

249th American Chemical Society National Meeting & Exposition

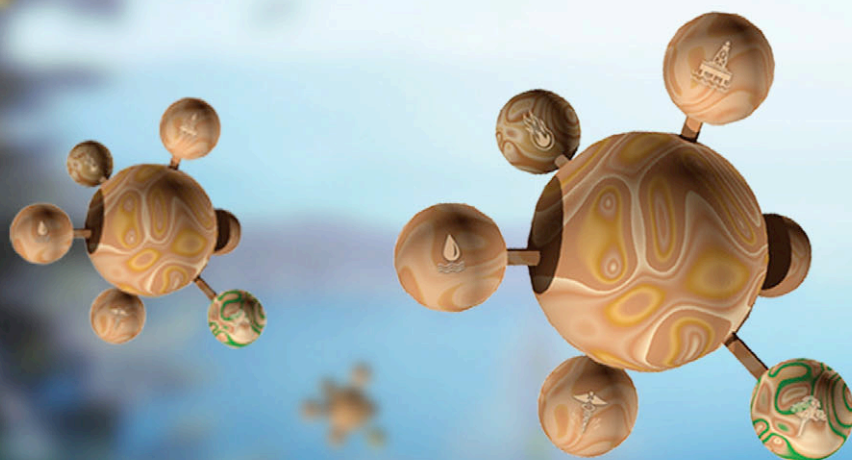
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CHEMISTRY OF NATURAL RESOURCES

Denver, CO • March 22-26, 2015

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PROGRAM SUMMARY

Division of Colloid & Surface Chemistry

COLL

R. Nagarajan, Program Chair

Marriott City Center Denver	S	M	Tu	W	Th
Particles at Fluid Interfaces**	D	A			
Biomembrane Synthesis, Structure, Mechanics & Dynamics	D	D	A	D	
Molecular Engineering of Peptide Assembly	D	D	A		
Functionalization of Complex Nanosurfaces**	D	D	A		
Basic Research in Colloids, Surfactants & Nanomaterials**	D			A	D
Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion**	DE	D	A	D	
ACS Award in Colloid & Surface Chemistry: Honoring Paul S. Weiss	P	D	D		
Plasmonic Catalysis & Sensing	E	D	A	D	
Interfacial Biomolecular Recognition**	E		A	D	D
Fundamental Research in Colloids, Surfaces & Nanomaterials**	E				
Advances in Formulations Science & Technology**		P			
Sci-Mix		E			
Natural Resource Capture, Storage & Energy Conversion				D	D
Elucidation of Mechanisms & Kinetics on Surfaces**				D	
Chemical Processes at Environmental Interfaces* (ENVR)	D	A		E	
Role of Membrane in Amyloid-Formation & the Pathogenicity of Amyloid Disease* (PHYS)	D	D	P		
Nanotechnology: Delivering on the Promise* (PRES)	P	D			
WCC Rising Stars Awards Symposium* (WCC)		D			
Molecular-Scale Processes Controlling Reactivity at Mineral-Water Interfaces* (GEOC)			D	D	

*Cosponsored symposium with primary organizer shown in parentheses; located with primary organizer.

**Primary organizer of a cosponsored symposium.

CNR: Chemistry of Natural Resources

A = AM AE = AM/EVE P = PM D = AM/PM
E = EVE DE = AM/PM/EVE PE = PM/EVE

Division of Colloid and Surface Chemistry

R. Nagarajan, Program Chair

OTHER SYMPOSIA OF INTEREST:

Nanomaterials for Solar Energy Conversion and Storage (see ENFL, Sun, Mon, Tue, Wed, Thu)

Chemical Processes at Environmental Interfaces (see ENVR, Sun, Mon)

Probing Nano-Plasmonic Phenomena at the Single Molecule, Single Electron, and Single Photon Level (see PHYS, Sun, Mon, Wed)

Graphene and Carbon Nanotubes: Synthesis, Devices and Applications (see PMSE, Sun, Mon, Thu)

Stimulus-Responsive Assemblies and Materials (see PMSE, Sun, Mon, Tue)

WCC Rising Stars Awards Symposium (see WCC, Mon)

SOCIAL EVENTS:

Social Hour, 6:00 PM: Sun

Luncheon, 12:00 PM: Tue

BUSINESS MEETINGS:

Executive Committee Meeting, 5:00 PM: Sat

COLL Open Business Meeting, 5:30 PM: Sun

SUNDAY MORNING

Section A

Marriott City Center Denver

Colorado A/B

Molecular Engineering of Peptide Assembly

Financially supported by Institute for Molecular Engineering, University of Chicago

H. Cui, M. V. Tirrell, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 **COLL 1.** Dendronized helix bundle assemblies designed de novo. J.G. Rudick

9:05 **COLL 2.** Mimicry of biorecognition motifs with peptidic foldamers. S.H. Gellman

9:35 **COLL 3.** Functional coiled-coil peptides controlled assemblies. A. Kros

10:05 Intermission.

10:20 **COLL 4.** Thermodynamics of surface-tethered peptide-polymer conjugates. S.P. Carmichael, M. Shell

10:50 **COLL 5.** Combating diseases with peptide-polymer conjugate. H. Klok

11:20 **COLL 6.** Carving pi-ways into biomaterials: electronic delocalization via peptide self-assembly. J.D. Tovar

Section B

Marriott City Center Denver

Colorado I

Functionalization of Complex Nanosurfaces

Cosponsored by PRES

W. Parak, *Organizer*

L. Liz Marzan, *Organizer, Presiding*

8:30 **COLL 7.** Colloidal effects in virus stability. F. Stellacci

9:00 **COLL 8.** Self-assembly of nanoparticles in chiral and other superstructures. N. Kotov

9:30 **COLL 9.** Ultraflexible reconfigurable magnetic nanoparticle filaments and networks by nanocapillary lipid bridging. O.D. Velev, B. Bharti, A. Fameau, M. Rubinstein

10:00 Intermission.

