

250th American Chemical Society National Meeting & Exposition
Celebration

BOSTON

August 16-20, 2015

BOSTON, MA

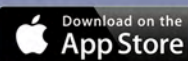
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Division of Colloid & Surface Chemistry		COLL				
<i>R. Nagarajan, Program Chair</i>						
Boston Convention & Exhibition Center	S	M	Tu	W	Th	
Basic Research in Colloids, Surfactants & Nanomaterials	D	D	A	D	D	
Colloid-Polymer Architectures & Mixtures	D	D	A			
Biochemical Ligands at Interfaces: From Molecular-Scale Characterization to Devices	D	D				
<i>IDA</i>						
Theory & Modeling of Nanoparticles' Interactions with Biomolecules & Polymers	D					
Nanotheranostics for Cancer Applications	E			D		
Fundamental Research in Colloids, Surfaces & Nanomaterials	E					
Surface Modification to Control Cell/Surface Interactions		D	A			
Operando Spectroscopic Approach to Quantifying Structure-Activity Relationships of Real Catalysts under Ambient Conditions**		D	A			
30 Years of Langmuir: Looking Back & Forward		D				
Sci-Mix		E				

Division of Colloid & Surface Chemistry (continued)		COLL				
<i>R. Nagarajan, Program Chair</i>						
Boston Convention & Exhibition Center	S	M	Tu	W	Th	
Polymer & Biopolymer-Based Nanomaterials			A	D	D	
Experimental & Computational Approaches to Reactions at the Surface of Colloidal Nano Materials, Facilitated by Photo Excitation & Charge Transfer			A			
Langmuir Lectures; NanoLetters Award Lecture; ACS Materials & Interfaces Award Lecture			P			
Nanomaterials for Defense & Homeland Security Applications				D	D	
Metrology of Characterization, Simulation & Theory of Biomembranes				D		
Nanoparticles in Food, Agricultural & Environmental Settings**					D	
Protein-Nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility & Biological Impact* (PHYS)	D	D	A	D	A	
Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-Resolved Spectroscopies* (PHYS)	D	D	A	D	A	
National Science Foundation's Centers for Chemical Innovation* (PRES)	D					
True Stories from Entrepreneurs: BRIC Edition* (SCHB)	P	A				
21st Century Chemistry Education: Formal & Informal* (PRES)	P	A				
Memories of Henry Hill: His Legacy in Science & in Professional Service* (HIST)		A				
ACS Scholars: Rising Stars in Academe* (PRES)		A				
Complex Coacervation: Principles & Applications* (AGFD)		D	D			
The Legacy of Henry Hill: Commercial Enterprises in the Polymer Sector* (SCHB)		P				
ACS Scholars: Rising Stars in Industry* (PRES)		P				
Transforming University-Industry Partnerships for an Innovative Future* (PRES)			D			
Starting Up & Spinning Out: Commercializing Innovative Chemistry* (SCHB)			D			
Big Chemistry from Small Businesses* (SCHB)				A		

COLL

Division of Colloid and Surface Chemistry

R. Nagarajan, Program Chair

OTHER SYMPOSIA OF INTEREST:

Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact (see *PHYS*, Sunday, Monday, Tuesday, Wednesday, Thursday)

Coacervation: Principles & Applications (see *AGFD*, Monday, Tuesday)

Environmental Applications and Implications of Graphene-based Nanomaterials (see *ENVR*, Tuesday, Wednesday)

In-Situ Methods for the Study of Model Catalysts: From Flat Surfaces to Nanoparticles (see *CATL*, Tuesday, Wednesday, Thursday)

Adhesion Science and Adhesive Materials (see *PMSE*, Tuesday, Wednesday, Thursday)

Nanotechnology for Analytical Sensing and Spectroscopy Based Applications (see *ANYL*, Wednesday, Thursday)

SOCIAL EVENTS:

Social Hour, 6:00 PM: Sunday

Luncheon, 12:00 PM: Tuesday

BUSINESS MEETINGS:

Executive Committee Meeting, 4:00 PM: Saturday

Open Business Meeting, 5:30 PM: Sunday

SUNDAY MORNING

Section A

Boston Convention & Exhibition Center
Room 107A

Basic Research in Colloids, Surfactants & Nanomaterials

Nanomaterial Synthesis

R. Nagarajan, Organizer

K. Bandyopadhyay, Presiding

8:30 COLL 1. Colloidal synthesis and characterization of size tunable luminescent Zn_3P_2 nanocrystals. M. Ho, R.J. Esteves, I.U. Arachchige

8:50 COLL 2. One-step seeded growth of quasi-spherical silver nanoparticles through a thermal process using hydroquinone as a selective reductant. Z. Guo, P. Lu, X. Lu

9:10 COLL 3. Palladium nanoparticle seed mediated growth of palladium nanoshell on silica core. K. Bandyopadhyay, R. Teh

9:30 COLL 4. Generation of surface active species through hydrolytic conversion of organotrialkoxysilanes and their use in particle synthesis. M. Segers, D.J. Kraft, P. Buskens, M. Moller

9:50 COLL 5. Multifunctional colloidal magnetic nanoparticles by surface initiated atom transfer radical polymerization. M. Zeltner, R.N. Grass, C. Hofer, E.M. Schneider, W.J. Stark

10:10 COLL 6. Toward an improved understanding of the synthesis of alkanethiolate-protected Pd and Pt nanoparticles. J. Sidletsky, J.J. Zurmuhlen, P. Goulet

10:30 COLL 7. Morphogenesis of shapes and porosity of mesoporous silica particles. I. Sokolov, V. Kalaparthi

10:50 COLL 8. One-pot synthesis, anisotropic blue emission, and gas sensing behaviors of ZnO supercrystals with controlled structures. F. Li, F. Gong, C. Liu, H. Liu, Y. Zhang

11:10 COLL 9. Tragedy of TOPO-bound CdSe nanocrystals: Illustrative lessons in failed synthesis. N.C. Anderson

11:30 COLL 10. Single-micelle-templating synthesis of mesoporous silica and organosilica nanotubes. A.S. Manchanda, M. Mandal, L. Huang, M. Kruk

11:50 COLL 11. Pseudomorphic transformation: Simultaneous functionalization of silica microspheres and synthesis of bimodal SBA-15/MCM-41 with bottle-neck pores. M.J. Reber, D. Brühwiler

Section B

Boston Convention & Exhibition Center
Room 107B

Theory & Modeling of Nanoparticles Interactions With Biomolecules & Polymers

M. Dutt, Y. G. Yingling, Organizers, Presiding

8:30 COLL 12. Condensation of nucleic acids by multivalent ions. A.V. Onufriev

9:00 COLL 13. Self-assembled gene carriers of DNA and graft copolymers. E. Luijten, H. Mao, Y. Ren, Z. Wei, J. Williford

9:30 COLL 14. Effect of NP shape and ligand flexibility in the design of nucleic acid wrapping NPs. J.A. Nash, A. Singh, N.K. Li, Y.G. Yingling

9:50 COLL 15. Using graphene-DNA interactions to control nanopore transport. A. Aksimentiev

10:20 Intermission.

10:30 COLL 16. Prediction of surface and pH-specific binding of peptides to metal and oxide nanoparticles. H. Heinz

11:00 COLL 17. Simulation of surface-peptide interactions in an aqueous environment. S.A. Barr, R.J. Berry, A.N. Camden, G.M. Leuty, C. Muratore, C.H. Turner, V. Varshney, C. Welch

11:30 COLL 18. Effect of surface polarity on physisorption of biomolecules: Molecular modeling. H. Kim, Y.G. Yingling

11:50 COLL 19. Designing sterically stable drug delivery vehicles via bio-inspired hybrid soft biomaterials. F. Aydin, G. Uppaladadiam, M. Dutt

Section C

Boston Convention & Exhibition Center
Room 107C

Biochemical Ligands at Interfaces: From Molecular Scale Characterization to Devices

Financially supported by JPK Instruments and NT MDT

T. Ye, Organizer

G. Liu, Organizer, Presiding

8:30 Introductory Remarks.

8:35 COLL 20. Applications of model membrane architectures. S.G. Boxer

9:15 COLL 21. Patterned polysaccharide networks on surfaces control the phase behavior of lipid membranes. A.B. Subramaniam

Technical program information known at press time.

The official technical program for the 250th ACS National Meeting is available at:

www.acs.org/boston2015

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9:45 **COLL 22.** Covalent and sequence-specific DNA surface attachment chemistry for multiplexed single molecule measurements. **G.R. Abel**, X. Hao, B.H. Cao, J. Hein, T. Ye

10:10 Intermission.

10:25 **COLL 23.** Discovery of DNA codes for controlling the morphologies of nanomaterials and elucidation of its mechanisms for such a control. **Y. Lu**, L. Tan, A. Ali, N. Satyavolu

11:05 **COLL 24.** Interactions of bacterial lipopolysaccharides with gold nanorod surfaces investigated by plasmonic sensing. **N.S. Abadeer**, G. Fülöp, S. Chen, M. Kall, C.J. Murphy

Section D

Boston Convention & Exhibition Center
Room 108

Basic Research in Colloids, Surfactants & Nanomaterials

Self-Assembly

R. Nagarajan, *Organizer*

M. Tsianou, *Presiding*

8:30 **COLL 25.** Polysaccharide and oligosaccharide effects on surfactant micelle structure and interactions in aqueous solution. **A. Fajalla**, P. Alexandridis, **M. Tsianou**

8:50 **COLL 26.** Rationalizing the self-assembly of poly-(3-hexylthiophene) using solubility and solvatochromic parameters. **M.P. Gordon**, **D.S. Boucher**

9:10 **COLL 27.** Self-assembly of nucleic acid amphiphiles. **K. Zhang**

9:30 **COLL 28.** Surfactant self-assembly on singled-walled carbon nanotubes (SWCNTs): Hydrodynamic properties. **F.R. Phelan**

9:50 **COLL 29.** New insights to distinct increase of spontaneous lipid transfer rate in bicelles. **Y. Xia**, K. Charubin, F. Heberle, D. Marquardt, Y. Liu, J. Katsaras, B. Hammouda, M. Nieh

10:10 **COLL 30.** Incorporation behavior of lipophilic molecules into lipid bilayer membrane-based nanotubes. **Y. Okazaki**, R. Sakaguchi, M. Takafuji, H. Ihara

10:30 **COLL 31.** Spherulipids: Tailoring biological and physical properties by modification chemistry. **R.A. Gross**, Y. Peng, F. Totsingan, A. Koh, M.A. Meier, F. Wurm

10:50 **COLL 32.** Role of hydration in lecithin reverse micelle structure and gelation in cyclohexane: A molecular dynamics study. **S. Vierros**, **M. Sammalkorpi**

11:10 **COLL 33.** Shape persistence micelles having the same aggregation numbers with the Platonic solids. **K. Sakurai**

11:30 **COLL 34.** Toward a better understanding of the self-assembly of poly(ethylene glycol)-functionalized hexaphenylbenzenes. **K. Wunderlich**, M. Klapper, G. Fytas, K. Muellen

11:50 **COLL 35.** Time and concentration dependent assembly of amyloid-like peptides into supramolecular nanostructures. **G. Cinar**, M.O. Guler

Section E

Boston Convention & Exhibition Center
Room 109A

Colloid-Polymer Architectures & Mixtures

Films and Coatings

T. Kreer, *Organizer*

S. M. Balko, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 **COLL 36.** Nanostructured thin polymer films with ordered fullerene-like nanoparticles arrays: Dissipative particle dynamics simulation. **O. Guskova**, C. Seidel, J. Sommer

9:05 **COLL 37.** Waterborne nanoceria/polymer nanocomposites: Enhanced properties through designed nanostructure. **I. Martin-Fabiani**, A.M. Cenacchi-Pereira, F. D'Agosto, M. Lansalot, E. Bourgeat-Lami, J. Keddie

9:25 **COLL 38.** Investigating the efficiency of polymer dispersants on aggregation and adsorption of asphaltenes with different functional groups: A molecular dynamics simulation study. **J. Wise**, L. Goual, M. Sedghi

9:45 Intermission.

10:00 **COLL 39.** Polymer brushes in restricted geometries. **T. Kuhl**, W. Liao, D. Mulder, S. Balko

10:30 **COLL 40.** Orientational assembly of anisotropic zirconium phosphate nanoplate in polyionic salt matrix. **X. Huang**, X. Wang, J. Li, Z. Cheng

10:50 **COLL 41.** Surface forces associated with hierarchically structured layer-by-layer films of polymer brush grafted nanoparticles and star polymers. **J.K. Riley**, K. Matyjaszewski, **R.D. Tilton**

11:10 **COLL 42.** Particle-sorption in wobbling polymer films. **B.D. Kieviet**, L. Dos Ramos, L.I. Mensink, G. Lajoinie, M. Versluis, G. Vancso, **S. de Beer**

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Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

Interfacial Phenomena

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact

Fundamentals and Applications

Sponsored by PHYS, Cosponsored by COLL

SUNDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 107A

Basic Research in Colloids, Surfactants & Nanomaterials

Surface Modification

R. Nagarajan, *Organizer*

I. Sokolov, *Presiding*

2:00 **COLL 43.** Influencing surface functionalization of aluminum fillers with acrylic-monomers through the onset of instability in Taylor Couette flow. **M. Aljishi**, Y.L. Joo

2:20 **COLL 44.** Current challenges in quantitative measurement of ligand binding and interactions at quantum dot surfaces. **A.B. Greytak**

2:40 **COLL 45.** Surface modification of inorganic oxide particles for improved dispersion in waterborne coatings. **J. Jankovits**, A.M. Van Dyk, J. Bohling, J. Roper, C.J. Radke, A.S. Katz

3:00 **COLL 46.** Colloidally suspended 3-MPA capped PbS quantum dots. **C.C. Reinhart**, E. Johansson

3:20 **COLL 47.** Electrochemical characterization of selenium-modified gold surfaces. **E. Karnaukh**, H. Wang, **M.C. Buzzeo**

3:40 **COLL 48.** Smart materials based on thiol-functionalized pNIPAM and gold nanoparticles. **Y. Li**, J.W. Soares, D.M. Steeves, J.E. Whitten

4:00 **COLL 49.** 1-Adamantanethiol as a versatile nanografting tool. **C.I. Drexler**, C. Causey, **T.J. Mullen**

4:20 **COLL 50.** On-surface redox chemistry to control well-defined oxidation states of transition metal centers by ligand design. **S.L. Tait**

4:40 **COLL 51.** Omniphobic bio-based coatings on polyolefinic substrates. **J.H. Lavoie**, E. Shim, S. Khan, O.J. Rojas

5:00 **COLL 52.** Purification of carboxylated carbon nanotubes. **Z. Wu**, S. Mitra

5:20 **COLL 53.** Eliminating ions from polyelectrolyte multilayers: A recipe high in salt. **H. Fares**, Y. Ghoussoub, R. Surmalits, J.B. Schlenoff

Section B

Boston Convention & Exhibition Center
Room 107B

Theory & Modeling of Nanoparticles Interactions With Biomolecules & Polymers

M. Dutt, Y. G. Yingling, *Organizers, Presiding*

2:00 **COLL 54.** Lessons learned from inverse design of interactions for assembly. **T. Truskett**

2:30 **COLL 55.** Thermal conduction by clustered colloids. **T. Matsoukas**

3:00 **COLL 56.** Combined experimental and molecular modeling studies of nanodiamonds. **D.W. Brenner**, F. Saberi Movahed, Z. Liu, A. Koolvand, A.I. Smirnov, J. Krim, O. Shenderova

3:30 **COLL 57.** Self-assembly simulations of polymer functionalized nanoparticles. **L. Chong**, S. Libring, V. Karra, M. Dutt

3:50 Intermission.

