeva, S. Z. Can, C. R. Murphy

3:50 448. Impact of linker design and hydrophobic domain on physico-chemical characteristics and transfection ability of pyridinium cationic lipids, gemini surfactants, and lipophilic polycations for gene delivery. **M. A. Ilies**, A. T. Balaban

4:15 449. Withdrawn.

Section D

Salt Palace Convention Center
Combo Rooms 151 D-F

Frontier Applications of Nanotechnology in Engineering Extracellular Matrices

Cosponsored by ANYL, BIOT, and NANO²

C. L. Berrie and J. D. Batteas, *Organizers*

G.-Y. Liu, *Organizer, Presiding*

2:00 450. Molecular engineering of cellular environments. **J. P. Spatz**

2:30 451. Regulation of mast cell activation using engineered antigen nanostructures. **Z. Deng**, I.-C. Weng, H.-Y. Chen, F.-T. Liu, G.-Y. Liu

2:50 452. Microengineered extracellular matrix directs stem cell differentiation. **J. Fu**, Y.-K. Wang, C. S. Chen

3:20 Intermission.

3:35 453. Polyelectrolyte-coated gold nanorods influence heart cell phenotype. **P. N. Sisco**, C. G. Wilson, E. Mironova, S. C. Baxter, E. C. Goldsmith, C. J. Murphy

3:55 454. Synthesis and assembly of rare earth nanocrystals. **C.-H. Yan**, L.-D. Sun, Y.-W. Zhang

4:25 455. Nanopatterned biomimetic surfaces to probe the role of cytoskeletal proteins in cell adhesion. **M. Palma**, J. Abramson, M. Schwartzman, S. Wind, M. P. Sheetz, J. Hone

‡ Cooperative Cosponsorship

4:45 456. Silica and silica coated magnetite nanoparticles modified with 1,8-naphthalimide-trimethoxypropylsilane: A PET fluorescent sensor for Zn²⁺. **S. K. Rastogi**, P. Pal, D. Newcombe, J. Branan, T. E. Bitterwolf, A. L. Branan

Section E

Salt Palace Convention Center
151 G

**Applications in Nanoscience
Novel Structures** Cosponsored by POLY,
INOR, and NANO

R. Ragan, *Presiding*

- 2:00 457.** Boron-containing polymer-silica hybrids for use in neutron capture therapy of cancer. **A. H. A. Mollard**, I. Zhavor
- 2:20 458.** Chemical assembly of colloidal gold nanoparticles on templates for the generation of localized electromagnetic fields. R. Ragan, **S. M. Adams**
- 2:40 459.** Molecular patterning of solid-liquid interfaces with foldamers. **C. Gobbo**, J. H. van Esch, S. De Feyter
- 3:00 460.** Novel aqueous sol-gel approach for hybrid barrier coatings. **M. Asuka**, W. M. Sigmund
- 3:20** Intermission.
- 3:30 461.** Novel structures of transition metals and transition metal oxides through low temperature solution synthesis. **L. C. Fernández-Torres**
- 3:50 462.** Organometallic dendrimers: New precursors in the synthesis of silica-supported iron-oxide nanoparticles. **E. Mitran**, R. L. McCarley
- 4:10 463.** Photobleaching resistant pH sensing nanoreactors. **A. E. Ostafin**, Y.-C. Chen
- 4:30 464.** Responsive polymer brush nanosponges. **D. J. Dyer**, V. N. Wong, B. Mitrovic, G. R. Kinsel, S. Zauscher
- 4:50 465.** Synthesis of functionalized superparamagnetic iron oxide nanoparticles from a common precursor and their application as heavy metal and actinide sorbents. **M. G. Warner**, C. L. Warner, R. S. Addleman, T. C. Droubay, M. Engelhard, J. D. Davidson, A. D. Cinson, M. A. Nash, W. Yantasee

COMP

Division of Computers on Chemistry

J. D. Madura, **E. X. Esposito**, and **A. E. Roitberg**, *Program Chairs*

SUNDAY MORNING

Section A

Salt Palace Convention Center
257

Advancing Computational Chemistry through High-Performance Computing: From the Workstation to Petascale and Beyond: Michael Dewar Memorial Symposium
Scaling Molecular Dynamics Applications
Cosponsored by PHYS

S. T. Brown, R. C. Walker, and T. E. Cheatham III, *Organizers*

- 8:30 1.** Docking performance accelerated 30-50 fold on the Cell/BE processor. **Z. Zsoldos**
- 9:10 2.** Large-scale computational approaches: New tools to enable biomass conversion to ethanol. **M. F. Crowley**, M. Nimios, Y. Bomble, J. Matthews, G. Beckham
- 9:50 3.** Accurate modeling of biomolecular structure and dynamics using atomic-detail simulations. **C. L. Simmerling**
- 10:30** Intermission.
- 10:45 4.** Multiscale simulation of cellular cytoskeleton proteins and their assemblies. **G. A. Voth**