10:30 **COLL 10.** Colloidal design and optimization for assembly of complex crystals. S.C. Glotzer

11:00 **COLL 11.** Selective and differential functionalization of interior surface of hollow nanoparticles for nanoreactor applications. S. Kim, D. Lee, I. Lee

- 11:20 COLL 12.** Protein-based organic/inorganic hybrid nanocapsules for *In vivo* delivery applications. Y. Nam, J. Lee
- 11:40 COLL 13.** Interface engineering for nanocrystal stability in media spanning hexane to water. L.M. Wheeler, N.J. Kramer, U.R. Kortshagen
- 12:00 COLL 14.** Design of stimuli-responsive nanogels for bioapplications. J. Ramos, A. Pikabea, G. Aguirre, J. Forcada

Section C

Marriott City Center Denver
Colorado C/D

Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion

Cosponsored by PRES

Financially supported by Sigma-Aldrich

S. Pan, J. Zheng, *Organizers, Presiding*

8:30 Introductory Remarks.

- 8:35 COLL 15.** Shape engineering substrate-based plasmonic nanostructures. K.D. Gilroy, R.A. Hughes, D. Sil, E. Borquet, S. Neretina
- 8:55 COLL 16.** All-optical control of localized plasmonic resonance using photoalignment and liquid crystals. T.J. Bunning, L. De Sio, G. Klein, S. Serak, N. Tabirian, A. Cunningham, C. Tone, F. Ciuchi, T. Burgi, C. Umeton
- 9:15 COLL 17.** Unique temporal and spatial biomolecular emission profile on individual zinc oxide nanorods. M. Singh, J. Hahn
- 9:35** Intermission.
- 9:45 COLL 18.** Withdrawn.
- 10:05 COLL 19.** Unprecedented upconversion efficiency in lanthanide nanocrystals via uniform, optically inert shells. N. Johnson, S. He, A. Almutairi
- 10:25 COLL 20.** Creation of natural dye sensitized solar cell. J. Uddin
- 10:45 COLL 21.** Rapid and sensitive assessment of biological and environmental samples using microwave-accelerated bioassay technique. M. Mohammed, K. Aslan

Section D

Marriott City Center Denver
Denver III

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

Interfacial Phenomena

S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*
N. Srividya, *Organizer, Presiding*

- 9:00 COLL 22.** Physical measurements of hydrophobin air-filled bubbles and oil-filled blobs. X. Zhang, S. Kirby, D. Gorman, Y. Chen, W. Huberty, F. Hung, S.L. Anna, L. Walker, P.S. Russo
- 9:30 COLL 23.** Interactions of aromatic compounds with water-air and water-phospholipid interfaces. R.J. Perkins, R. Rapf, S.S. Mansy, V. Vaída
- 10:00** Intermission.
- 10:10 COLL 24.** Cellular uptake mechanisms as controlled by nanostructures of a lipid mixture: Comparison between bicelles and vesicles. W. Aresh, Y. Liu, J. Sine, D. Thayer, A. Puri, Y. Huang, Y. Wang, M. Nieh
- 10:40 COLL 25.** Investigating effects of Al³⁺ on structure and fluidity of lipid membranes: FRAP and molecular dynamics. H.K. Wayment-Steele, Y. Jing, L.E. Johnson, S. Svedhem, M.S. Johal, M. Swann, B. Agnarsson, A. Kunze
- 11:10 COLL 26.** Characterization of solid-supported ultrathin films using MP-SPR. N.M. Granqvist, W.M. Albers, A. Jokinen, J.W. Sadowski

Section E

Marriott City Center Denver
Colorado G

Basic Research in Colloids, Surfactants & Nanomaterials

Metal Nanomaterials

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 9:00 COLL 27.** Production of highly dispersed silver nanoparticles recovered from photographic film wastes using a simple green method. A.M. Atta, H.A. Al-Lohedan, A. Ezzat
- 9:20 COLL 28.** AFM-based fabrication and probing of metallic nanostructures. C.L. Berrie, C.M. Edwards, S. Ulapane
- 9:40 COLL 29.** Controlling the electronic structure and chemical reactivity of small nanoparticles through atomic composition. D. Kauffman, D. Alfonso, C. Matrangola, J. Trindell, R. Jinn
- 10:00 COLL 30.** Withdrawn.
- 10:20 COLL 31.** Real time microfluidic investigation: The role of seed age on gold nanorod formation. J. Watt, R. Anderson, B. Hance, D. Huber
- 10:40 COLL 32.** Investigation of the surface effects of Ag nanoparticles in solution as a result of a NSF-TUES related funding opportunity. C.S. Seney
- 11:00 COLL 33.** Dissolution and antibacterial efficiency of silver nanoparticles: Influence of particle size, shape, and surface chemistry. Q. Zhang, W. Jang, V.L. Colvin
- 11:20 COLL 34.** Study of interparticle interactions between gold nanoparticles using liquid cell electron microscopy. Q. Chen, H. Cho, K. Manthiram, M. Yoshida, X. Ye, P. Alivisatos
- 11:40 COLL 35.** Size-focusing synthesis of gold nanoclusters with *para*-mercaptobenzoic acid. L.M. Tvedte, C.J. Ackerson
- 12:00 COLL 36.** Constructing 0, 1, and 2D silvers within interlayer spaces of titania nanotubes. S.A. Ferdousi, K.L. Young
- 12:20 COLL 37.** Iridium-triggered facet transformation of Au nanocrystals via spontaneous oxidation-reduction process. C. Yang