4:00 **COLL 58.** Ghost tweezers method for studies of nanoparticle interaction with polymer brushes and lipid membranes. **A.V. Neimark**, S. Burgess, J. Cheng, Z. Wang, A. Vishnyakov

4:30 **COLL 59.** Multiscale modeling of polymers. **A. Yethiraj**

5:00 **COLL 60.** Towards the virtual laboratory: modelling clay-polymer nanocomposites using a multiscale approach. **P.V. Coveney**, J. Suter, D. Groen

5:20 **COLL 61.** Controlling non-covalent dispersion of hydrophobic objects with lipids and polymers. **J. Määttä**, S. Vierros, P.R. Van Tassel, M. Sammalkorpi

Section C

Boston Convention & Exhibition Center
Room 107C

Biochemical Ligands at Interfaces: From Molecular Scale Characterization to Devices

Financially supported by JPK Instruments and NT MDT

G. Liu, *Organizer*

T. Ye, *Organizer, Presiding*

2:00 **COLL 62.** Withdrawn.

2:30 **COLL 63.** Electrochemical protease profiling toward cancer analyses using peptide-functionalized carbon nanofiber nanoelectrode arrays. **L. Swisher**, D.H. Hua, T. Nguyen, **J. Li**

3:00 **COLL 64.** Nucleic acid biosensing at interfaces: Physicochemical perspectives and future prospects. **R. Levicky**

3:30 Intermission.

3:45 **COLL 65.** Aptamer-functionalized chemomechanically-modulated biomolecule catch-and-release system. **A. Shastri**, L. McGregor, H. Nan, M. Mujica, Y. Liu, O. Kukusenok, M. Aizenberg, A.C. Balazs, J. Aizenberg, **X. He**

4:15 **COLL 66.** Using electrochemical DNA-based (E-DNA) sensors to monitor cooperative DNA-protein interactions. **F.C. Macazo**, R.L. Karpel, R.J. White

Section D

Boston Convention & Exhibition Center
Room 108

Basic Research in Colloids, Surfactants & Nanomaterials

Emulsions and Interfaces

R. Nagarajan, *Organizer*

M. N. Kobra, *Presiding*

2:00 **COLL 67.** To model chemical reactivity in heterogeneous emulsions: Think homogeneous microemulsions. **L. Romsted**

2:30 **COLL 68.** Understanding co-surfactant-spherulipid combinations for improved interfacial properties. **A. Koh**, J. Han, R.A. Gross

2:50 **COLL 69.** Location and influence of added block copolymers on oil-in-oil emulsions. **I. Asano**, T.P. Lodge

3:10 **COLL 70.** Thermodynamic approach to interfacial concentration gradients. **M.N. Kobra**

3:30 **COLL 71.** New generation of smart surfactants for miniemulsion. **S. Wald**, K. Landfester, F. Wurm

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- 3:50 COLL 72.** Dynamically reconfigurable complex emulsions via tunable interfacial tensions. **L.D. Zarzar**, V. Sresht, E.M. Sletten, J.A. Kalow, D. Blankschtein, T.M. Swager
- 4:10 COLL 73.** Understanding the interactions of epoxides and amines as reactive compartments in aqueous dispersions. **A. Bijlard**, S. Winzen, A. Kaltbeitzel, Y. Avlasevich, D. Crespy, K. Landfester, A. Taden
- 4:30 COLL 74.** Investigating surfactant-based oil recovery process in reservoirs with heterogeneous mineralogy. **G. Javanbakht**, L. Goual
- 4:50 COLL 75.** Framboidal triblock copolymer vesicles: A new class of efficient Pickering emulsifier. **C. Mable**, N. Warren, K.L. Thompson, O.O. Mykhalchyk, S.P. Armes
- 5:10 COLL 76.** Characterizing the effect of modification on cellulose nanocrystal pickering emulsions. **A. Koh**, S. Spinella, A. Maiorana, R.A. Gross
- 5:30 COLL 77.** Multibody coalescence in Pickering emulsions. **C. Na**, T. Wu

Section E

Boston Convention & Exhibition Center
Room 109A

Colloid-Polymer Architectures & Mixtures

Functional or Patterned Colloids & Surfaces

S. M. Balko, T. Kreer, *Organizers*

T. Kuhl, *Presiding*

- 2:00 COLL 78.** Multicompartmental colloids: Synthesis, properties, and function. **J. Lahann**
- 2:30 COLL 79.** Conformation and diffusion of DNA-coated nanoparticles. **E. Luijten**, C. Ramavaram, H. Wu
- 3:00 COLL 80.** Colloidal nanomaterials-encapsulated microcapsule for biomolecular sensing. **X. Xie**, W. Zhang, A. Abbaspourrad, D. Weitz, D.G. Anderson
- 3:20** Intermission.
- 3:35 COLL 81.** Power-free mechanochromic sensors from force-recording, elastoplastic inverse opals. **Y. Cho**, S. Lee, L. Ellerthorpe, G. Feng, G. Lin, J. Yin, G. Wu, S. Yang
- 3:55 COLL 82.** How do surfaces alter the structure in multicomponent polymer systems and vice versa? A computer simulation study. **M. Mueller**, F. Leonforte, Q. Tang
- 4:25 COLL 83.** Tortuosity and branching of worm-like micelles accessed by small-angle neutron scattering. **K. Vogtt**, G. Beaucage, M.R. Weaver, H. Jiang
- 4:45 COLL 84.** Artificial biomembrane models using giant vesicles comprised of amphiphilic random block copolymers. **E. Yoshida**

Technical program information known at press time. The official technical program for the 250th ACS National Meeting is available at: www.acs.org/boston2015

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- 5:05 COLL 85.** Sliding tethered ligands: Lock and key colloidal interactions with a topological twist. **M. Bauer**, C. Fajolles, T. Charitat, J. Iss, P. Kékeichef, J. Daillant, C.M. Marques

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Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

Interfacial Phenomena in Materials

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact Fundamentals and Applications

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SUNDAY EVENING

Section A

Westin Boston Waterfront
Galleria

Fundamental Research in Colloids, Surfaces & Nanomaterials

R. Nagarajan, *Organizer, Presiding*

6:00 - 8:00

- COLL 86.** Thermal stabilization effect of multilayer graphene-coated metal nanostructures. **P. Wilson**, A. Zobel, A. Lipatov, T. Hofmann, A. Sinitskii
- COLL 87.** First principles simulations of pure water. **S. Gelpi**, M. Morales-Silva
- COLL 88.** Flame-retardant surfaces from green vinyl ester resin. **P. Shah**, A. Kokil, R.F. Kovar, Y. Lee
- COLL 89.** Molecular modeling and DFT analysis of theoretical covalent cross-linkages between hydroxyproline stereoisomers and galacturonic acid. **M.H. Andersen**, L. Tribe
- COLL 90.** Long range nanorular for cancer cell sensing. **S.S. Sinha**, A. Pramanik, R. Kanchanapally, S.R. Chavva, B. Viraka Nellore, S.J. Jones, P.C. Ray
- COLL 91.** Magnetic-nanoparticle conjugated hybrid graphene oxide for prostate cancer detection and treatment. **S.R. Chavva**, A. Pramanik, B. Viraka Nellore, P.C. Ray
- COLL 92.** Fabrication of stable, low-density, self-assembled monolayers on gold by click thiol-yne reaction. **L. Safazadeh Haghghi**
- COLL 93.** Efficient removal and killing of multidrug-resistant *Staphylococcus aureus* (MRSA) using polycyclic antibacterial peptide-functionalized 3D porous graphene oxide membrane. **A. Pramanik**, R. Kanchanapally, B. Viraka Nellore, S.S. Sinha, S.R. Chavva, S.J. Jones, P.C. Ray
- COLL 94.** DFT study of formaldehyde coupling reaction on rutile TiO₂ (110) surface. **M. Tang**, Q. Ge, Z. Zhang
- COLL 95.** Alpha-ketoglutaric acid for neutralization of hydrazine and monomethylhydrazine waste streams. **C. Yestrebtsky**, C. Franco, D. Glass, R. Martinez, C. Davis
- COLL 96.** Surface-enhanced Raman spectroscopic (SERS) detection with sub-monolayer nanoparticle arrays. **R. Osgood**
- COLL 97.** Tunable thermochromism of anthraquinone induced by reversible microparticle/nanoparticles switching in blended block copolymers. **N. Alexandridi**, Y. Zhang, J.F. Lovell
- COLL 98.** Characterization of surface area burial upon formation of biomolecular interfaces. **L. Pegram**, D. Riccardi
- COLL 99.** Control of radiation sensitivity of inorganic resists by exchanging ligands. **D. Park**, J.M. Amador, S.R. Decker, D.A. Keszieler
- COLL 100.** Development and characterization of surface modified metal oxide nanoparticles. **A. Torres**, O. Santillan, B. Veldman
- COLL 101.** Tuning surface chemistry on layer-by-layer nanoparticles to target ovarian cancer. **S. Correa**, P.T. Hammond
- COLL 102.** Temperature-dependent SPR measurement of the influence of probe density on the denaturation temperature of hybridized DNA on surfaces. **L. Alves de Macedo**, A. Opdahl
- COLL 103.** C₆₀-functionalized flavin (FC60) toward nanotube-based photovoltaics. **M. Mollahosseini**, F. Papadimitrakopoulos
- COLL 104.** Thermodynamics of ionic liquid polymer solutions. **Z. He**, **P. Alexandridis**
- COLL 105.** Withdrawn.
- COLL 106.** Pralidoxime functionalized polydiacetylene for colorimetric detection of organophosphates. **Y. Zhang**, L. Bromberg, T. Hatton
- COLL 107.** Quantification of viral surface lipids using plasmon-coupling based UV-Vis spectrophotometry. **C. Wong**, A. Feizpour, H. Akiyama, S. Gummuluru, B.M. Reinhard
- COLL 108.** Fundamental catalytic studies of bimetallic and oxide nanomaterials for CO oxidation and the reverse water gas shift reaction. **A. Baber**, D.T. Boyle, C. Stopak
- COLL 109.** Protein adsorption on silica nanoparticles and oxidized silicon: Effect of surface wettability and chemistry. **B. Mondal**, Q. Xu, M. Barahman, A.M. Lyons
- COLL 110.** Role of tyrosines within Amot as a driver for protein-lipid association. **A.C. Kimble Hill**, N. Abufares, H.I. Petrasche, T.D. Hurley, C.D. Wells
- COLL 111.** Effect of aromatic and hydrophobic interactions in amphiphilic supramolecular assemblies in response to temperature changes. **O. Munkhbat**, M. Garzoni, G.M. Pavan, S. Thayumanavan
- COLL 112.** Size- and shape-controlled synthesis of gold nanoparticles using chitosan as a stabilizer. **L. Liu**
- COLL 113.** Stimuli-responsive nanomaterials for detection and active decontamination of chemical and biological threats. **R.S. McDonald**, J. Owens, W.B. Salter, K. Simpson, G. Strack, D. Volkov
- COLL 114.** Spatial frequency heterodyne imaging of water filled multi-walled carbon nanotubes. **F. Schunk**, D. Rand, C.G. Rose-Petruck
- COLL 115.** Withdrawn.
- COLL 116.** Self-assembled monolayers of amphiphilic macromolecules as bioactive cardiovascular stent coatings. **J.W. Chan**, Y. Zhang, K.E. Uhrich