- 11:25 5.** Insights into the activation pathway of the adenovirus protease enzyme: Large scale nudged elastic band simulations on NSF supercomputers. **R. C. Walker**, J. V. Stern, W. J. McGrath, W. Mangel
- 12:05 6.** Elucidating protein function through high-performance molecular dynamics simulation. **R. O. Dror**

Section B

Salt Palace Convention Center
258

**Molecular Mechanics
Making Dreams into Methodologies**

E. X. Esposito, *Organizer*

D. J. Sindhikara, *Presiding*

- 8:30 7.** Lessons learned from predicting binding free energies in model binding sites. **D. L. Mobley**, S. Boyce, G. Rocklin, B. K. Shoichet, K. A. Dill
- 9:00 8.** MD study of origin of enantioselectivity in CPO-catalyzed epoxidation. **D. C. Chatfield**, C. D' Cunha, C. Alvarez, R. Zhang
- 9:30 9.** Modeling glycine tautomerization and glycyL-glycine peptide bond formation using a reactive force field. **O. Rahaman**, A. C. van Duin, D. J. Doren
- 10:00 10.** Multiscale approach to developing universal coarse-grained peptide force fields. **I. F. Thorpe**, R. D. Hills, G. A. Voth
- 10:30** Intermission.
- 10:40 11.** Statistically optimal free energy estimates from sparsely chosen states. **M. Shirts**, J. D. Chodera
- 11:10 12.** Stochastic thermostat induced synchronization of MD trajectories in biomolecules. **D. J. Sindhikara**, A. E. Roitberg, A. F. Voter, S. Kim
- 11:40 13.** Synergistic regulation and ligand-induced conformational changes of tryptophan synthase. **M. Q. Fatmi**, C.-E. A. Chang

Section C

Salt Palace Convention Center
259

Molecular Modeling in Chemical Processes

L. Achenie, *Organizer*

- 8:00 14.** Coarse-grained models to reflect functional dynamics of large biomolecules obtained by an elastic network model. **Z. Zhang**, K. Y. Sanbonmatsu, G. A. Voth
- 8:30 15.** Quantum chemical and detailed chemical kinetic modeling of methylamine oxidation: Applications to atmospheric and supercritical water chemistries. **K. M. Benjamin**, J. Meyer, F. Sefa, S. Lane
- 9:00 16.** Force-field development for heavy elements using ab initio data and the force matching method. **A. Clark**, B. Waldher, M. C. F. Wander, N. J. Henson
- 9:30 17.** Shot-noise-limited detection of conformational states and photoblanks in single-molecule FRET trajectories. **J. N. Taylor**, C. F. Landes
- 10:00 18.** Path sampling for nonequilibrium processes in many-dimensional order-parameter spaces. **A. R. Dinner**
- 10:30 19.** The relative entropy in multiscale modeling and coarse-grained model development. **M. S. Shell**, A. Chaimovich
- 11:00 20.** Surfactant formulation multiscale modeling with CULGI. **J. Fraaije**, S. Nath
- 11:30 21.** Molecular modeling as an important step in the multiscale study of the CVD process. **L. Achenie**

The official technical program for the 237th National Meeting is available online at oasys2.confex.com/acs/237nm/techprogram/.

SUNDAY AFTERNOON

Section A

Salt Palace Convention Center
257

Advancing Computational Chemistry through High-Performance Computing: From the Workstation to Petascale and Beyond: Michael Dewar Memorial Symposium
Scaling Molecular Dynamics Developments
Cosponsored by PHYS

S. T. Brown, R. C. Walker, and T. E. Cheatham III, *Organizers*

- 1:00 22.** Approaching petascale biomolecular simulation. **K. Schuitens**, J. Phillips, J. E. Stone, L. Kale
- 1:40 23.** Architectures and algorithms for millisecond-scale molecular dynamics simulations of proteins. **D. E. Shaw**
- 2:20 24.** Folding@home: Scalable algorithms for computational biology, running today on a sustained-petaflop class cluster of processors. **V. S. Pande**
- 3:00 25.** GROMACS 4: Algorithms for highly efficient, load-balanced, and scalable molecular simulation. **B. Hess**
- 3:40 26.** PMEMD: A high performance implementation of AMBER molecular dynamics. **R. E. Duke**, L. G. Pedersen