Section F

Marriott City Center Denver
Colorado H

Particles at Fluid Interfaces

Cosponsored by PRES

M. A. Bevan, *Organizer*

J. Frechette, *Organizer, Presiding*

- 8:30 COLL 38.** Capillary migration of spheres on curved fluid interface. K. Stebe, N. Sharif-Mood, I. Liu
- 8:55 COLL 39.** Interactions between soft microgel particles at fluid interfaces. O.S. Deshmukh, A. Maestro, D. van den Ende, M. Cohen Stuart, F. Mugele, M.H. Duits
- 9:20 COLL 40.** Molecular characterization of surfactant adsorption at the surface of emulsion particles. G.L. Richmond, J. Hensel, A. Carpenter
- 9:45 COLL 41.** Understanding Pickering emulsions using multiscale simulations. A. Striolo
- 10:10 COLL 42.** Tracking nanoparticles in 3D – techniques and applications. J. Little, S. Stavis, P. Mathai, A. Balk, L. Mair, C. Hangarter, J. Unguris
- 10:35 COLL 43.** Spontaneous emulsification and interface formation induced by colloids. W. Kegeles
- 11:00 COLL 44.** DNA-functionalized nanoparticle assembly. M. Olvera De La Cruz
- 11:25 COLL 45.** Capillary foams: A new pathway toward functional porous materials. Y. Zhang, J.C. Meredith, S.H. Behrens
- 11:50 COLL 46.** Organized assemblies of colloids formed at the interfaces of micrometer-sized droplets of liquid crystal: Enabling the synthesis of patchy and nonspherical particles. N.L. Abbott

Chemical Processes at Environmental Interfaces

Chemistry and Imaging at Air/Liquid(Solid) Interfaces of Atmospheric Systems

Sponsored by ENVR, Cosponsored by COLL

SUNDAY AFTERNOON

Section A

Marriott City Center Denver
Colorado A/B

Molecular Engineering of Peptide Assembly

Financially supported by Institute for Molecular Engineering, University of Chicago

H. Cui, M. V. Tirrell, *Organizers, Presiding*

- 2:00 COLL 47.** Artificial organelles: Cellular expression and assembly of polypeptide microdomains. J.A. MacKay, Z. Li, A. Truong, J. Dhandhukia, M. Pastuszka, P. Shi, S. Hamm-Alvarez, C. Okamoto
- 2:30 COLL 48.** Self-assembling peptide materials for hydrogen sulfide delivery. J.B. Matson, J.M. Carter
- 2:50 COLL 49.** Photons, chemicals, and electric fields as functional stimuli in supramolecular materials. S.I. Stupp
- 3:20** Intermission.
- 3:35 COLL 50.** 3D cell entrapment as a function of the weight percent of peptide-amphiphile hydrogels. C.M. Scott, E. Kokkoti
- 4:05 COLL 51.** Targeting collagen strands by triple helix hybridization. S. Yu
- 4:35 COLL 52.** Design evolution of an antibacterial bioadhesive inspired by cationic peptide hydrogels. J.P. Schneider
- 5:05 COLL 53.** Self-assembling antimicrobial nanofibers based on supramolecular peptide assemblies. H. Dong

Section B

Marriott City Center Denver
Colorado I

Functionalization of Complex Nanosurfaces

Cosponsored by PRES

L. Liz Marzan, *Organizer*

W. Parak, *Organizer, Presiding*

- 2:00 COLL 54.** Ultrasonic modification and functionalization of surfaces and particle. H. Moehwald
- 2:30 COLL 55.** Functionalization of gold nanorods. C.J. Murphy
- 3:00 COLL 56.** Hybrid platforms based on metal nanoparticles-doped filter paper for sensing and catalysis. I. Pastoriza Santos
- 3:30 COLL 57.** Dynamically self-assembling nanoflasks. R. Klajn
- 4:00 COLL 58.** Compact coatings for quantum dots that resist nonspecific binding to proteins, cells, and tissues. L. Ma, A. Smith
- 4:20** Intermission.
- 4:50 COLL 59.** Functional nanoparticles: Synthesis and biomedical applications. S. Sun
- 5:20 COLL 60.** Multicoordinating amphiphilic polymers provide compact, highly stable, and reactive semiconductor and metal oxide nanocrystal-conjugates. W. Wang, A. Kapur, G. Palui, H.M. Mattoussi
- 5:50 COLL 61.** Intracellular sensing of ion concentration with nanoparticles. W. Parak

Section C

Marriott City Center Denver
Colorado C/D

Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion

Cosponsored by PRES

Financially supported by Sigma-Aldrich

S. Pan, J. Zheng, *Organizers, Presiding*

- 2:00 COLL 62.** Smart photon management for organic photovoltaic. Y. Yang, Y. Yang, J. You, Z. Hong

- 2:30 COLL 63.** Nanoscale oxynitrides with tunable composition and absorption spectra. G. Dukovic
- 3:00 COLL 64.** Light extraction from organic light-emitting diodes using plasmonic scattering layers. L. Rothberg, C. Favaro, C. Chang
- 3:30** Intermission.
- 3:40 COLL 65.** Nanostructured plasmonic antenna systems and catalytic electrode materials for enhancing solar water splitting. S. Pan
- 4:10 COLL 66.** Molecular imprinted polymers for plasmonic sensing. A.J. Haes
- 4:40 COLL 67.** On the possibility of the para-aryl-dithiols cross-linking plasmonic nanoparticles as dithiolates. D. Zhang

Section D

Marriott City Center Denver
Denver III

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

Model and Cellular Systems

S. Muralidharan, M. Nieh, A. N. Parikh, N. Srividya, *Organizers*

M. L. Longo, *Presiding*

- 2:00 COLL 68.** Air-stable droplet interface bilayers. C.P. Collier, C.I. Richards, S.A. Sarles, J. Boreyko
- 2:30 COLL 69.** From compartmentalized polymersomes to biomimetic artificial cell. M. Marguet, R. Peters, J. van Hest, S. Lecommandoux
- 3:00** Intermission.
- 3:10 COLL 70.** Probing interactions between nanoparticles and cellular membrane via single cell mechanics. G. Liu, Y. Liu, D. Anderson, A. Karsai, D. Uyeminami, L. Von Winkle, K. Pinkerton
- 3:40 COLL 71.** Rigidity signals drive differential ROCK signaling to regulate invadopodia activity. A. Parekh
- 4:10 COLL 72.** Phase separation in hybrid polymer/lipid vesicles: A rational to obtain lipid or polymer raft-like nanodomains. J. Le Meins, T. Dao, R. Salva, F. Fernandes, A. Brulet, M. Schmutz, M. Er-Rafik, M. Prieto, S. Lecommandoux, O. Sandre