- COLL 117.** Molecular simulations of phospholipid self-assembly: Curvature and nanoscale forces in vesicles and upon substrate adhesion. **J. Määttä**, M. Sammalkorpi
- COLL 118.** Fabrication of single neural cell chip to analyze cellular redox state by spectroelectrochemical technique. **K. Kim**, T. Kim, Y. Chung, W. El-Said, J. Choi
- COLL 119.** Bridging the pressure and materials gap between surface science and catalysis: Probing the surface of metal oxide nanoparticles. **M. Kipreos**, M.C. Foster
- COLL 120.** Preparation of large-area graphenes via mild oxidation followed by millstone exfoliation. **T. Yoon**
- COLL 121.** Design and evaluation of ligand-conjugated amphiphilic macromolecule nanoparticles for mitigation of atherosclerosis. **A.E. Moretti**, R. Chmielowski, P. Moghe, K.E. Uhrich
- COLL 122.** Co-engineering the supramolecular nanoparticle-protein interface. **M. Ray**, Z. Jiang, R. Landis, V.M. Rotello
- COLL 123.** Structured surfaces for adhesion and friction experiments. **R. Jin**, X. Xu, S. Kaur, M. Rutts
- COLL 124.** Robust network microcapsules with tunable permeability based on sole cellulose nanocrystals. **C. ye**, **R. Geryak**, M. Chyasnachichyus, V.V. Tsukruk
- COLL 125.** Nonlinear optical probe of chemical reactions and photonics at the surface of silver nanoparticles. **B. Xu**, W. GAN, G. Gonella, B.G. DeLacy, H. Dai
- COLL 126.** Nanomechanical properties of eutectic gallium-indium particles by atomic force microscopy. **S.S. Akhter**, I. Tevis, M.M. Thuo, M.C. Foster
- COLL 127.** Kinetic release of micellized PEG-PLL block copolymer complexed with siRNA using FRET assay. **C.M. Bailey**, R. Nagarajan, T.A. Camesano
- COLL 128.** Photoreactive sulfobetaine copolymers for the modification of biomedical devices. **F. Torok**, M. Bouchard, J. Li, Z. Zhang
- COLL 129.** Characterization and antibacterial effect of silica-silver nanocomposite particles. **J. Kim**, S. Oh
- COLL 130.** Cytosolic delivery of therapeutic siRNA and miRNA using self-assembled gold nanoparticle-stabilized nanocapsules for breast cancer therapy. **J. Hardie**, Y. Jiang, R. Landis, E. Tetraut, P. Ghazi, M.E. Farkas, V.M. Rotello
- COLL 131.** Triethanolamine-stabilized silver nanoparticles as substrates for surface-enhanced Raman scattering. **E. Honarvarfard**, Y. Chen, P. Goulet
- COLL 132.** Characterization of hybrid microspheres with silica nanoparticles-embedded surface. **N. Hano**, N. Ryu, S. Nagaoka, M. Takafuji, H. Ihara
- COLL 133.** Correlating excitonic and structural properties of lead sulfide (PbS) nanocrystal films. **M. Weidman**, W.A. Tisdale
- COLL 134.** Comparative study on the single particle optical properties of binary CdSe and ternary alloyed CdS_xSe_{1-x} semiconductor nanocrystals. **S. Dey**, S. Chen, M. Shakil, S.L. Suib, J. Zhao
- COLL 135.** Synthesis and stabilization of CuO nanorods in alkane based solvents. **M. Hossain**, G.C. Mills
- COLL 136.** Reactive fibrous adsorbents for decontamination of chemical threats. **L. Bromberg**, V. Martis, Y. Zhang, **X. Su**, T. Hatton

- COLL 137.** Advances in the use of gel permeation chromatography (GPC) to nanocrystals: Purification, solvent change, and surface modification. **Y. Shen**, R. Tan, M.Y. Gee, A. Roberge, A.B. Greytak
- COLL 138.** Adaptation of FTIR spectrometer to the external reaction chambers for surface analysis studies. **S.V. Shilov**, T. Tague, G. Zachmann, X. Stammer
- COLL 139.** Atomically precise gold nanoclusters for the electrocatalytic reduction of carbon dioxide. **M. Kim**, W. Choi, K. Kwak, D. Lee
- COLL 140.** Modified electrodes using Au₂₅ nanoclusters for electrochemical sensing applications. **M. Jang**, U.P. Azad, E. Ko, D. Lee
- COLL 141.** Iron chalcogenide nanoparticle precursors for solution processed photovoltaics and other applications. **B. Gebear-Eigzabher**, P. Hwang, C. Lai, D.R. Radu
- COLL 142.** Photocatalytic performance of a trifold nanocomposite material for the hydrolysis of 2-chloroethyl ethyl sulfide (CEES). **C.A. Zoto**
- COLL 143.** Silver seeds and aromatic surfactants facilitate the growth of anisotropic metal nanoparticles: Gold triangular nanoprisms and ultrathin nanowires. **Z. Qian**, S. Park
- COLL 144.** Synthesis of metal sulfide nanoparticles in toluene at room temperature. **L. Bian**, K. Ring, J. Sidletsky, P. Goulet
- COLL 145.** Quantifying the surface coverage of mercaptohexadecanoic acid on nanocrystalline SnO₂ thin films. **G.R. Soja**, M.J. Awad
- COLL 146.** Single-phase synthesis of thiolate-protected metal nanoparticles. **J. Sidletsky**, B.G. Root, P. Goulet
- COLL 147.** Nisin protection from degradation and controlled release via polyacrylic acid encapsulation. **L.W. Place**, S. Filocamo
- COLL 148.** Versatile gold nanobowl arrays for size-selective plasmonic biosensing. **E. Lehnhoff**, D. Jana, I. Bruzas, L. Sagle
- COLL 149.** Directed self-assembly of nanoparticles: Template control of nanostructure configurations. **K. Lim**, M. Asbahi, S. Mehraeen, F. Wang, J. Cao, M. Tan, J. Yang
- COLL 150.** Magneto-responsive hybrid colloidal architectures: Preparation, processing, and opal film formation. **D. Scheid**, M. Gallei
- COLL 151.** Synthesis and self-assembly of copper nanowires. **S. Darmakkolla**
- COLL 152.** Electron induced surface reactions of organometallic precursors. **J. Spencer**, R. Thorman, M. Barclay, J.A. Brannaka, Y. Wu, O. Ingolfsson, L. McElwee-White, H. Fairbrother
- COLL 153.** Modification of nitinol nanoparticles with self-assembled monolayers. **R. Quinones**, S. Garretson
- COLL 154.** Modification of zinc oxide nanoparticles with perfluoro phosphonic acids. **R. Quinones**, C. Peck
- COLL 155.** Proton coupled electron transfer through 2'-6'-2'' terpyridine molecular wire between graphene - gold nanoparticle junction. **G.V. Jacob**, A. Patnaik
- COLL 156.** Study of thermal diffusivity in metallic and bimetallic Fe and Au nanoparticles. **K.A. Fudimura**, M. Da Cruz Santos, P.S. Haddad, S. Alves
- COLL 157.** Fabrication of liquid-like-surface and evaluation of anti-frosting property. **T. Moriya**, K. Manabe, S. Shiratori
- COLL 158.** Mechanistic study using a quartz crystal microbalance: Effect of spacer length on the antimicrobial activity of the bound peptide, Chrysohsin-1. **T. Alexander**, L.D. Lozeau, T.A. Camesano
- COLL 159.** Preparation of lipid bilayer membrane-based nanotubes-enclosed polymer composite film. **Y. Okazaki**, S. Konomi, M. Takafuji, H. Ihara
- COLL 160.** Biomemory regulator device composed of metalloprotein/DNA/nanoparticle. **J. Yoon**, S. Kim, T. Lee, J. Min, J. Choi
- COLL 161.** Molecular interactions between gold nanoparticles and model cell membranes. **P. Hu**, X. Zhang, C. Zhang, Z. Chen
- COLL 162.** Withdrawn.
- COLL 163.** Making colors from black and white. **Y. Takeoka**
- COLL 164.** Gene delivery by polyethyleneimine-functionalized graphene oxide suppresses breast cancer cell migration. **Y. Huang**, W. Wang, C. Zhong, M. Lee
- COLL 165.** QCM-D based mechanistic study of Alzheimer's disease: Membrane-amyloid peptide interactions. **E. Kamaloo**, T.A. Camesano
- COLL 166.** 2D nanoparticle cluster formation in supercritical fluid CO₂. **J. Wang**, G. Brown, C.M. Wai
- COLL 167.** Effect of incorporation of lysolipid on the stability of dipalmitoyl phosphatidyl choline bilayer membrane: Molecular dynamics simulation approach. **K. Lee**, Y. Kim, S.S. Jang
- COLL 168.** Magneto-fluorescent core-shell supernanoparticles. **O. Chen**
- COLL 169.** DNA-polypeptide polyplexes. **M.J. Lueckheide**, J. Viereg, L. Leon, M.V. Tirrell
- COLL 170.** Upconversion of trapped charge carriers in coupled lead sulfide quantum dot solids. **R.H. Gilmore**, W.A. Tisdale
- COLL 171.** Mechanisms of metal deposition on colloidal gold nanoparticle substrates. **P. Straney**, J. Millstone
- COLL 172.** Light scattering from concentrated eye lens beta crystallin solutions. **K.P. Van Nostrand**, L.V. Michel, G.M. Thurston
- COLL 173.** pH Sensitive delivery of Pt²⁺ based therapeutics in lipid-coated PLGA nanoparticles. **M.T. Wlodarczyk**, O. Camacho-Vanegas, P. Dottino, J.A. Martignetti, A.J. Mieszawska
- COLL 174.** Withdrawn.
- COLL 175.** Smart drug delivery system using magnetic core-shell gold nanoparticles. **H. Ilkhani**, M.R. Hepel, J. Li, Z. Skeete, J. Luo, C. Zhong
- COLL 176.** Preparation of modified poly(ethylene-co-acrylic acid) (PEAA) usary ammonium with aliphatic chains as antibacterial polymer. **H. Noh**, J. Ryu, S. Oh
- COLL 177.** Interpenetrating network polymer gel for improving oil recovery. **Y. Long**, Z. Chen, B. Bai
- COLL 178.** Tunable intermolecular interaction in N-methylfulleropyrrolidine (8-NMFP) mediated with assembly of gold nanoparticles. **S. Sutradhar**, A. Patnaik
- COLL 179.** Novel photothermal-based release mechanism for controlled release on Au nanoparticles through light. **E. Goren**, H. Cavusoglu, E. Yavuz, H. Usta, M. Yavuz
- COLL 180.** Omniphilic superparamagnetic iron oxide core-shell nanoparticles. **B. Shirmardi Shaghasemi**, E. Reimhult
- COLL 181.** Understanding the effect of TMA⁺ on the condensation behavior of [H₂Ta₆O₁₉]³⁻. **R. Mansergh**, L.B. Fullmer, D. Park, M.D. Nyman, D.A. Keszler
- COLL 182.** Size-dependent cellular uptake of sub-10 nm zwitterionic gold nanoparticles. **Y. Jiang**, S. Huo, S. Hou, T. Mizuhara, D. Moyano, V.M. Rotello
- COLL 183.** Assembling discrete nanoparticle clusters via weakly interacting DNA linkages. **A. Lewis**, T.L. Doane, M. Bowick, M.M. Maye
- COLL 184.** Understanding the assembly and aligning of semiconductor quantum rods on DNA origami. **Y. Chen**, T.L. Doane, M.M. Maye
- COLL 185.** Designing stable foams in the presence of alkanes and brine for oil field operations. **V. Sansen**, U. Suriyapraphadilok, A. Chareonsang, B.J. Shiau
- COLL 186.** Vitamin E- conjugated lipidic mixed micellar system as nanocarrier for the delivery of curcumin in cancer. **O. Muddineti**, P. Jha, B. Ghosh, S. Biswas
- COLL 187.** Withdrawn.
- COLL 188.** Antibacterial efficacy of carbohydrate-conjugated nanomaterials. **S.A. Wijesundera**, B. Wu, K. Jayawardana, M. Yan
- COLL 189.** Preparation of double emulsions using hybrid polymer/silica particles: New Pickering emulsifiers with adjustable surface wettability. **M. Williams**, N. Warren, L.A. Fielding, S.P. Armes, P. Verstraete, J. Smets
- COLL 190.** Blockcopolymer based cross linkable surfactant for preparation of polymeric nanoparticles by miniemulsion process. **K. Kim**, R.W. Zentel
- COLL 191.** Silica supported zirconaziridine for hydroaminoalkylation of olefin: Evidences for the mechanism. **B. Hamzaoui**, J.M. Basset, J. Pelletier
- COLL 192.** Low water activity materials for moisture harvesting. **S.A. Ferdousi**, K.L. Yeung, Z. Liu
- COLL 193.** Withdrawn.
- COLL 194.** Study of the relationship between cationic degree and the performance of nanoparticle dispersion. **J. Geng**, B. Bai, T.P. Schuman
- COLL 195.** Poly(ethylene glycol)-b-olaamphiphiles for highly stabilized liposomes. **Y. Zhang**, K.E. Uhrich
- COLL 196.** Withdrawn.
- COLL 197.** Controlling hydrosilylated pin-printed feature sizes on porous silicon. **D.T. McCall**, Y. Zhang, D.J. Hook, F.V. Bright
- COLL 198.** Surface properties of xerogel materials with unusual patterns and tunable topography for antifouling applications. **J.F. Destino**, Z. Jones, A. Craft, C.M. Gatley, M.R. Detty, F.V. Bright
- COLL 199.** Aerosol-based ultrasonic synthesis of polymer-conjugated metallic nanobunches to fabricate transparent antimicrobial layers. **J. Byeon**
- COLL 200.** Carbon nanotube scaffolded self organized silica gels. **B.P. Chauhan**, Q. Johnson, A. Patel, S. Matam, M. Chauhan
- COLL 201.** Catalytic investigations of hybrid metallic nanoparticle nanogels: The effect of silylation on self assembly and activity. **K. Moran**, A. Patel, S. Chaudhry, Q.R. Johnson, S. Matam, B.P. Chauhan
- COLL 202.** SIRB, Sans Iron Oxide Rhodamine B, a novel cross linked dextran nanoparticle. **E.V. Groman**, J.S. Weinberg, A. Ramalingam
- COLL 203.** SIRB, Sans Iron Oxide Rhodamine B, a novel crosslinked dextran nanoparticle, labels human neuroprogenitor and SH-SY5Y neuroblastoma cells and serves as a USPIO cell labeling control nanoparticle. **W. Shen**, E.V. Groman, P. Fishman, P. Yarowsky
- COLL 204.** Novel plasmonic platform for label-free biosensing with membrane-associated species. **I. Bruzas**, S. Unser, L. Sagle
- COLL 205.** Eco-friendly scratch resistant wood coatings based on silica nanoparticles. **C. Alt**, C. Cordt, R. Klein
- COLL 206.** Promotion of the halide effect in the formation of metal nanocrystals via a hybrid cationic, polymeric stabilizer: Octahedra, cubes, and anisotropic growth. **M. Golden**, B.T. Sneed, C. Tsung
- COLL 207.** Chlorinated protein films for antimicrobial coatings. **L. Wang**, B. Duncan, A. Gupta, R. Ramanathan, V.M. Rotello
- COLL 208.** National synchrotron X-ray scattering facility dedicated for the studies of molecular ordering and dynamics at liquid surface/interfaces. **W. Bu**, B. Lin, M. Meron
- COLL 209.** Histamine-functionalized copolymer micelles as a drug delivery system in 2D and 3D models of breast cancer. **Y. Zhang**, P. Lundberg, M. Diether, C. Porsch, C. Janson, N.A. Lynd, C. Ducani, M. Malkoch, E.E. Malmstrom, C.J. Hawker, A.M. Nyström
- COLL 210.** Metal chelating polyphenol coatings for antioxidant active packaging. **M. Roman**, E.A. Decker, J.M. Goddard
- COLL 211.** Phospholipid/aromatic thiol hybrid bilayers. **C. Li**, M. Wang, W. Zhan
- COLL 212.** All-lipid assembled photosynthetic mimics. **M. Wang**, C. Li, W. Zhan
- COLL 213.** Photoinitiated covalent surface functionalization for enhanced control over electrodeless deposition on silicon nitride. **Y.D. Bandara**, B.I. Karawdeniya, J. Whelan, B. Velleco, J.R. Dwyer
- COLL 214.** Electroless plating of thin gold films directly onto silicon nitride thin films and into micro- and nanopenes. **J. Whelan**, N.D. Bandara, B.I. Karawdeniya, C. Masterson, B.D. Velleco, J.R. Dwyer
- COLL 215.** Molecular layers on nanoporous gold electrodes. **E.C. Landis**, D. Patel, C.L. Chevalier, R.B. Chevalier
- COLL 216.** Rapid, electrodeless surface modification through surface-directed azo coupling. **N. Marshall**, T. Mikhailova, B. Taylor
- COLL 217.** Electrospun polytetrafluoroethylene thin film with high heat transfer coefficient. **H. Tsuchiya**, K. Manabe, K. Kyung, T. Gaudelet, F. Gillot, S. Shiratori