Section B

Salt Palace Convention Center
258

Connecting Computation to Experiment using Combined QM and MM Methods

B. P. Krueger and R. C. Walker, *Organizers, Presiding*

- 1:00** Introductory Remarks.
- 1:05 27.** Combined QM and MM approaches for vibrational spectroscopy: Applications to water and proteins, including comparisons with experiment. **J. L. Skinner**
- 1:35 28.** Shedding light on photochemical reactions: Computer simulation as a tool for time-resolved spectroscopy. **G. Groenhof**
- 2:05 29.** Investigating biological spectroscopy with QM/MM methods. **I. R. Gould**
- 2:35 30.** Multiscale modeling of electronic excitations at the nanoscale. **S. Tretiak**, C. Wu, S. V. Malinin, V. Chernyak
- 3:05** Intermission.
- 3:15 31.** A quantum of common sense in crystallography. **X. Li**, K. M. Merz Jr.
- 3:45 32.** Toward a fully quantum mechanical force field for simulations of biocatalysis. **D. M. York**
- 4:15 33.** Fretting about FRET: Breakdown of the ideal dipole approximation. **B. P. Krueger**, A. Munoz-Losa, C. Curutchet, L. R. Hartsell, B. Mennucci

Section C

Salt Palace Convention Center
259

Molecular Modeling in Chemical Processes

L. Achenie, *Organizer*

- 1:00 34.** Developing the promise of reactive molecular dynamics for performing kinetics experiments computationally. **P. R. Westmoreland**
- 1:30 35.** Surface nanostructure, diffusion and catalysis: The role of confinement and surface chemistry. **K. E. Gubbins**
- 2:00 36.** Using molecular simulation to understand wetting behavior. **J. R. Errington**
- 2:30 37.** Identification of dynamical hinge points of L1 ligase using large scale molecular dynamics simulations. **G. M. Giambasu**, T.-S. Lee, D. M. York
- 3:00 38.** Simulating stimulating interfaces: Applications in adsorption and catalysis. **C. H. Turner**

- 3:30 39.** Theoretical investigation of inverse spillover processes on alumina supported Pt catalysts. **J. Synowczynski**, J. W. Andzelm, D. G. Vlachos
- 4:00 40.** Fatty acid induced toxicity: Interactions with the lipid bilayer. **A. K. Sum**
- 4:30 41.** Molecular dynamics and structural studies of cyclopentane modified peptide nucleic acids. **A. K. Manukyan**, J. Radkiewicz-Poutsma

MONDAY MORNING

Section A

Salt Palace Convention Center
257

Advancing Computational Chemistry through High-Performance Computing: From the Workstation to Petascale and Beyond: Michael Dewar Memorial Symposium
Quantum Chemistry Developments
Cosponsored by PHYS

S. T. Brown, R. C. Walker, and T. E. Cheatham III, *Organizers*

- 8:30 42.** Electronic structure theory at the petascale: Progress and challenges. **M. S. Gordon**, T. L. Windus, M. H. Lamm, M. Sosonkina, A. Asadchev
- 9:10 43.** Exposing more parallelism in quantum chemistry applications: Moving beyond the MPI and hybrid MPI/multithreaded programming models. **C. L. Janssen**
- 9:50 44.** NWChem: Cutting-edge computational chemistry on large computing platforms. **W. A. de Jong**
- 10:30 45.** Overcoming difficulties in density functional theory: Calculation of non-dynamical correlation and dispersion interaction. **J. Kong**, E. Proynov, Y. Shao, Z. Gan, M. Freindorf, T. R. Furlani
- 11:10 46.** Super instruction architecture of a parallel implementation of coupled cluster theory. **E. Deumens**, V. Lotrich, J. M. Ponton, R. J. Bartlett, B. A. Sanders

Section B

Salt Palace Convention Center
258

**Molecular Mechanics
Applying Ideas**

E. X. Esposito, *Organizer*

S. E. Nichols, *Presiding*

- 8:30 47.** Catalytic mechanism of cyclophilin. **D. Hamelberg**, J. A. McCammon
- 9:00 48.** Extended ensemble ligand binding affinities with OPLS-AA, AMBER99, and varying AM1-BCC charge sets. **M. Shirts**
- 9:30 49.** Homogeneous ice nucleation: A coarse grain approach. **E. B. Moore**, V. Molinero
- 10:00** Intermission.
- 10:10 50.** Roles of Mg²⁺ in hammerhead ribozyme. **T.-S. Lee**, G. Giambasu, D. M. York
- 10:40 51.** Thermostability of hydrogen bond network of cellulose. **T. Shen**, S. Gnanakaran
- 11:10 52.** TraPPE-UA force field for acrylates and Monte Carlo simulations for their mixtures with alkanes and alcohols. **K. A. Maerzke**, J. L. Lewin, N. E. Schultz, R. B. Ross, J. I. Siepmann
- 11:40 53.** Modeling conformation and toxicity of amyloid-forming peptides. **J. Zheng**, X. Yu, Q. Wang

Section C

Salt Palace Convention Center
259

Nanomaterials Modeling and Informatics Nanotubes and Nanocomposites
Cosponsored by CINF and NANO

C. M. Breneman, *Organizer, Presiding*

- 9:00** Introductory Remarks.
- 9:05 54.** Informatics for nanostructure discovery and design. **K. Rajan**