Section E

Marriott City Center Denver
Colorado G

Basic Research in Colloids, Surfactants & Nanomaterials

Metal Oxide Nanomaterials

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 2:00 COLL 73.** Methods for rapid synthesis of nonaggregated nanozeolite Y. B. Wang, Y. Li, P.K. Dutta
- 2:20 COLL 74.** Design of suitable protocols to evaluate metal oxide nanoparticles in unmodified commercial sunscreens. C. Sapcharoenkun, P. Kasamechonchung, P. Kumnorkaew, P. Kopermsub
- 2:40 COLL 75.** Local and long range structure in metal oxide nanoparticles. M.A. Langell, M.A. Peck, M. Kumbier, D. Wilson
- 3:00 COLL 76.** Fabrication of abundant Zn vacancies in ZnO for p-type conductivity, room-temperature ferromagnetism and high photocatalytic activity. L. Pan, J. Song, J. Zou, S. Wang, Z. Huang, L. Wang, X. Zhang
- 3:20 COLL 77.** Application-scale size-selective fractionation of iron oxide nanoparticles using CO₂-expanded liquids. P.S. Vengsarkar, R. Xu, C.B. Roberts
- 3:40 COLL 78.** Improvements of TiO₂ nanoparticle dispersion stability in nonpolar solvents by long chain fatty acid functionalization. N. Baek, Y. Kim, S.F. Okeefe
- 4:00 COLL 79.** Mobility of antiscalant-modified BaSO₄ particles through saturated proppant pack. C. He, R.D. Vadic

- 4:20** COLL **80.** Enhanced photodecomposition activity induced by nanodimensional cerium oxide domains on titania surfaces. **C.A. Estes, M.B. Mitchell**
- 4:40** COLL **81.** Thiol adsorption on metal oxide nanoparticles and surfaces. **Y. Wang, O. Grimm, J.E. Whitten**
- 5:00** COLL **82.** Highly uniform gadolinium oxide nanoparticles as remarked remarkably enhanced MRI contrast agents for cellular MR imaging. **N. Taheri, G. Stinnett, r. pautler, P. Decuzzi, V.L. Colvin**
- 5:20** COLL **83.** Cr:ZnGa₂O₄ nanoparticles with controllable size and persistent luminescence. **Y. Mao, B. Bahadur Srivastava**
- 5:40** COLL **84.** Controlled synthesis of inorganic nanostructures using soft stretchable substrates. **S.A. Morin, J.J. Bowen, J.M. Taylor**

Section F

Marriott City Center Denver
Colorado H

Particles at Fluid Interfaces

Cosponsored by PRES

J. Frechette, *Organizer*

M. A. Bevan, *Organizer, Presiding*

- 2:00** COLL **85.** Electrostatic repulsion between colloids at the oil-water interface. **E.M. Furst**
- 2:25** COLL **86.** Janus particles as dynamically tunable solid surfactants. **D. Lee**
- 2:50** COLL **87.** Bicompartmental phase transfer vehicles based on colloidal dimers with anisotropic structural and interfacial properties. **N. Wu**
- 3:15** COLL **88.** Self-organisation of colloidal particles at liquid interfaces. **T.S. Horozov**
- 3:40** COLL **89.** Particle transport at oil/water interfaces driven by spatially varying surfactant adsorption or desorption kinetics. **R.D. Tilton, S. Garoff, T.M. Przybycien, G. Duner**
- 4:05** COLL **90.** Thermodynamics of Janus particles in 2D confinement. **S. Razavi, R.S. Tu, I. Kretzschmar**
- 4:30** COLL **91.** Remotely triggered colloidal disassembly from particle-laden microbubble. **V. Garbin**
- 4:55** COLL **92.** Measurements and models of reversible adsorption of nanoparticles at the oil-water interface. **X. Hua, M. Bevan, J. Frechette**

Section G

Marriott City Center Denver
Colorado F

ACS Award in Colloid and Surface Chemistry: Symposium in Honor of Paul S. Weiss

N. Kotov, *Organizer*

C. R. Kagan, *Presiding*

- 2:00** COLL **93.** Breaking Lord Rayleigh's Rule: Linked photochemical reactions that double the resolution of a lens. **C.G. Willson, R.A. Mesch, X. Gu, W. Wang, T. Kawakami, Y. Hajjwara, M. Okazaki, H. Truong, Y. Li, S. Jockusch, N. Turro**
- 2:40** COLL **94.** Designing precursors for the deposition of inorganic nanostructures by CVD, SPMCD and EBID. **L. McElwee-White**
- 3:10** COLL **95.** Dynamic substrate control: Dual-tone hydrogel photoresists. **C. Xue, D. Wong, S. Norris, A.M. Kasko**
- 3:40** COLL **96.** Chemical lift-off lithography by collapsing soft-material molds. **W. Liao, H. Jan**
- 4:10** COLL **97.** Atomic picture of nuclear decay in stable 2D radioactive films. **E.H. Sykes**