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- COLL 218.** Toward the synthesis of ordered mesoporous organo-silicas with closed mesopores. **A.S. Manchanda, M. Mandal, M. Kruk**
- COLL 219.** KillerRed conjugated upconversion nanoparticles for cancer imaging and photodynamic therapy. **L. Liang, R. Zhang, V. Sreenivasan, S.M. Deyev, Y. Qian, A. Zvyagin**
- COLL 220.** Dynamic coupling at the Ångström scale. **F.Y. Pong, K.K. Dey, J. Breffke, E. Hatzakis, A. Sen**
- COLL 221.** Enhanced cell performance with control of ZnO buffer layer using nanoparticles of various morphology for inverted organic photovoltaic cells (OPVs). **S. Oh, S. Oh**
- COLL 222.** Silver sulfadiazine-immobilized inorganic fillers: Preparation, characterization, and antimicrobial functions. **R. Srivastava, Y. Sun**
- COLL 223.** Removal of oxidation debris from carboxylated carbon nanotubes. **Z. Wu, R.F. Hamilton Jr, A. Holian, S. Mitra**
- COLL 224.** Characterization of carbon nanotube composites by imaging X-ray photoelectron spectroscopy: Employing differential charging to detect carbon in carbon. **J.M. Gorham, W.A. Osborn, J.W. Woodcock, K.C. Scott, J.M. Heddlston, A.R. Hight Walker, J.W. Gilman**
- COLL 225.** Zwitterionic amphiphile based magnetofluorescent nanoparticles. **V.G. Demillo, X. Zhu**
- COLL 226.** Size-exclusive protein adsorption on plasmonic gold nanoparticles measured via optical dark-field spectroscopy. **V. Wulf, J. Heidrich, D. Schneider, C. Soenrichsen**
- COLL 227.** Seed-mediated self-assembly to form core-shell and Janus nanostructure using nanoparticles-loaded thermo-cleavable polymer. **K. Samsanaphongpricha, H. Chen, K. Sun, D. Sun**
- COLL 228.** Synthesis and characterization of highly stable ligand protected quantum sized silver nanoclusters. **K. Pyo, D. Lee**
- COLL 229.** Thermal decomposition based synthesis of AgInS₂/ZnS quantum dots and their cellular imaging applications. **S. Chen, X. Zhu**
- COLL 230.** Withdrawn.
- COLL 231.** Tumor targeted poly(ethylene glycol)-poly(D,L-lactic acid)-based copolymeric micelles as a potential chemotherapeutic drug delivery system: Synthesis, physico-chemical, and in vitro characterization. **P. Kumari, O. Muddineti, B. Ghosh, S. Biswas**
- COLL 232.** Stimulus-responsive water-soluble graphene nanodevices for tunable biomarker detection. **M. Balcioglu, B. Buyukbekar, M.S. Yavuz, M.V. Yigit**
- COLL 233.** Tuning the detection capacity and specificity of polymer protected graphene nanoassemblies using endonucleases. **N.M. Robertson, M. Hizir, M. Rana, M. Balcioglu, M.S. Yavuz, M.V. Yigit**
- COLL 234.** Two-color detection of circulating miRNAs from liquid biopsies for prostate cancer screening using graphene nanoassemblies. **M. Hizir, N.M. Robertson, M. Rana, M. Balcioglu, M.V. Yigit**
- COLL 235.** Highly sensitive enzyme-free detection of multiple miRNAs using gold nanoparticles and hybridization chain reaction. **M. Rana, M. Balcioglu, N.M. Robertson, M. Hizir, M.V. Yigit**
- COLL 236.** Withdrawn.
- COLL 237.** Withdrawn.
- COLL 238.** Withdrawn.
- COLL 239.** Synthesize and characterization of bis-cationic surfactant and self-assembly into worm-like viscoelastic fluids. **C. Yang, Z. Hu, Q. Jiang**
- COLL 240.** Stepwise functionalization method for nanostructure-based Mg₂Zn_{1-x}O biosensor with increased sensitivity and selectivity. **Y. Chen, P. Reyes, S. Misra, E. Galoppini, Y. Lu**
- COLL 241.** Hydrophobicity of treated graphene oxide surfaces: Experimental and molecular dynamics simulation studies. **H. Mortazavian, C.J. Fennell, B.R. Sedai, F.D. Blum**
- COLL 242.** Porous polymeric membrane formed by charge and amphiphilicity dually driven self-assembly. **J. Xu, Z. Zhu, H. Xue**
- COLL 243.** Multifunctional therapeutic silica-gold core-shell nanoparticles for breast cancer applications. **D. VanDyke, P. Rai**
- COLL 244.** Mg@porous SiO₂ particles: Preparation, controlled hydrogen release, and hydroxyl radicals scavenging activities. **L. Kong, F. Mou, C. Chen, L. Xu, J. Guan**
- COLL 245.** Synthesis and optimization of colloidal gold nanoparticles for cancer therapy. **B. Yassini, P. Rai**
- 10:45 COLL 250.** Wetting of solids by liquids. **T.J. McCarthy**
- 11:15 COLL 251.** Synthetic compounds/materials-biological interface: A doorway to new opportunities for sensing, antimicrobial activity, and therapeutics. **D.G. Whitten, H. Pappas**
- Section B**
Boston Convention & Exhibition Center Room 107B
- Surface Modification to Control Cell/Surface Interactions**
H. Moehwald, *Organizer*
A. M. Peterson, *Organizer, Presiding*
- 8:30 COLL 252.** Maintenance and differential regulation of stem cells using functionalized nanoparticle monolayer. **R. Tang, Z. Jiang, Y. Yeh, R. Landis, D. Moyano, V.M. Rotello**
- 8:50 COLL 253.** Retaining protein and fluorophore activity attached to graphene oxide. **C. Sun, K.L. Walker, D. Wakefield, W. Dichtel**
- 9:10 COLL 254.** Increasing the stability of semiconductor quantum dots in biological solutions through surface chemistry. **R.P. Brown, M. Muth, Z. Rosenzweig**
- 9:30 COLL 255.** Lasting alteration of compositional membrane asymmetry by LiCoO₂ nanoplates. **F. Geiger**
- 9:50** Intermission.
- 10:10 COLL 256.** Mimicking complex virus-cell interactions with rationally engineered nanoparticle surfaces. **B.M. Reinhard**
- 10:30 COLL 257.** pH-Responsive framboidal vesicles prepared using polymerization-induced self-assembly via RAFT aqueous dispersion polymerization as virus mimics. **C. Mable, I. Canton, O.O. Mykhaylyk, P. Chambon, S.P. Armes**
- 10:50 COLL 258.** Surface modification to control cell/surface interactions. **S. Ashraf, W. Parak**
- 11:10 COLL 259.** Correlating nanoparticle surface chemistry with antimicrobial activity via NMR techniques. **J. Millstone**
- 11:30 COLL 260.** Modeling of selenium nanoparticle formation and implications on bacterial and cellular responses. **M. Stolzoff, T. Webster**
- 11:50 COLL 261.** Heterogeneous particles to model dynamic cell/surface interactions. **M. Shave, M.M. Santore**
- 10:15 COLL 265.** High-resolution, fast-scanning Atomic Force Microscopy for studying dynamic processes. **S. Kaemmer, H. Haschke, D. Stamov**
- 10:45 COLL 266.** Energetic basis for the molecular-scale organization of bone and enamel. **J. Tao, B.J. Tarasevich, W.J. Shaw, A. Wierzbicki, J.J. De Yoreo**
- Section D**
Boston Convention & Exhibition Center Room 108
- Basic Research in Colloids, Surfactants & Nanomaterials Particle Systems**
R. Nagarajan, *Organizer*
M. C. Buzzeo, *Presiding*
- 8:30 COLL 267.** Withdrawn.
- 8:50 COLL 268.** From phenomenon to formulation: Investigating excipients that enhance the stability of colloidal drug aggregates in biological milieus. **C.K. McLaughlin, A.N. Ganesh, B. Shoichet, M.S. Shoichet**
- 9:10 COLL 269.** Dispersant interactions at oil-water interface: Insights from molecular dynamics simulation. **D. Yu, A. Savo, M.D. Reichert, A.K. Schultz**
- 9:30 COLL 270.** Withdrawn.
- 9:50 COLL 271.** Star diblock copolymer concentration dictates the degree of dispersion of carbon black particles in nonpolar media: Bridging flocculation vs. steric stabilization. **S.P. Armes, D.J. Gowney, O.O. Mykhaylyk**
- 10:10 COLL 272.** Molecular Janus particles based on functionalized fullerenes: Precise synthesis and assembly in solution. **Z. Lin, S.Z. Cheng**
- 10:30 COLL 273.** Evolution of polymeric nanoparticles formation during condensation of hydrophobic alkoxy silanes in an organic solvent free sol-gel method. **A.M. Giasuddin**
- 10:50 COLL 274.** Anti-agglomeration Ni@yolk-ZrO₂ structure with sub-10 nm Ni core: Preparation, characterization, and catalysis in steam reforming of methane reaction. **Z. Lim, H. Yin, K. Choy, C. Wu**
- 11:10 COLL 275.** Interface bonding effect between ternary sulfide solid solution and TiO₂NTs composite by solvothermal synthesis. **Z. Yao, F. Jia, Z. Jiang**
- 11:30 COLL 276.** Withdrawn.
- Section E**
Boston Convention & Exhibition Center Room 109A
- Colloid-Polymer Architectures & Mixtures Ordered Colloidal Architectures & Structures**
S. M. Balko, T. Kreer, *Organizers*
C. M. Marques, *Presiding*
- 8:30 COLL 277.** Self organization of oligopeptides: From molecules to fibrils to spheres. **H. Braun**
- 9:00 COLL 278.** Micelle-polyelectrolyte complexation in buffered aqueous solution. **J. Laaser, Y. Jiang, D. Sprouse, T.M. Reineke, T.P. Lodge**
- 9:20 COLL 279.** Polymer brush colloidal particles as building blocks for functional materials. **I. Zharov**
- 9:40** Intermission.

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- 9:55 **COLL 280.** Estimation of crystal nucleation barriers in colloid-polymer mixtures. P. Virnau, A. Statt, K. Binder
- 10:25 **COLL 281.** Using smart polymers to regulate DNA-mediated nanoparticle assembly, crystal formation, and interparticle spatial properties. M.M. Maye, J. Tinklepaugh, K. Hamner, S. Pun
- 10:45 **COLL 282.** Directing the colloidal assembly of patchy spheres by capillary interactions. B. Bharti, D. Rutkowski, A. Kumar, K. Han, C.K. Hall, O.D. Velev
- 11:05 **COLL 283.** Membrane mediated assembly of chiral colloidal rafts. Z. Dogic
- 11:35 **COLL 284.** Directional self-assembly of polymeric colloids. E.A. Elacqua, X. Zheng, Y. Wang, M. Weck

Section F

Boston Convention & Exhibition Center
Room 109B

Operando Spectroscopic Approach to Quantifying Structure-Activity Relationships of Real Catalysts under Ambient Conditions

Cosponsored by CATL†

S. A. Morris, J. N. Russell, *Organizers*
C. J. Karwacki, *Organizer, Presiding*
J. R. Morris, *Presiding*

8:30 Introductory Remarks.

8:35 **COLL 285.** Probing the solid/gas and solid/liquid electrochemical interfaces using in situ/operando ambient pressure X-ray photoelectron spectroscopy. E. Crumlin

9:05 **COLL 286.** Structural evolution of an intermetallic Pd-Zn catalyst selective for propane dehydrogenation. J.R. Gallagher, D. Childers, H. Zhao, R.E. Winans, R. Meyer, J. Miller

9:35 **COLL 287.** Alloy catalysis across composition space: Elementary steps in hydrogenation reactions. A.J. Gellman, I. Sen, J. Liu

10:05 Intermission.

10:20 **COLL 288.** Unraveling the relationship between structure and activity using model catalysts under near-ambient pressures. A. Baber, K. Mudiyansele, S.D. Senanayake, F. Xu, P. Liu, J. Rodriguez, D.J. Stacchiola

10:50 **COLL 289.** Characterizing a new class of catalysts based on MOF node chemistry. J.T. Hupp

11:15 **COLL 290.** Ex situ and in situ characterization of plasmonic photocatalysts for solar fuel generation. N. Wu, D. Chu, S. Cushing, J. Li

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Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

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Complex Coacervation: Principles & Applications

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact

Applications and Consequences

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MONDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 107A

30 Years of Langmuir: Looking Back & Forward

R. M. Crooks, *Organizer, Presiding*
M. M. Santore, *Presiding*

2:00 **COLL 291.** Surface plasmon spectroscopy of nano sized metal particles. P. Mulvaney

2:30 **COLL 292.** Silica coating and other coating shells. L. Liz Marzan

3:00 **COLL 293.** Metal-organic frameworks for gas separations: Using fundamental experimental studies and molecular modeling to highlight features of interest and optimized material. P.L. Llewellyn, G. Maurin

3:30 Intermission.