Chemical Processes at Environmental Interfaces

Chemistry and Imaging at Air/Liquid(Solid) Interfaces of Atmospheric Systems

Sponsored by ENVR, Cosponsored by COLL

SUNDAY EVENING

Section A

Colorado Convention Center
Hall B2

Fundamental Research in Colloids, Surfaces & Nanomaterials

Cosponsored by PRES

R. Nagarajan, *Organizer*

6:00 - 8:00

- COLL 98.** J-aggregate formation of cationic cyanine dyes on clay minerals. **N. Sato, T. Fujimura, Y. Ohtani, T. Shimada, S. Takagi**
- COLL 99.** Dynamics of binary mixtures of cationic and anionic microgels at the air water interface. **K. Horigome, D. Suzuki**
- COLL 100.** Solvent-free functionalization of multiwalled carbon nanotube buckypaper with amines. **I.J. Ramirez-Calera, V. Meza-Laguna, E. Abarca-Morales, V.A. Basiuk, E.V. Basiuk**
- COLL 101.** Coordination functionalization of graphene oxide and nanodiamond with nickel(II) tetraazamacrocyclic complexes. **N. Alzate-Carvajal, L.V. Henao-Holguin, V. Meza-Laguna, A. Moreno-Bárceñas, J.F. Pérez-Robles, E. Rybak-Akimova, V.A. Basiuk, E.V. Basiuk**
- COLL 102.** Characterization of covalently-functionalized mesoporous silica nanoparticles by solution-phase NMR methods. **S.E. Lehman, Y. Tataurova, S.C. Larsen**
- COLL 103.** DFT study of noncovalent complexes of phthalocyanines with spherical fullerenes and short nanotube models. **V.A. Basiuk**
- COLL 104.** Label-free detection of RNA by using liquid crystals. **Y. Liu, K. Yang**
- COLL 105.** Interaction of a Ni(II) tetraazaannulene complex with spherical and elongated fullerenes: A DFT study. **L.V. Henao-Holguin, V.A. Basiuk**
- COLL 106.** Imaging of liver cells using water soluble CdTe quantum dots. **A. Coover, T.G. Lewis, T.J. Ripley, A.L. Asunskis, D.J. Asunskis**
- COLL 107.** Effects of composition on the gradient structure and surface properties of fluorinated polyacrylates latex blends film. **H. Yuanyuan, Z. Zhaoan, Y. Chen**
- COLL 108.** Effect of chain length, number of chains, and charge on the in vitro cytotoxicity of surface coating agents used for nanoparticles. **Y. Zhang**
- COLL 109.** Fluorescent organic nanodots for sensing metals and a targeted immunofluorescence labeling. **H. Kim**
- COLL 110.** Electrochemical and photocatalytic activity analysis of TiO₂-NIO/TiO₂. **S. Buama, P. Rangsunvit**
- COLL 111.** Studies on the mechanisms of forced transport of dye through solution modifications to a polymerized surface. **J. Siegenthaler, D. Rivera**
- COLL 112.** Adsorption of poly(vinyl alcohol) onto polydimethylsiloxane substrates: Formation of continuous films, honeycomb structures, and fractal morphologies. **B. Sharma, A. Karki, L. Nguyen, W. Chen**
- COLL 113.** Role of substrate receding contact angle in deposit patterns of sessile droplets containing stabilized gold nanoparticles. **E. Laudadio, L. Zhang, W. Chen**
- COLL 114.** Smooth and uniform thiol-functionalized substrates for bioconjugations. **T. Tabassum, S. Xu, W. Chen**
- COLL 115.** Probing the hydrodesulfurization properties of cobalt-nickel phosphides: Supported catalysts and encapsulated nanoparticles. **S. Danforth, R. Lijana, B. Ilic, P. Topalian, M.E. Bussell**
- COLL 116.** Capacitance and hydrogen evolution reaction characterization of electrodeposited nickel alloy thin films. **M. Gira, J.R. Hampton**
- COLL 117.** Quantitative characterization of methanol oxidation catalysis on dealloyed NiCu films. **M. Milliken, J.R. Hampton**
- COLL 118.** Nickel phosphide hydrotreating catalysts on phosphorus-modified oxide supports. **B.J. Morgan, S. Danforth, B. Ilic, M.E. Bussell, P. Topalian**
- COLL 119.** Total holographic characterization of colloidal suspensions. **L.A. Philips, F.C. Cheong, D.G. Grier**
- COLL 120.** Effects of shear and walls on the diffusion of colloids in microchannels. **S. Ghosh, F. Mugele, M.H. Duits**
- COLL 121.** Glutathione-coated luminescent gold nanoparticles: A surface ligand for minimizing serum protein adsorption. **R. Vinluan, J. Liu, C. Zhou, M. Yu, S. Yang, A. Kumar, S. Sun, A. Dean, X. Sun, J. Zheng**
- COLL 122.** Crystallization of proteins on iron nanocolumns using metal-assisted and microwave-accelerated evaporative crystallization for liproved size distribution. **K. Mauge-Lewis, E. Toth, D. Seifu, K. Aslan**
- COLL 123.** Crystal engineering of L-alanine in the presence of multiple amino acid additives using metal-assisted and microwave-accelerated evaporative crystallization. **A. Mojibola, E. Constance, T.E. Onuekwusi, I. Nicholson, M. Mohammed, K. Aslan**
- COLL 124.** De-crystallization of uric acid crystals in synovial fluid using gold colloids and low power microwave heating. **B. Kioko, T. Ogundolie, M. Adebisi, Y. Ettinoffe, C. Rhodes, B. Gordon, N. Thompson, M. Mohammed, K. Aslan**
- COLL 125.** Biodegradable polymer materials containing stabilized silver nanoparticles. **A. Paul, A. Vasiliev**
- COLL 126.** Characterization and bioapplication of nanoscaled materials derived from green chemistry. **P. Hanumandla, J. Dinn, N. Ngassa, D. Lopez, P. Nandakumar, J.L. Liu**
- COLL 127.** How small molecules self-assemble into nanofibers and form hydrogels. **Y. Gao, B. Hammouda, J. Douglas, F. Horkey**
- COLL 128.** Computational study of hydroxyproline-pectin cross-linkage for drug delivery. **M.H. Andersen, L. Tribe**
- COLL 129.** Tmpyp containing nanoparticles with enhanced photo-physical properties. **M. Zhu, S. Shuthanandan, H. Zhang, G.H. Aryal, J. Jayawickramarajah**
- COLL 130.** Optical characterization of purified noble metal nanoparticles. **A. Thomas**
- COLL 131.** Green synthesis of magnetic nanocomposites formulated with Indian medicine to perform cancer theranostic study. **J.L. Liu, K.Y. Amaravathi, H. Shravan, S. Bashir, X. Du**
- COLL 132.** Plasmonic nanocrystal solar cells utilizing strongly confined radiation. **P. Moroz, M. Zankov, N.N. Kholmicheva, U. Rijal, A. Razgoniaev, A. Ostrowski**
- COLL 133.** Structure and behavior relationships among semifluorinated linear, dibranched and miktoarm amphiphiles. **W. Tucker, A. McCoy, S. Fix, M. Stagg, M. Murphy, S. Mecozzi**
- COLL 134.** Effect of pH on the adsorption of cationic polyacrylamide to polyacrylic acid. **D. Seo, H. Lee, H. Youn**
- COLL 135.** Role of alpha-hemolysin's phosphocholine binding pocket and cholesterol in lipid membrane adsorption and nanopore formation. **C. McCauley, L. Keranen Burden, D. Burden**
- COLL 136.** Surface equilibrium and kinetic dynamics of alpha hemolysin on red blood cell membranes. **J. Ellingsen, A.S. Freeman, L. Keranen Burden, D. Burden**
- COLL 137.** Morphological and electrochemical characterization of Laponite/polyaniline/graphene and graphene oxide nanocomposite materials. **I. Ramphal, M.E. Hagerman**
- COLL 138.** Morphosynthetic studies of polyaniline/graphene oxide/Laponite nanocaffolds. **Y. Hu, M.E. Hagerman**
- COLL 139.** Study of selective heavy metal removal from seawater. **X. Chen, Y. Li, W. Han, K.L. Yeung**
- COLL 140.** Interaction of ligand-capped metal nanoparticles with t2D atomic layered nanomaterials. **S.S. Low, S. Gang, Y. Shon**

- COLL 141.** Gold nanoparticles size characterization using PCA and LDA techniques by UV-Vis spectroscopy. **H. Cavusoglu, Y. Danisman, H. Sakalak, M. Yilmaz, M. Yavuz**
- COLL 142.** Dynamic observation of NIH3T3 cells adhesion behaviors on binary self-assembled monolayers modified gold surfaces. **W. Kao, H. Chang, J. Shyue**
- COLL 143.** Ag nanoparticle nucleation vs. shell growth. **M. Shaughnessy, D. Khon, N. Sharma, M. Zankov**
- COLL 144.** Improving the catalytic activity of metal semiconductor nanocomposites. **J. Bocanegra, D. Khon, E. Khon, M. Zankov**
- COLL 145.** Preparation of highly efficient Winsor-IV type microemulsions for rapid wood penetration. **X. Du, L.A. Lucia, R.A. Ghiladi, O.J. Rojas**
- COLL 146.** Variations in intermolecular interactions in the microtubule associated protein tau revealed by atomic force microscopy. **Z. Donhauser**
- COLL 147.** First principles characterization of nontronite clay surfaces with varying Fe(II)/Fe(III) composition. **S. Ramadury, S.E. Mason**
- COLL 148.** Effect of solvent on the growth of isotropic/anisotropic core/shell nanoparticles via alternating layer techniques. **R. Tan, S.K. Roberts, Y. Shen, M.Y. Gee, A.B. Greytak**
- COLL 149.** Nanoparticle mediated remote activation of thermophilic enzymes with alternating magnetic fields. **C. Collins, C.J. Ackerson**
- COLL 150.** Template synthesis of gold nanoparticles using an organic molecular cage. **R. McCaffrey, W. Zhang**
- COLL 151.** Progress toward clonable inorganic nanoparticles. **T. Ni**
- COLL 152.** Role of surface groups in cycloaddition reactions over ZIF-8 films. **E.R. Webster, F. Tian, L.B. Benz**
- COLL 153.** Adsorption and interaction of alcohols with ZIF-8 films and the role of surface groups. **L.B. Benz, H.L. Larson, A.M. Mosier, F. Tian, E. Baxter, A. Cheetham**
- COLL 154.** Rational design and control of functional molecules on single metal nanoparticles. **Y. Zheng**
- COLL 155.** Nanoporous hydrogen-reduced bismuth vanadate coupled with electrocatalysts as high-performance photoanodes for solar fuels. **J. Gan, X. Lu, Y. Tong, Y. Zheng**
- COLL 156.** Ultrafast and temperature-dependent optical properties of Au₄₇, Au₁₀₂ and Au₄₄ clusters. **V.D. Thanthirige, K. Kwak, D. Lee, E. Sinn, R. Guda**
- COLL 157.** Fabrication of inverse opal films with stop bands in the full spectral range of visible light using co-assembly technique. **U.S. Madduma-Bandarage, Y. Vasquez**
- COLL 158.** Electric-field assembly and propulsion of chiral colloidal clusters. **F. Ma, S. Wang, D. Wu, N. Wu**
- COLL 159.** Effect of surfactants on cyclopentane hydrates: Structure and properties. **E. Brown, J. Wells, C.A. Koh**
- COLL 160.** Properties of Fe₃O₄@chitosan nanoparticles at oil/water interfaces. **A.R. Molina**
- COLL 161.** Withdrawn.
- COLL 162.** Elucidating reaction pathways for thermoelectric materials fabricated by bottom-up solution-phase solid-state synthesis. **C. Holder, E. Rugen, D. Stevens, M.E. Anderson**
- COLL 163.** New approach for scientific research on RO membrane. **J. Okabe, M. Nishida, T. Ogawa, T. Sasaki, M. Kimura**
- COLL 164.** Foundational layer formation of metal-organic coordinated thin films. **M.L. Ohnsorg, B. Bowser, L. Gentry, M.E. Anderson**
- COLL 165.** Investigation of the stability of Ag nanoparticles in solution by isothermal titration calorimetry (ITC) and zeta-potential measurements. **J.D. Mimbs, C.S. Seney, R. Vaithi, A. Weems, R.H. Goddard**
- COLL 166.** Study of fractal colloidal gels using DLS and SALS. **R. Ebini**