3:45 **COLL 294.** Microgels: Simple matter where complexity matters. W. Richtering

4:15 **COLL 295.** Zwitter-surfaces and zwitter-solids. J.B. Schlenoff

4:45 **COLL 296.** Personal views on Langmuir as a reader, author, reviewer, editor, and EIC. F.M. Winnik

Section B

Boston Convention & Exhibition Center
Room 107B

Surface Modification to Control Cell/Surface Interactions

H. Moehwald, *Organizer*

A. M. Peterson, *Organizer, Presiding*

2:00 **COLL 297.** Impacts of gold nanoparticle charge and ligand type on surface binding and toxicity to gram-negative and gram-positive bacteria. V. Feng, I. Gunsolus, T. Qiu, H. Frew, L. Nyberg, K. Johnson, K. Hurley, A. Vartanian, L.M. Jacob, S.E. Lohse, M.D. Torelli, R.J. Hamers, C.J. Murphy, C.L. Haynes

2:20 **COLL 298.** Investigation of effects of adsorption and immobilization onto silica nanoparticles on antimicrobial activity of Cecropin P1 and Cecropin P1C. X. Wu, P. Wei, M.J. Wirth, A. Bhunia, X. Zhu, G. Narsimhan

2:40 **COLL 299.** Chitosan-based polymeric nitric oxides: Preparation, characterization, and antimicrobial effects. R. Tang, Y. Sun

3:00 **COLL 300.** Surface grafted polymers for microarray platforms and understanding biochemical interactions. C.I. Biggs, M. Gibson

3:20 **COLL 301.** Sequence-specific peptoids for the molecular design of antifouling brushes and biointerface. K. Lau, P.B. Messersmith, D. Palmer

3:40 Intermission.

4:00 **COLL 302.** Metal surface nanostructuring to guide cell behaviour. S. Ulasevich, O. Baidukova, E.V. Skorb

4:20 **COLL 303.** Silk macromolecules with amino acid-poly(ethylene glycol) grafts for controlling LbL encapsulation and aggregation of recombinant bacterial cells. I. Drachuk, R. Geryak, M. Chyashnavichyus, R. Calabrese, S. Harbaugh, N. Kelley-Loughnane, D.L. Kaplan, M.O. Stone, V.V. Tsukruk

4:40 **COLL 304.** Hydrogen-bonded polymer nanocoatings as mediators of T cell immunity. V.A. Kozlovskaya, L.E. Padgett, H. Tse, E.P. Kharlampieva

5:00 **COLL 305.** Surface charge density in PEMUs and its influence on cell adhesion. C.J. Arias Ramos, T.C. Keller, J.B. Schlenoff

5:20 **COLL 306.** Cancer cells/stromal cells co-culture on polyelectrolyte multilayer films: A template for studying cell-cell interaction in tumor progression. A. Daverey, O. Scheideleer, K.M. Brown, S. Kidambi

Section C

Boston Convention & Exhibition Center
Room 107C

Biochemical Ligands at Interfaces: From Molecular Scale Characterization to Devices

Financially supported by JPK Instruments and NT MDT

G. Liu, T. Ye, *Organizers*

A. B. Subramaniam, *Presiding*

2:00 **COLL 307.** Protein structures at device interfaces. C. MacLaughlin, W. Shi, G.C. Walker

2:40 **COLL 308.** Characterization of protein and binding at model interfaces for optimization of activity. C.L. Berrie, J.K. Tucker, M.L. Richter

3:20 **COLL 309.** Self-assembly of polypeptides on metal surfaces in vacuum by soft-landing electrospray ion beam deposition. S. Rauschenbach, S. Abb, G. Rinke, L. Harnau, K. Kern

3:45 Intermission.

4:00 **COLL 310.** Improving in vivo brain neurotransmitter sensors. H. Cao, N. Nakatsuka, H. Yang, P.S. Weiss, A.M. Andrews

4:40 **COLL 311.** Force-based identification of single DNA bases with polymerase-tethered AFM tip. Y. Kim, Y. Lee, J. Park

Section D

Boston Convention & Exhibition Center
Room 108

Basic Research in Colloids, Surfactants & Nanomaterials Nanoparticle Assembly

R. Nagarajan, *Organizer*

I. U. Arachchige, *Presiding*

2:00 **COLL 312.** Dynamic covalent control of nanoparticle properties and self-assembly. E.R. Kay

2:20 **COLL 313.** 2D nanocrystals of molecular Janus particles. H. Liu, K. Yue, W. Zhang, S.Z. Cheng

2:40 **COLL 314.** Small angle scattering of anisotropic nanoparticles and their assemblies. A. Senesi, B. Lee

3:00 **COLL 315.** Withdrawn.

3:20 **COLL 316.** Withdrawn.

3:40 **COLL 317.** Dynamic self-assembly of nanoparticles: Achieving switchable metamaterials. W. Lewandowski, D. Pocięcha, M. Fruhner, C. Rockstuhl, E. Görecka

4:00 **COLL 318.** Sol-gel method: An advanced technique to obtain a 3D superstructure of metal-semiconductor hybrid nanoparticles. L. Nahar, I.U. Arachchige

4:20 **COLL 319.** Charge induced adsorption of string-like particles for omnidirectionally transparent superhydrophobic surface. G. Wu, Y. Zhao, D. Ge, S. Yang

4:40 **COLL 320.** Ultra-large-area SERS-active monolayers fabricated by assembly of anisotropic Au/Ag core/shell nanoparticles. T. Bai, Z. Guo, N. Gu

5:00 **COLL 321.** Sol-gel method for the assembly of noble metal nanoparticles into metallic aerogels. X. Gao, I.U. Arachchige

5:20 **COLL 322.** Porous conducting superstructures of metal colloids: Noble metal aerogels. X. Gao, L. Nahar, I.U. Arachchige

Section E

Boston Convention & Exhibition Center
Room 109A

Colloid-Polymer Architectures & Mixtures

Colloids at Interfaces and in Melts

S. M. Balko, *Organizer*

T. Kreer, *Organizer, Presiding*

2:00 **COLL 323.** Conformation, effective interactions, and assembly of polymer-coated nanoparticles at liquid interfaces. E. Del Gado, K. Schwenke

2:30 **COLL 324.** Withdrawn.

2:50 **COLL 325.** Withdrawn.

3:10 Intermission.

3:25 **COLL 326.** Motion of a nanoparticle in an unentangled polymer melt — passive and active microrheology. A. Kuhnhold, W. Paul

3:55 **COLL 327.** Floating superhydrophobic assemblies. M. Zhang, A.J. Crosby, T.J. McCarthy

4:15 **COLL 328.** Structure and dynamics in polymer melts mixed with compact stars. H. Meyer

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Section F

Boston Convention & Exhibition Center
Room 109B

Operando Spectroscopic Approach to Quantifying Structure-Activity Relationships of Real Catalysts under Ambient Conditions

Cosponsored by CATL†

S. A. Morris, J. N. Russell, *Organizers*

C. J. Karwacki, *Organizer, Presiding*

J. R. Morris, *Presiding*

2:00 COLL 329. Effects of defects and hydroxyl groups on adsorption and photoluminescence of zinc oxide. J.E. Whitten

2:30 COLL 330. AP-XPS and HERFD XAS as complementary operando probes in electrocatalysis AP-XPS and HERFD XAS as complementary operando probes in electrocatalysis. D. Friebel

3:00 COLL 331. In operando tracking of surface electrochemical redox activity in solid oxide electrochemical cells using near infrared radiation imaging. A. Geller, M.B. Pomfret, J. Owrutsky, B.W. Eichhorn

3:30 Intermission.

3:45 COLL 332. Vibrational sum frequency generation spectroscopy for probing the triple junction in heterogeneous catalysis. F. Geiger

4:15 COLL 333. In operando studies of CuO_x and MoO_x model surfaces for application as chemical warfare agent destruction catalysts. L. Trotochaud, A. Head, Y. Yu, O. Karlioglu, M. Hartl, B.W. Eichhorn, H. Bluhm

4:45 COLL 334. In-operando characterization of the structural dynamics of supported heterogeneous catalysts during transformations of C-C and C-H bonds. R.G. Nuzzo

5:15 COLL 335. Monitoring catalytic surface phenomena under reaction conditions and establishing structure-activity/selectivity relationships. I.E. Wachs, A. Chakrabarti, M. Zhu, S. Lwin, C. Keturakis, Y. Tang

ACS Scholars: Rising Stars in Industry

Sponsored by PRES, Cosponsored by AGRO, CARB, CMA†, COLL, ENFL, ENVR, PROF, SCHB and YCC

Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

Biological Interfaces and Interactions

Sponsored by PHYS, Cosponsored by COLL

The Legacy of Henry Hill: Commercial Enterprises in the Polymer Sector

Sponsored by SCHB, Cosponsored by CMA, COLL, HIST, I&EC, POLY, PRES and PROF

Complex Coacervation: Principles & Applications

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact Applications and Consequences

Sponsored by PHYS, Cosponsored by COLL

MONDAY EVENING

Section A

Boston Convention & Exhibition Center
Hall C

Sci-Mix

R. Nagarajan, *Organizer*

8:00 - 10:00

92, 94, 98, 101, 103, 106-107, 110-111, 113-114, 116, 119, 121-122, 125-127, 130, 133-135, 137, 143-144, 146-148, 150-152, 155-157, 161, 166, 169-171, 179-180, 182-184, 187-188, 192, 195, 199, 205, 209, 214, 218, 220, 224, 226. See previous listings.

TUESDAY MORNING

Section A

Boston Convention & Exhibition Center
Room 107A

Polymer & Biopolymer Based Nanomaterials

Nanomaterials for Drug Delivery

B. P. Chauhan, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 COLL 336. Elevated inhibition effect of self-assembled nanohydrogel of curcumin-hyaluronic acid conjugates on amyloid β -protein aggregation and cytotoxicity. Z. Jiang, X. Dong, Y. Sun

8:55 COLL 337. Intravenously administered nanoparticles halt bleeding and protect the central nervous system after trauma. E.B. Lavik, A. Shoffstall, D. Hickman, M. Lashof-Sullivan, K. Bogle, P. VandeVord

9:15 COLL 338. pH-Responsive intracellular degradable hydrogel cubes for cancer therapy. V.A. Kozlovskaya, B. Xue, J. Chen, E.P. Kharlampieva

9:35 COLL 339. Self-assembled nanoparticles containing cyclodextrins and their application in targeted drug delivery. T. Loftsson

9:55 COLL 340. Cancer vaccine using crosslinked CpG oligonucleotide/ β -glucans nanoparticles. N. Miyamoto, S. Mochizuki, K. Sakurai

10:15 Intermission.

10:30 COLL 341. Silver nanoparticle-embedded polymersome nanocarriers for the treatment of antibiotic-resistant infections. B. Geilich, A. van de Ven, S. Sridhar, T. Webster

10:50 COLL 342. Poly(1,2-glycerol carbonate)-*graft*-succinic acid-paclitaxel conjugate polymer for tunable nanoparticle delivery of paclitaxel. I. Ekladios, H. Zhang, M.W. Grinstaff

11:10 COLL 343. Structural and micellar stability of nanoscale amphiphilic polymers: implications for atherosclerosis bioactivity. Y. Zhang, Q. Li, Y. Pines, P. Moghe, K.E. Uhrich

11:30 COLL 344. Design of hybrid poly (lactide co glycolic) nanoparticles and in vivo fate studies for the assessment of nanoparticle degradation. S. Moya

11:50 COLL 345. Biodegradable polymer multilayer capsules for delivery of mRNA. M. Kakran, M. Antipina

Section B

Boston Convention & Exhibition Center
Room 107B

Surface Modification to Control Cell/Surface Interactions

H. Moehwald, *Organizer*

A. M. Peterson, *Organizer, Presiding*

8:30 COLL 346. Cell surface engineering for translational medicine: From single cell modification to disease therapeutics. B. Wang

8:50 COLL 347. Investigating the impact of nanoconjugation on EGFR-induced apoptosis. L. Wu, B.M. Reinhard

9:10 COLL 348. Transferrin-modified single walled carbon nanohorns for selective uptake into cancer cells. A. Pekkanen, M.R. DeWitt, T.E. Long, M.N. Rylander

9:30 COLL 349. Differences between the surface properties of emerging aerogel biomaterials and planar substrates: Tuning cell/surface interactions on microporous materials for neuronal scaffolds using organic surface coating strategies. W.A. Alexander, I. Romines, N. van Kampen, F. Sabri

9:50 COLL 350. Impacts of surface modification induced by cold atmospheric plasma (CAP) on human mesenchymal stem cell (hMSC) differentiation. M. Wang, P. Favi, M. Keidar, T. Webster

10:10 Intermission.

10:30 COLL 351. Protein films fabricated via nanoimprint lithography and inkjet printing: A new scaffold for cell patterning. L. Wang, B. Duncan, E. Jeoung, R. Tang, B. Creran, K. Saha, Y. Yeh, C. Subramani, T. Kushida, Y. Engel, V.M. Rotello

10:50 COLL 352. Print surfaces with desired cell adhesion properties. Z. Zhao, X. He

11:10 COLL 353. Development of hyaluronic acid hydrogels for human neural stem cell engineering. W. Ma, G. Jin, W.H. Suh

11:30 COLL 354. Macromolecule solvent density distribution can be reconstructed from heteroatoms proximal radial distribution functions. B. Nguyen, B.M. Pettitt

Section C

Boston Convention & Exhibition Center
Room 107C

Experimental & Computational Approaches to Reactions at the Surface of Colloidal Nano Materials, Facilitated by Photo Excitation & Charge Transfer

R. Nagarajan, *Organizer*

S. Linic, *Presiding*

8:30 COLL 355. Enhancing supercapacitor energy-storage materials with sustainable, Earth-abundant metals via nanoplates and molecular spacers. J. Mitchell, D. Banks, C. McNeil, I. Shcherbakov, J.C. Poler

8:55 COLL 356. Probing the mechanistic of charge transfer from optically excited plasmonic metal nanoparticles and adsorbates leading to chemical transformations. S. Linic

9:20 COLL 357. Single molecule dynamics of a new class of altitudinal molecular rotors. N.A. Wasio, C.J. Murphy, M. Marcinkowski, M.L. Liriano, E.H. Sykes

9:45 COLL 358. Influence of metal vacancy of undoped anatase TiO₂ on p-type conductivity, room-temperature ferromagnetism, and remarkable photocatalytic performance. S. Wang, L. Pan, J. Zou, L. Wang, X. Zhang

10:10 COLL 359. Calculated photoinduced interfacial electron transfer of Fe(II) light harvesters on TiO₂ nanocrystals. L.A. Fredin, P. Persson

10:35 COLL 360. Photocatalytic CO₂ reduction under periodic illumination of ZnS colloids. M.I. Guzman, R. Zhou

11:00 COLL 361. Controlling surface deposition of gold nanoparticles for the fabrication of highly porous silicon membranes via metal-assisted chemical etching. B.D. Smith, D. Zhitomirsky, J.C. Grossman

11:25 COLL 362. Corona phase molecular recognition of fibrinogen. G. Bisker, H.D. Park, N. Iverson, J. Ahn, J.T. Nelson, M. Landry, S. Kruss, M. Strano

Section D

Boston Convention & Exhibition Center
Room 108

Basic Research in Colloids, Surfactants & Nanomaterials

Bio-Nano Interactions

R. Nagarajan, *Organizer*

R. A. Gross, *Presiding*

8:30 COLL 363. Adhesion of cerium oxide nanoparticles on supported lipid bilayers: Implications for nanoparticle-membrane interactions. P. Yi, W. Gu, K. Chen

8:50 COLL 364. Chemo-enzymatic routes to lipopeptides and their colloidal properties. R.A. Gross

9:10 COLL 365. Preparation of long (~7.2kb) DNA origami scaffold using PCR and lambda exonuclease digestion. W. Patterson, M. Rahman, H. Sizek, P. Sizek, H. Zhong, M.L. Norton

9:30 COLL 366. Design and synthesis of synthetic antibodies, *CoPhMoRe* and the *inverse CoPhMoRe* problem for helically wrapping polymers on single-wall carbon nanotubes. J. Ahn, G. Bisker, S. Kruss, Z. Ulissi, M. Strano

9:50 COLL 367. Nanopore entry of proteins and macromolecules. K. Lau, A.M. Sousa, T.D. Lazzara

10:10 COLL 368. New stimuli responsive lipid nanotube for protein transport and release: From molecular design to application. H. Unsal, N. Aydogan

10:30 COLL 369. Fibrinogen adsorption and relaxation kinetics and silica particle capture on graphene-modified glass. A. Chen, M.M. Santore

10:50 COLL 370. Multimodal nanobiocatalysis: Toward the synthesis of pharmaceutically relevant enantiopure drugs and drug intermediates. U.C. Banerjee, J. Bhaumik, B. Dwivedee, J. Laha

11:10 COLL 371. Interaction of graphene oxide with bacterial cell membranes: Insights from AFM-based force spectroscopy. S. Romero-Vargas Castrillon, F. Perreault, A.F. de Faria, M. Elimelech

11:30 COLL 372. Noncovalent approach for developing hybrid mesoporous silica nanoparticle-peptide amphiphile system. M. Sardan, A. Yildirim, D. Mumcuoglu, A.B. Tekinay, M.O. Guler

11:50 COLL 373. Nanotribology of a catechol-functionalized alkane with terminal chain branching. M. Ruths, K. Persson

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Section E

Boston Convention & Exhibition Center
Room 109A

Colloid-Polymer Architectures & Mixtures

Synthesis of Nanoparticles and Their Assemblies

T. Kreer, *Organizer*

S. M. Balko, *Organizer, Presiding*

8:30 COLL **374.** Chiroplasmonic nanoparticles and their assemblies. J. Yeom, W. Ma, B. Yeom, L. Xu, W. Feng, C. Xu, N. Kotov

9:00 COLL **375.** Nanoparticle synthesis, surface modification, and colloidal dispersion facilitated by polymer amphiphiles. P. Alexandridis

9:20 COLL **376.** Click assembly of nanoparticles into colloidal polymers. W. Zheng, K. Haner, H. Liang

9:40 Intermission.

9:55 COLL **377.** Polymer-induced lipid cluster formation: Effects of charge density, curvature, lipid composition and polymer concentration. C. Yu, H. Jiang, Y. Xia, N. Tennakoon, Y. Liu, M. Nieh

10:15 COLL **378.** Synthesis and characterization of the structure and activity of gold nanoparticles when coated with poly (oxonorborene)-based synthetic mimics of antimicrobial peptides (SMAMPs). Z. Zheng, D. Boschert, K. Lienkamp, Z. Rosenzweig

10:35 COLL **379.** Synthesis of nanobowls with a Janus template. A. Mo, P. Landon, C. Emerson, C. Zhang, P. Anzenberg, S. Akkijaj, R. Lal

10:55 COLL **380.** Investigation of thermoresponsive core shell nanoparticles. S. Kurzhals, R. Zirbs, T. Grünewald, H. Lichtenegger, E. Reimhult

Section F

Boston Convention & Exhibition Center
Room 109B

Operando Spectroscopic Approach to Quantifying Structure-Activity Relationships of Real Catalysts under Ambient Conditions

Cosponsored by CATL†

C. J. Karwacki, J. R. Morris, J. N. Russell, *Organizers, Presiding*

8:30 COLL **381.** In-situ investigations of the interaction of small molecules with Fe²⁺-substituted MOF-5. M. Dinca, C. Brozek, S.A. Stolan

9:00 COLL **382.** Core-shell nanoparticles: In situ surface monitoring by Synchrotron X-ray spectroscopy. S. Carenco, C. Wu, M. Salmeron

9:30 COLL **383.** Probing cooperative phenomena in nanoscale metal catalysts by operando techniques. A. Frenkel

10:00 Intermission.

10:30 COLL **384.** Structure of carbon supported bimetallic Pt-M catalysts during aqueous phase reforming of biomass derived oxygenates. A.M. Karim, Z. Wei, D.G. Vlachos, Y. Wang

11:00 COLL **385.** Isolation of reactive chemical species in heme-containing metal-organic frameworks. J.S. Anderson, A. Gallagher, M. Kelly, J. Park, H. Phan, D. Harris

11:30 COLL **386.** Multifunction chemical sensors designed on 2D nanomaterials for detection and degradation of low-level contaminants. P.V. Kamat, R. Alam

Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

Photophysical Dynamics of Biological and Biomimetic Systems

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Complex Coacervation: Principles & Applications

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Starting-Up & Spinning-Out: Commercializing Innovative Chemistry

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Transforming University-Industry Partnerships for an Innovative Future

Envisioning, Enabling and Executing

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact

Methods and Tools for Characterization

Sponsored by PHYS, Cosponsored by COLL

TUESDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 107B/C

Langmuir Lectures, NanoLetters Award Lecture, ACS Materials & Interfaces Award Lecture

R. Nagarajan, *Organizer*

R. J. Hamers, *Presiding*

2:00 Introduction of Professor Catherine Murphy.

2:05 COLL **387.** Golden age of colloids and surfaces. C.J. Murphy

2:50 Introduction of Professor Buddy Ratner.

2:55 COLL **388.** Biointerfaces: Beginnings, state-of-the-art, and horizons. B.D. Ratner

3:40 Introduction of Professor Xiaolin Zheng.

3:45 COLL **389.** Bridging combustion and nanotechnology. X. Zheng

4:30 Introduction of Professor Alejandro L. Briseno.

4:35 COLL **390.** Crystal chemistry at the molecule-substrate and molecule-molecule interface in organic electronic systems. A.L. Briseno

Starting-Up & Spinning-Out: Commercializing Innovative Chemistry

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Complex Coacervation: Principles & Applications

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WEDNESDAY MORNING

Section A

Boston Convention & Exhibition Center
Room 107A

Polymer & Biopolymer Based Nanomaterials

Biopolymer Based Nanomaterials

B. P. Chauhan, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 COLL **391.** Electrostatically assembled protein-polymer nanoparticles for cartilage repair. N. Shah, B. Geiger, M.A. Quadir, A. Goel Bajpayee, A.J. Grodzinsky, P.T. Hammond

9:15 COLL **392.** Exploring the synthesis, structure, and biological activity of concatenated siRNA polymers. K. Shopsowitz, C. Wu, S. Morton, E. Dreaden, P.T. Hammond

9:35 Intermission.

9:50 COLL **393.** Application of polysaccharide-based stabilizers in batch and microfluidic emulsification for preparing polylactide particles with drug delivery applications. A. Chebil, M. Leonard, C. Nouvel, J. Six, A. Durand

10:10 COLL **394.** Photocrosslinked polymersomes as responsive and multifunctional synthetic bio-anoreactors. B. Voit, D. Appelhans, J. Gaitzsch, D. Gräfe, M. Yassin, B. Ilysan

10:30 COLL **395.** Nanocapillary binding of particles: A generic approach for assembling reconfigurable structures at nanoscale. B. Bharti, J. Meissner, A. Fameau, M. Rubinstein, G.H. Findenegg, O.D. Velev

10:50 COLL **396.** Repeat-protein hierarchical self-assembly results in hierarchical and anisotropic mechanical properties. T. Zarkovic Grove, N. Carter

Section B

Boston Convention & Exhibition Center
Room 107B

Nanomaterials for Defense & Homeland Security Applications

R. Nagarajan, *Organizer*

E. Wilusz, *Presiding*

8:30 COLL **397.** Development of agent-detecting nanofiber sensors for garments. L. Han, E. Wilusz, D. Ensor

9:00 COLL **398.** Hybrid graphene oxide for trace level identification of explosives selectively using Raman fingerprint. P.C. Ray

9:30 COLL **399.** Sensing, decontamination, and filtration by the multifunctional zirconium hydroxide. G.W. Peterson

10:00 COLL **400.** Novel nanostructured colorimetric sensor for the detection of explosives. R. Anandakathir, M.J. Sobkowicz, B.M. Budhiall

10:30 COLL **401.** Detection of biological threats using gold nanoparticles in lateral flow immunoassays: Dengue hemorrhagic fever. H. de Puig Guixé, J. Tam, C. Yen, K. Hamad-Schifferli, L. Gehrke

11:00 COLL **402.** Multicolored silver nanoparticles for multiplexed disease diagnostics: Distinguishing dengue, Yellow Fever, and Ebola viruses. C. Yen, H. de Puig Guixé, J.O. Tam, J. Gómez-Márquez, I. Bosch, K. Hamad-Schifferli, L. Gehrke

11:30 COLL **403.** Sensing and imaging with isotropic and anisotropic metallic nanostructures. S. Hunyadi Murph

Section C

Boston Convention & Exhibition Center
Room 107C

Nanotheranostics for Cancer Applications

S. A. Morris, P. Rai, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL **404.** Self-assembled peptide amphiphile nanoparticles for rational combination therapies against metastatic solid tumors. E.C. Dreaden, Y. Kong, M.B. Yaffe, P.T. Hammond

8:55 COLL **405.** Functionalization of single walled carbon nanohorns for simultaneous fluorescence imaging and cisplatin delivery. A. Pekkanen, M.R. DeWitt, J. Sirrine, T.E. Long, M.N. Rylander

9:15 COLL **406.** Etchable plasmonic and quantum dot probes to image and quantify cellular internalization in vivo. G.B. Braun, T. Friman, H. Pang, A. Pallaoro, T. Teesalu, E. Ruoslahti

9:35 COLL **407.** Rapid and quantitative multiplexed nanoparticle platform for the identification by surface-enhanced Raman spectroscopy of cells at low concentrations flowing in a microfluidic channel. A. Pallaoro, M.R. Hoonejani, G.B. Braun, C.D. Meinhardt, M. Moskovits

9:55 COLL **408.** Nanoscience approach to the synthesis of novel radionuclide substrates. E.H. Sykes, A. Pronschinske

10:15 Intermission.

10:30 COLL **409.** Stimuli-responsive reagents for improved cell isolations. B. Nehilla, M. Manganiello, S. Hussell, R. Salmon, R. Myers

10:50 COLL **410.** Theranostic graphene quantum dots decorated magnetic nanoparticle for selective capture and two photon imaging of rare tumor cells in second biological window. P.C. Ray

11:10 COLL **411.** Engineering remotely triggered liposomes to target triple-negative breast cancer. A. Sneider, F. Ekiz Kanik, C. Tsiros, P. Rai

11:30 COLL **412.** Next generation magnetic lipid nanohybrids for theranostics. S. Biswas, J.A. Kulkarni, Y.Y. Tam, S. Chem, Y.K. Tam, P.R. Cullis

11:50 COLL **413.** Enzyme-instructed self-assembly (EISA) for potential cancer therapy. X. Du, J. Zhou, B. Xu

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Section D

Boston Convention & Exhibition Center
Room 108

Basic Research in Colloids, Surfactants & Nanomaterials

Advanced Techniques Probing Nanomaterials

R. Nagarajan, *Organizer*
T. Guo, *Presiding*

8:30 COLL 414. EELS imaging analysis of silicon cluster superlattices. Y. Iwata, T. Uchida, N. Orita, H. Matsuhata

8:50 COLL 415. Advances in nanomaterial analysis using laboratory X-ray diffraction equipment. J.E. Quinn, J. Bolze

9:10 COLL 416. Fluorescence lifetime spectroscopy: A new addition to the toolkit used to monitor the formation and degradation of semiconductor quantum dots in solution. T. Curry, Z. Rosenzweig

9:30 COLL 417. Study nanomaterials using synchrotron X-ray scattering for structures and kinetics. X. Zuo, Y. Sun, V.P. Conticello

9:50 COLL 418. Latest developments in X-ray nanochemistry. T. Guo

10:10 COLL 419. Super-resolution imaging and spectroscopy of Au₂₅ nanoclusters using two-photon excited fluorescence near-field scanning optical microscopy. N. Abeyasinghe, S. Kumar, R. Ho Wu, R. Jin, T.G. Goodson

10:30 COLL 420. Withdrawn.