- COLL 167.** Effects of H₂O and H₂ plasma surface modification of SnO₂ nanowires and spiked nanowires. **C.J. Miller, E.P. Stuckert, E.R. Fisher**
- COLL 168.** Withdrawn.
- COLL 169.** Analysis of polymeric phase separation within a thermoset polymer blend for applications in high performance low gloss coatings. **S.L. Giles, J.H. Wynne, C.R. Clayton, N.W. Heller**
- COLL 170.** Controlling the unit cell lattice parameters in nanoscaled Cu₂Pd₃O by composition and crystallite size. **M. Kumbier, G.L. Christensen, M.A. Langell**
- COLL 171.** Synthesis, characterization, and imaging applications of various silver nanoparticles morphology. **D. Castillo, L.M. Hernandez, M. Forero-Shelton, W.L. Vargas**
- COLL 172.** Chemical synthesis and High temperature structural stability of monodisperse ruthenium nanostructures. **N. Chou, D. Zakharov, E. Stach, A. Harutyunyan**
- COLL 173.** Effect of doping density on current-voltage behavior and quantum yields of dye-sensitized single crystal TiO₂ electrodes. **K.J. Watkins, B.A. Parkinson, M. Spitzer**
- COLL 174.** Directed synthesis of bimetallic nanoparticles using poly(2-vinylpyridine) colloids. **A.K. Taylor, D.A. Rider**
- COLL 175.** Modulating beta amyloid (A β) aggregation with metal ions and nano-chelators. **M.R. Mackiewicz, B.D. Jorgenson, E.A. Costa**
- COLL 176.** Surface-chemistry effect on cellular response of luminescent plasmonic silver nanoparticles. **S. Sun**
- COLL 177.** Enhanced dispersion of cellulose nanocrystals for nanofibrillated cellulose nanocomposites. **W. Fang, E. Kontturi, M. Linder, P. Laaksonen**
- COLL 178.** Microscopy study of poly(3-hexylthiophene) films processed from binary mixtures of organic solvents. **M.P. Gordon, D.S. Boucher**
- COLL 179.** Distinct assembly and disassembly pathways of nanotube formed by drug amphiphile. **P. Zhang, A. Cheatham, H. Cui**
- COLL 180.** Investigation of bone growth onto titanium rods investigated with model cell membranes. **M. Gulley, A.G. Sostarecz**
- COLL 181.** Exploring the desolvation of BSA-ligand complexes using the quartz-crystal microbalance and dual polarization interferometer. **N. Stanton, J. Kang, C.R. Selassie, M.S. Johal**
- COLL 182.** Withdrawn.
- COLL 183.** Synthetic route for the growth of entirely I-III-VI semiconductor core/shell nanocrystals. **S.M. Hughes, F. Rowe, S. Dvorak**
- COLL 184.** Synthesis of micrometer-sized CdSe nanosheet via cation exchange. **P. Tongying, Y. Morozov, M. Zhukovskiy, M.K. Kuno**
- COLL 185.** Zein nanoparticles as superhydrophobic coatings: a simple and ecofriendly way to antiwetting textiles surfaces. **G. Li**
- COLL 186.** Laser-induced copper deposition from solution with the addition of non-ionic surfactants: Influence of hydrophilic properties. **S.V. Safonov, S. Araslanova, F. Sergey**
- COLL 187.** DFT study of the dissociative adsorption of chlorobenzene and 1,2-dichlorobenzene on Si(100). **E. Butson, N.F. Materer, Q. Zhu**
- COLL 188.** Ultrastrong epoxy nanocomposites containing self-assembled synthetic clay in smectic order. **P. Li, K. White, C. Lin, D. Kim, R. Krishnamoorti, A. Mullana, R. Nishimura, H. Sue**
- COLL 189.** Withdrawn.
- COLL 190.** Synthesis and characterization of homogeneous Zn₂Cu_xO solid-solutions. **D. Wilson, M.A. Langell**
- COLL 191.** Size- and shape-controlled synthesis of Gold nanoparticles using chitosan as a stabilizer. **L. Liu, J. Chaudhuri**
- COLL 192.** Influence of shelling temperature and time on the optical and structural properties of CuInS₂/ZnS quantum dots. **C. Robinson, C.D. Heyes**
- COLL 193.** Bright tunable photoluminescence in colloidal amorphous porous silicon nanostructures. **J. El Demellawi, S. Chaieb**
- COLL 194.** Topical delivery of lipophilic carbonic anhydrase inhibitors with liposomal formulations. **A. Shabana, S. Akocak, M.A. Liles**
- COLL 195.** Model system development for urban films and environmental adsorption. **J.S. Grant, S.K. Shaw**
- COLL 196.** Stretchable surface-chemical patterns. **J.J. Bowen, J.M. Taylor, S.A. Morin**
- COLL 197.** Oxidative decomposition of Au₂₅(SR)₁₈ clusters in a catalytic context. **T. Dreier, A. Wong, C.J. Ackerson**
- COLL 198.** Titania containing thin films for the detection of TATP and peroxide vapors. **N.F. Materer, T.H. James, C. Cannon, D.W. Scott, Z. Alotzman, A.W. Applett**
- COLL 199.** Synthesis of large-pore SBA-15 silica at room temperature. **T. Man, I. Stoyko, I. Nayshevsky, M. Kruk**
- COLL 200.** Surface reactions of gas-phase atomic radicals with alkanethiolate monolayers. **A. Gans, S.A. Kandel**
- COLL 201.** Stability and transport properties of magnetic nanoparticles under high temperature, high salinity aqueous conditions for oil reservoir imaging. **Y. Fei, S. Kong, E. Urena, E. Lin, V. Ngo, Y. Lu, C.J. Ellison, K.P. Johnston**
- COLL 202.** Layer-by-layer assembly of polyelectrolytes and different size and shape gold nanoparticles. **S.M. Budy, D. Hamilton, Y. Cai, M.K. Knowles, S.M. Reed**