10:50 COLL 421. Investigating lipid corona formation onto nanoparticle surfaces through fluorescence correlation spectroscopy. L.M. Jacob, M.D. Torelli, A. Vartanian, E. Melby, T.F. Kuech, J. Troiano, L.L. Olenick, C.J. Murphy, R.J. Hamers, J.A. Pedersen, F. Geiger

11:10 COLL 422. Stable ferromagnetic nanoparticle dispersions: Surface modification of graphene coated nanomagnets allow stable dispersions of functionalizable ferromagnetic nanoparticles. C. Hofer, V. Zlateski, E.M. Schneider, R.N. Grass, M. Zeltner, W.J. Stark

11:30 COLL 423. Substrate-induced broken degeneration of plasmonic nanoparticles: Dependence on wavelength and polarization. V. Pini, P.M. Kosaka, J. Ruz, M. Encinar, D. Ramos, O. Malvar, J. Tamayo, M. Calleja

Section E

Boston Convention & Exhibition Center
Room 109A

Metrology of Characterization, Simulation & Theory of Biomembranes

J. Katsaras, *Organizer*

M. Nieh, *Organizer, Presiding*

M. Dutt, *Presiding*

8:30 Introductory Remarks.

8:35 COLL 424. ³¹P CODEX NMR and phospholipid lateral diffusion in membranes. P.M. Macdonald, Q. Saleem, A. Lai

9:05 COLL 425. Exploring the interactions of ions with fluid lipid bilayers. P.S. Cremer

9:35 COLL 426. Droplet interface bilayer: A model for biomembrane water permeability studies. S. Lee

10:05 Intermission.

10:15 COLL 427. Molecular dynamics study of pore formation by melittin in 1,2-Dioleoyl-sn-glycero-3-phosphocholine (DOPC) and 1,2-di-(9Z-octadecenoyle)-sn-glycero-3-phospho-(1'-rac-glycerol) (DOPG) mixed lipid bilayer. Y. Lyu, X. Zhu, N. Xiang, G. Narsimhan

10:45 COLL 428. Gold nanoparticle – lipid nanodisk self-assembly: Insights from computer modeling. E. Dormidontova, Z. Wang, H. Sharma

11:15 COLL 429. Novel scattering methods reveal structure of single supported lipid membranes. T. Kuhl, E. Watkins, J. Kurniawan, J. Majewski

Big Chemistry from Small Businesses

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Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

Structure, Dynamics, and Behaviors of Material Systems

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact

Applications and Consequences

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WEDNESDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 107A

Polymer & Biopolymer Based Nanomaterials

B. P. Chauhan, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 COLL 430. Cyclic cyclosiloxane bound silver nanoraspberries. B.P. Chauhan, S. Chaudhry, A. Patel

2:25 COLL 431. Modulation of biomineral crystal growth and assembly by polymeric matrices. G. Mallam, M. Tsianou

2:45 COLL 432. Hyaluronic acid-based hydrogels with network-disruptive dangling ligands for the assembly of acinar spheroids. E.W. Fowler, T. Ozdemir, S. Pradhan-Bhatt, D. Harrington, R. Witt, M.C. Farach-Carson, X. Jia

3:05 COLL 433. Transglutaminase catalyzed PEGylation of alginate microgels for islet cell encapsulation. C.D. White, M. Pelletier, A.L. Garle, P. Gaines, B.M. Budhall

3:25 Intermission.

3:40 COLL 434. Copolymer nanoparticles via RAFT emulsion polymerization: Synthesis, characterization, and interfacial activity. V. Cunningham, A. Alswieleh, K.L. Thompson, M. Williams, G.J. Leggett, O.M. Musa, S.P. Armes

4:00 COLL 435. Light sensitive smart nanocontainer. Z. Chen, N. Li, A. Schlimme, J. Gassensmith

4:20 COLL 436. Encapsulation of upconversion materials by heterophase methods. K. Katta, D. Busko, R. Munoz-Espi, S. Balushev, K. Landfester

4:40 COLL 437. Chymotrypsin immobilized onto surface functionalized macro and nanoscale Nylon 6,6 solid supports. D.E. Wong, K. Senecal, J.M. Goddard

Section B

Boston Convention & Exhibition Center
Room 107B

Nanomaterials for Defense & Homeland Security Applications

R. Nagarajan, *Organizer*

K. M. McCoy, *Presiding*

2:00 COLL 438. Seeding metal-organic frameworks on Nyco fabric using atomic layer deposition: Opportunities for soldier uniforms with integrated chemical hazard mitigation. C.J. Oldham, J. Zhao, P.C. Lemaire, P.S. Williams, H.J. Walls, G.W. Peterson, G.N. Parsons

2:30 COLL 439. Water-soluble polyelectrolyte complexes as safe flame retardant nanocoating for woven fabric. J.C. Grunlan, M.M. Haile, A.B. Morgan, M. Leistner

3:00 COLL 440. Computationally aided design of self-decontaminating multicalyst polyelectrolyte membranes (MC-PEM). J. Landers, J. Colon, K. Zong, A. Vishnyakov, A.V. Neimark

3:30 COLL 441. Autonomous, adaptive, responsive, and modular second skin based on organohydrogels. E. Wilusz, R. Nagarajan, P. D'Angelo, M.E. Helgeson, B.D. Olsen, T. Hatton, L. Bromberg, J. Owens, D.J. McGarvey, W. Creasy

4:00 COLL 442. Water-based flame retardant multilayer nanocoating for polyester-cotton. M. Leistner, A.A. Abu-Odeh, S.C. Rohmer, J.C. Grunlan

4:30 COLL 443. Photocatalytic and gas sensor properties of metal oxide-decorated polypropylene swatches. I. Unlu, E.A. Welsh, R. Pang, J.W. Soares, D.M. Steeves, S.K. Sengupta, J.E. Whitten

Section C

Boston Convention & Exhibition Center
Room 107C

Nanotherapeutics for Cancer Applications

S. A. Morris, P. Rai, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 COLL 444. Delivery of chemically modified proteins to the nucleus of cells. R. Tang, M. Ray, Y. Jiang, Z. Jiang, V.M. Rotello

2:25 COLL 445. How nanoparticle design affects targeting selectivity: Insights from computer modeling. E. Dormidontova, S. Wang

2:45 COLL 446. DNA-conjugated silicon nanoparticles for the detection of MicroRNA-21. X. Su

3:05 COLL 447. Role of nanogold apoE reconstituted vehicles (NERVs) as potential drug delivery systems. S. Chuang, Y. Shon, V. Narayanaswami

3:25 COLL 448. Magnetization relaxation of magnetic nanoparticles for hyperthermia in live cells: Non-invasive monitoring. D. Soukup, S. Moise, E. Cespedes, J. Dobson, N. Telling

3:45 Intermission.

4:00 COLL 449. Boron- and gadolinium-rich nanoparticles for cancer treatment using neutron capture therapy. I. Zharov

4:20 COLL 450. Smart surfaces for distinguishing epithelial cells and lymphocytes in laminar flow. S. Kalasin, M.M. Santore

4:40 COLL 451. Synthesis of biocompatible thermoresponsive PEGMA nanoparticles for dual release. E. Yavuz, M. Ulasan, H. Cavusoglu, Y. Cengeloglu, M. Yavuz

5:00 COLL 452. Zwitterionic bionanointerface: From cell membrane to protein mimic. J. Ji

5:20 COLL 453. Direct cytosolic delivery of siRNA using nanoparticle-stabilized nanocapsules. Y. Jiang, R. Tang, B. Duncan, Z. Jiang, B. Yan, R. Mout, V.M. Rotello

Section D

Boston Convention & Exhibition Center
Room 108

Basic Research in Colloids, Surfactants & Nanomaterials

Applications to Nanomedicine

R. Nagarajan, *Organizer*

J. L. Liu, *Presiding*

2:00 COLL 454. Pulsed magnetic field induced fast drug release from magneto liposomes via ultrasound generation. G. Podaru, R. Dani, H. Wang, M.T. Basel, P. Prakash, S.H. Bossmann, V. Chikan

2:20 COLL 455. Multifunctional drug carriers with programmable properties. S. Rahmani, S. Saha, H. Durmaz, A. Misra, A. Dishman, J. Lahann

2:40 COLL 456. Multichannel nanosensor for instantaneous readout of cancer drug mechanisms. N. Le, S. Rana, R. Mout, K. Saha, G. Tonga, C. Rotello, V.M. Rotello

3:00 COLL 457. Structural and biological characterization of Fe₃O₄-loaded spherical and tubular liposomes for magnetic drug targeting. M. Sakuragi, K. Taguchi, K. Sakurai, K. Kusakabe

3:20 COLL 458. Natural product functionalized nanomaterials applied in cancer therapeutics. E. Hernandez, P. Hanumandla, S. Bashir, J.L. Liu

3:40 COLL 459. Controlled cross-linking of nano- and micromaterials for biomedical applications. K. Rashwan, G. Sereda, D. Engebretson, G. Bertsch, E. Brakke, A. Fritza, S. Schwabe

4:00 COLL 460. Gold nanorods indirectly promote migration of metastatic human breast cancer cells in 3D cultures. E. Grzincic, C.J. Murphy

4:20 COLL 461. Quantitative detection of rapid nuclear protein trafficking using nanoparticle stabilized capsules. M. Ray, Z. Jiang, R. Tang, V.M. Rotello

4:40 COLL 462. Design of molecular gelator – solvent systems guided by solubility parameters. Y. Lan, M.A. Rogers, M. Corradini

Section E

Boston Convention & Exhibition Center
Room 109A

Metrology of Characterization, Simulation & Theory of Biomembranes

J. Katsaras, M. Nieh, *Organizers*

P. S. Cremer, E. Dormidontova, *Presiding*

2:00 COLL 463. Quantifying tension effects on phase transitions and domain features in phospholipid membranes. M.M. Santore

2:30 COLL 464. Effect of membrane composition and protein lipidation on the free energy of binding of HIV-1 matrix to lipid membranes. M. Barros, F. Heinrich, S.A. Datta, A. Rein, M. Lösche, H. Nanda

Technical program information known at press time.

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3:00 COLL 465. Monitoring the formation of Gram-positive bacterial membrane mimics using QCM-D. **K. Wang, R. Nagarajan, T.A. Camesano**

3:30 COLL 466. Association of model neurotransmitters with lipid bilayer membranes. **B. Josey, M. Lösche, F. Heinrich, R. Cantor**

4:00 Intermission.

4:10 COLL 467. Scattering and simulation studies identify molecular control mechanisms in cell signaling. **M. Lösche, F. Heinrich, H. Nanda, A. Ross, A. Gericke, R. Harishchandra**

4:40 COLL 468. Modeling interactions between charged nanoparticles and multicomponent vesicles. **F. Aydin, M. Dutt**

5:10 COLL 469. Direct probes of supported lipid bilayers interacting with 4-nm diameter gold nanoparticles. **F. Geiger**

Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

New Techniques

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact

Applications and Consequences

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THURSDAY MORNING

Section A

Boston Convention & Exhibition Center Room 107A

Polymer & Biopolymer Based Nanomaterials

Characterization of Nanomaterials

B. P. Chauhan, Organizer, Presiding

8:30 Introductory Remarks.

8:35 COLL 470. Interphase effects on polymer and water dynamics in cellulose biocomposites — ^2H and ^{13}C NMR relaxometry. **C. Terenzi, K. Prakobna, I. Furó, L. Berglund**

8:55 COLL 471. Quantitative tissue spectroscopy of near infrared fluorescent nanosensor implants. **G. Bisker, N. Iverson, E. Farias, V. Ivanov, J. Ahn, G.N. Wogan, M. Strano**

9:15 COLL 472. Facile assembly enhanced spontaneous fluorescent response of Ag^+ containing polyelectrolyte multilayer films. **X. Huang, N. Zacharia**

9:35 COLL 473. Characterizing polymeric micelles employed for DDS by use of SAXS and FFF. **K. Sakurai, Y. Sanada, I. Akiba, K. Shiraishi, M. Yokoyama, Y. Shinohara, Y. Amemiya**

9:55 Intermission.

10:10 COLL 474. Controlling nanocomposite hydrogel mechanics via bioinspired interfacial bond dynamics. **N. Holten-Andersen, Q. Li**

10:30 COLL 475. Micromechanical properties of nanostructured soft silicon hydrogel contact lenses. **M. Chyasnachyus, S.L. Young, V.V. Tsukruk**

10:50 COLL 476. Nanostructured functional thin films through vapor phase deposition: A BIMREL's approach to bioinspiration. **G. Demirel**

11:10 COLL 477. Design of multistimuli responsive films through LbL assembly for the control of protein adsorption. **A. Osyпова, C. Pradier, C. Jérôme, J. Landoulsi, S. Demoustier-Champagne**

Section B

Boston Convention & Exhibition Center Room 107B

Nanomaterials for Defense & Homeland Security Applications

R. Nagarajan, Organizer

K. M. McCoy, Presiding

8:00 COLL 478. Remote giant multispectral plasmonic shifts of labile hinged nanorod array via magnetic field. **R. Geryak, J. Geldmeier, V.V. Tsukruk**

8:30 COLL 479. Transparent superhydrophobic surfaces with enhanced mechanical abrasion resistance enabled by mesh structure. **S. Shiratori, N. Yokoi, M. Tenjimbayashi, K. Manabe**

9:00 COLL 480. Lanthanide doped silica nanospheres: Surface sampling in deposition studies. **E.M. Durke, A. Jenkins, W.O. Gordon**

9:30 COLL 481. Facile synthesis and surface modification of HfO_2 nanoparticles for nanocomposite γ -ray scintillators. **C. Liu, T. Hajagos, D. Kishpaugh, Y. Jin, W. Hu, Q. Chen, Q. Pei**

10:00 COLL 482. Hydrophobic mesoporous silica discoids for effective sorption of oil substances. **I. Sokolov, S. Palantavida**

10:30 COLL 483. Ultrabright fluorescent silica particles for multiplexing security tagging and labeling. **I. Sokolov, S. Palantavida**

11:00 COLL 484. Self-assembly of quantum rods into controlled alignments using DNA origami and their use as energy acceptors in bioluminescence resonance energy transfer. **M.M. Maye, T.L. Doane, L.M. Karam, Y. Chen**

Section C

Boston Convention & Exhibition Center Room 107C

Nanoparticles in Food, Agricultural, & Environmental Settings

Cosponsored by AGFD \ddagger

C. M. Sabliov, Organizer

D. Britt, C. Dimkpa, J. M. Goddard, Organizers, Presiding

8:30 COLL 485. Effect of capping agent on the interactions of zinc sulfide nanocrystals with a model environmental surface. **A.L. Marsh, M.P. Schmidt**

8:50 COLL 486. Direct views of the nano-bio interface. **F. Geiger**

9:10 COLL 487. Influence of a combined lecithin and Pluronic F127 surfactant on stability of lutein-loaded zein nanoparticles as a function of time and temperature. **T. Chuacharon**

9:30 COLL 488. Effect of humic acid and fulvic acid on the aggregation and stability of TiO_2 nanoparticles. **M. Luo, M. Zhu, J. Ren, Y. Tang, H. Duan, H. Wang**

9:50 Intermission.

10:10 COLL 489. Enhanced NOM removal from drinking water sources using stable dispersions of poly(vinylbenzyl trimethylammonium chloride) functionalized SWCNTs synthesized under ARGET-ATRP conditions: "Nano-resins" for water purification. **B.R. Johnson, T.B. Eldred, J.C. Poler**

10:30 COLL 490. Stabilization of lipase (CaLB) through hierarchical interfacial assembly and performance in deep eutectic solvents. **S.M. Andler, L. Wang, J. Talbert, B. Duncan, Y. Jeong, V.M. Rotello, J.M. Goddard**

10:50 COLL 491. Evidence for the use of nanoparticles for improving crop productivity. **C. Dimkpa, P. Bindraban**

Section D

Boston Convention & Exhibition Center Room 108

Basic Research in Colloids, Surfactants & Nanomaterials

Optical Properties and Applications

R. Nagarajan, Organizer

A. Almutairi, Presiding

8:30 COLL 492. Light management using nanophotonic organic materials. **R. Chandrasekar**

8:50 COLL 493. Quarter-wave antireflective coatings produced through random packing of silicated cellulose nanocrystals. **P. Buskens, N. Meulendijks, R. van Ee, M. Burghoorn, E. van Veldhoven, M. Mourad**

9:10 COLL 494. Optical gain engineering in colloidal quantum dot solids toward continuous wave lasing. **F. Fan, M. Adachi, S. Hoogland, O. Voznyy, E. Sargent**

9:30 COLL 495. Effects of V doping and MCM-41 loading strategies on the fabrication of Ti^{3+} - TiO_2 quantum dots and its photocatalytic applications. **L. Pan, S. Wang, Z. Huang, J. Zou, X. Zhang**

9:50 COLL 496. Iron chalcogenide nanocolloids for spray-printed solar cells. **D.R. Radu**

10:10 COLL 497. Sol-gel chemistry of self-assembled photonic crystals. **K. Phillips, G. England, N. Vogel, J. Aizenberg**

10:30 COLL 498. Photocatalytic reduction of fumarate to succinate on ZnS mineral surfaces. **R. Zhou, M.I. Guzman**

10:50 COLL 499. Enhanced photoreduction of nitro-aromatic compounds by hydrated electrons derived from indole on natural montmorillonite. **C. Gu**

11:10 COLL 500. Enhanced multiwavelength upconversion through excitation energy trapping in NaErF_4 core-shell nanocrystals. **N. Johnson, S. He, A. Almutairi**

11:30 COLL 501. Efficient tailoring of upconversion selectivity by engineering local structure of lanthanide nanocrystals. **L. Sun, H. Dong, C. Yan**

11:50 COLL 502. Lighting-up carbon nanotubes: Decorating carbon nanotubes with asymmetrical cyanine dyes. **O. Cavuslar, H. Anal**

Section E

Boston Convention & Exhibition Center Room 109A

Basic Research in Colloids, Surfactants & Nanomaterials

Surface Science

R. Nagarajan, Organizer

E. A. Jarvis, Presiding

8:30 COLL 503. Investigation of the stability of silver halide films on the atomic scale. **J. Phillips, A. Lee, H. Morgan, L. Jackson, E.V. Iski**

8:50 COLL 504. Oxygen deficient surfaces in metal oxide nanopowders. **E.A. Jarvis, T. Whyte**

9:10 COLL 505. Semiconducting group IV quantum dots for tunable bandgaps. **R.J. Esteves, I.U. Arachchige**

9:30 COLL 506. Surface chemistry of metal oxide nanoparticles. **M.C. Foster**

9:50 COLL 507. Structural evolution in Ag-Ag $_2$ S hybrid nanoprisms during sulfidation. **M.M. Shahjamali, N. Zaree, N. Large, G.C. Schatz, C.A. Mirkin**

10:10 COLL 508. Withdrawn.

10:30 COLL 509. Solvent effect on CO_2 electrochemical reduction on Pb(211) and Sn(112). **C. Cui, H. Wang, X. Zhu, J. Han, Q. Ge**

10:50 COLL 510. Interfacial hydrogen bonding of substituted benzene derivatives on silica: The effects of electron withdrawing and donating groups. **J. Abelard, A.R. Wilmsmeyer, A.C. Edwards, W.O. Gordon, E.M. Durke, C.J. Karwacki, D. Troya, J.R. Morris**

11:10 COLL 511. Effect of metal ions on the swelling performance of the hydrogel in enhancing salt resistance. **J. Pu, B. Bai, T.P. Schuman**

11:30 COLL 512. On the intrinsic wettability of graphite. **H. Liu, Z. Li**

11:50 COLL 513. Charge transfer effect of bimetallic nanostructures: Tuning SERS. **A. Chatterjee, L. Whelan, E. Merschrod**

Structure & Dynamics in Complex Chemical Systems: Gaining New Insights through Recent Advances in Time-resolved Spectroscopies

Structure, Dynamics, and Behaviors of Material Systems

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Protein-nanomaterial Interfaces & Protein Coronas: Physical Properties, Biocompatibility, & Biological Impact

Fundamentals and Applications

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THURSDAY AFTERNOON

Section A

Boston Convention & Exhibition Center Room 107A

Polymer & Biopolymer Based Nanomaterials

Design of Nanomaterials

B. P. Chauhan, Organizer, Presiding

2:00 Introductory Remarks.

2:05 COLL 514. TMV-dendrimer bottle-brush conjugates. **M. Dharmawardana, S. Li, J. Gassensmith**

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- 2:25 COLL 515.** Diblock copolymer worm-gels for cellular immobilization and storage. N. Warren, I. Canton, H.D. Moore, S.P. Armes
- 2:45 COLL 516.** Sugar-based surfactants utilizing low molecular weight, *atactic* poly(α -olefins) as tunable hydrophobic groups. T.S. Thomas, W. Hwang, L.R. Sita
- 3:05 COLL 517.** PEG decorated core-shell pNIPAm hierarchical microgels via host-guest interactions. I. Antoniak, D. Kaczmarek, C. Amiel, I. Varga
- 3:25** Concluding Remarks.

Section B

Boston Convention & Exhibition Center
Room 107B

Nanomaterials for Defense & Homeland Security Applications

R. Nagarajan, *Organizer*

E. Wilusz, *Presiding*

- 2:00 COLL 518.** Reactive amphiphilic polymer additives for self-decontamination of CWA simulants. J. Lundin, J.H. Wynne
- 2:30 COLL 519.** Chemical threat responsive carbon nanotube membranes. M.B. Herbert, C. Belger, J.G. Weis, T.M. Swager
- 3:00 COLL 520.** Metal-organic frameworks for the removal of G-agents and sulfur mustard. J.B. DeCoste, G.W. Peterson, J. Mondloch, M.J. Katz, O.K. Farha, J.T. Hupp
- 3:30 COLL 521.** Nanometric hydrogen bronze reagents for the detection and neutralization of explosives. N.F. Materer, A.W. Apblett
- 4:00 COLL 522.** Porous Co_3O_4 nano-array based monolithic catalysts for low temperature CO and hydrocarbon oxidation. Z. Ren, S. Wang, V. Botu, R. Ramprasad, P. Gao
- 4:20 COLL 523.** 3D ZnO/Perovskite core/shell nanorod array based catalysts: A promising PGM-free catalyst for low temperature hydrocarbons oxidation. S. Wang, Z. Ren, Y. Guo

Section C

Boston Convention & Exhibition Center
Room 107C

Nanoparticles in Food, Agricultural, & Environmental Settings

Cosponsored by AGFD†

C. M. Sabliov, *Organizer*

D. Britt, C. Dimkpa, J. M. Goddard, *Organizers*,
Presiding

- 2:00 COLL 524.** Probing silver nanoparticles in edible leaves and environmental waters by surface-enhanced Raman spectroscopy (SERS). H. Guo, B. Xing, L. He
- 2:20 COLL 525.** Silver nanoparticle loaded textile test materials: Impact of particle size and textile type on nanoparticle detection and characterization using multiple techniques. J.M. Gorham, K.E. Murphy, J. Liu, T. Nguyen, D. Holbrook, G. Stan, D. Tselenchuk, R.F. Cook, M.R. Winchester, R.I. Maccuspie, V.A. Hackley
- 2:40 COLL 526.** Computationally driven design of bioinspired cells interacting with antimicrobial mimetic nanoparticles. X. Chu, F. Aydin, M. Dutt
- 3:00 COLL 527.** Carvacrol loaded halloysite nanotubes as antibacterial nanoparticles for food-contact materials. S. Hendessi, B. Sevinis, S. Unal, F.C. Cebeci, Y.Z. Menciloglu, H. Unal

3:20 Intermission.

- 3:40 COLL 528.** Rapid size and pH-dependent kinetics of silver nanoparticles in simulated gastric fluid to assess properties of ingested nanoparticles. A.P. Ault, J.L. Axson, D.I. Stark, A. Bondy, S. Capracotta, J. Keeney, A. Maynard, M.A. Philbert, I.L. Bergin
- 4:00 COLL 529.** Rhizosphere dissolution of CuO nanoparticles by wheat root exudates in a sand matrix. P. McManus, J. Stewart, D. Britt, D. Stevens, A.J. Anderson, J.E. McLean
- 4:20 COLL 530.** Nano delivery nutrient strategies to enhance crop nutrition. C. Dimkpa, P. Bindraban
- 4:40 COLL 531.** Monitoring bacterial metabolite production and response to nanoparticles using endogenous fluorescence. D. Britt, J. Adams, H. Wagner, J.E. McLean, A.J. Anderson
- 5:00 COLL 532.** Bio-inspired silica nanocapsules through biomolecular engineering. C. Zhao, D. Wibowo, A. Middelberg

Section D

Boston Convention & Exhibition Center
Room 108

Basic Research in Colloids, Surfactants & Nanomaterials

Biosensing and Biomedicine

R. Nagarajan, *Organizer*

M. Ruths, *Presiding*

- 2:00 COLL 533.** Novel strategy for ultrasensitive and highly selective detection of infectious pathogens with the help of chemiluminescent labels released from long spacer arm-functionalized magnetic nanoparticles. N. He, H. Yang, Z. Li, Y. Deng
- 2:20 COLL 534.** Hybrid platforms for improved bioassay detection limit. E. Bonyi, K. Aslan
- 2:40 COLL 535.** Withdrawn.
- 3:00 COLL 536.** Peptide loaded microgels as antimicrobial surface coatings. L. Nyström, R. Álvarez-Asencio, R. Nordström, M.W. Rutland, B. Saunders, M. Malmsten
- 3:20 COLL 537.** Water-based polymeric N-halamine biocides. Z. Jing, Y. Sun
- 3:40 COLL 538.** Controlling the colloidal aggregation of chemotherapeutics. A.N. Ganesh, C.K. McLaughlin, B. Shoichet, M.S. Shoichet
- 4:00 COLL 539.** De novo method for uric acid decrystallization using gold nanoparticles and medical microwaves. Z. Boone-Kukoyi, N. Thompson, C. Lansiquot, T.C. Clement, B. Kioko, T. Ogunbolu, K. Aslan
- 4:20 COLL 540.** Pharmacokinetic model of a tissue implantable insulin sensor. G. Bisker, N. Iverson, J. Ahn, M. Strano
- 4:40 COLL 541.** Effects of functionalities on drug binding, drug releasing, and biofilm-controlling properties of PMMA based denture biomaterials. J. Wen, Y. Sun

Section E

Boston Convention & Exhibition Center
Room 109A

Basic Research in Colloids, Surfactants & Nanomaterials

Applications

R. Nagarajan, *Organizer*

E. V. Iski, *Presiding*

- 2:00 COLL 542.** Withdrawn.

2:20 COLL 543. Multifunctional nanostructures: Fundamentals and applications. S. Hunyadi Murph

2:40 COLL 544. Surfactant ionic liquids with unusually high capacitances for high-temperature flexible supercapacitors. X. Mao, P. Brown, M. Costa Gomes, T. Hatton

3:00 COLL 545. Aqueous-based fabrication of low-VOC nanostructured block copolymer films as effective marine antifouling coatings. S. Kim, N. Gunari, D. MacNeil, G.C. Walker

3:20 COLL 546. Polyacrylamide microgels and pore modeled oil recovery performance. Z. Chen, T.P. Schuman, B. Bai

3:40 COLL 547. Effects of clay surfaces on diethyl phthalate degradation in Fenton reactions. J. Gao

4:00 COLL 548. Surface-modified $\text{Li}[\text{Li}_{0.2}\text{Ni}_{0.17}\text{Co}_{0.07}\text{Mn}_{0.56}\text{O}_2]$ nanoparticles with AlF_3 as cathode for Li-ion battery. Y. Bai, X. Lu, W. Zhang

4:20 COLL 549. Highly efficient autonomous nanomotors in micromolar halogen media. F. Wong, A. Sen

4:40 COLL 550. Spin coating polyelectrolyte coacervate thin films. K.D. Kelly

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