- COLL 203.** Multivalued carbon nanotube incorporated "molecular fan" coatings for optimized thermal management applications. **T. Eyassu, T. Hsiao, K. Henderson, T. Kim, C. Lin**
- COLL 204.** Size dependence of gold nanoparticle interactions with a supported lipid bilayer: A QCM-D study. **C.M. Bailey, E. Kamaloo, K. Waterman, K. Wang, R. Nagarajan, T.A. Camesano**
- COLL 205.** Extreme-wettable nanomolecular layer. **H. Baik, S. Chae, Y. Kim**
- COLL 206.** Droplet size distributions of water-in-oil emulsions using low field NMR before and after gas hydrate formation. **A. Abdul Majid, M. Saidian, C.A. Koh**
- COLL 207.** Methane activation on ceria surfaces modified with metal nanoparticles. **M. Nolan, J. Carey, A. Van Veen**
- COLL 208.** Surface properties of hydrocolloid-stabilized magnetite Murrh capped nanoparticles. **A.M. Atta, H.A. Al-Lohedan**
- COLL 209.** Epoxy/clay nanocomposites containing clay layers in smectic long-range order. **M. Wong, P. Li, F. Lei, M. Miyamoto**
- Section B**
Colorado Convention Center
Hall B2
Interfacial Biomolecular Recognition
Cosponsored by BIOL \ddagger
Financially supported by Avanti Polar Lipids, Inc.
J. Ross, Organizer
B. E. Bowler, M. Kastantin, Organizers
- 6:00 - 8:00**
COLL 210. Isolation and investigation of distinct cytochrome c/cardiolipin interaction sites. **M. Elmer-Dixon, B.E. Bowler**
- COLL 211.** Role of lysine 72 in human cytochrome c alkaline conformational transition. **E.M. Nold, B.E. Bowler**
- COLL 212.** ¹⁹F Dendron probes for specific detection of enzyme activity. **H. Wang, K.R. Raghupathi, J. Zhuang, S. Thayumanavan**
- COLL 213.** Biomolecular patterning via chemical lift-off lithography. **H.H. Cao, W. Liao, N. Nakatsuka, S. Deshayes, A.M. Kasko, P.S. Weiss, A.M. Andrews**
- COLL 214.** Surface passivation and acidic conditions allow for the rapid synthesis of DNA-conjugated gold nanoparticles with high salt stability and DNA-binding specificity. **J. Deka, R. Mech, L. Ianeselli, H. Amenitsch, F. Cacho-Nerin, P. Parisee, L. Casalis**
- COLL 215.** Sialic acid decorated polymer@ goldNP as biofunctional hybrids: assembly, lectin and viral binding. **Z. Zhang, B. De Geest**
- COLL 216.** Using fluorescent-labeled nanodiscs to study lipid interactions with yeast Cytochrome C. **H.B. Steele, L. McClelland, K. Stipe, M.C. Terwilliger, B.E. Bowler, J. Ross**
- Section C**
Colorado Convention Center
Hall B2
Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion
Cosponsored by PRES
Financially supported by Sigma-Aldrich
S. Pan, J. Zheng, Organizers
- 6:00 - 8:00**
COLL 217. Plasmonic enhancement of dye-sensitized solar cells using SiO₂@AuNP thin films. **B.D. Clark, E.M. Spain**
- COLL 218.** Preparation of Fe(II)-impregnated granular activated carbon for arsenate removal from water. **H. Xu**
- Section D**
Colorado Convention Center
Hall B2
Plasmonic Catalysis and Sensing
C. Matranga, Organizer
E. Borguet, Organizer
- 6:00 - 8:00**
COLL 219. Enhanced photocurrent via plasmon excitation of ultrasmall PbS quantum dots on Au/TiO₂ electrode. **X. Li, K. Suzuki, T. Toda, S. Yasuda, K. Murakoshi**
- COLL 220.** Nucleation and growth of silver nanoparticles by AB and ABC-type atomic layer deposition. **S. Masango, R.P. Van Duyn, P.C. Stair**
- MONDAY MORNING**
- Section A**
Marriott City Center Denver
Colorado A/B
Molecular Engineering of Peptide Assembly
Financially supported by Institute for Molecular Engineering, University of Chicago
H. Cui, M. V. Tirrell, Organizers, Presiding
- 8:30** **COLL 221.** Supramolecular polypeptide structures assembled from folded, globular proteins. **W. Park, J. Champion**
- 9:00** **COLL 222.** Elastin-based amphiphilic copolymers as precision building blocks for controlled self-assembly. **E. Garanger, S. Mac Ewan, A. Chilkoti, S. Lecommandoux**
- 9:30** **COLL 223.** Growth factors engineered for super-affinity to the extracellular matrix enhance tissue healing. **P.S. Briquez, M.M. Martino, J.A. Hubbell**
- 10:00** Intermission.
- 10:15** **COLL 224.** Effect of surfaces in modulating peptide assembly. **J.E. Shea**
- 10:45** **COLL 225.** Materials with desired nanostructure through peptide design and solution assembly. **D.J. Pochan**
- 11:15** **COLL 226.** Fibrillar protein and peptide co-assemblies: Design and applications in medicine. **T. Sun, G. Hudalla, C. Mora Solano, J. Collier**
- Section B**
Marriott City Center Denver
Colorado I
Functionalization of Complex Nanosurfaces
Cosponsored by PRES
W. Parak, Organizer
L. Liz Marzan, Organizer, Presiding
- 8:30** **COLL 227.** Formation of protein coronas on gold nanorods stabilized by amphiphilic ligands. **K. Hamad-Schiffert**
- 9:00** **COLL 228.** Direct delivery of proteins and nucleic acids to the cytosol using nanoparticle-stabilized capsules. **V.M. Rotello**
- 9:30** **COLL 229.** In how far can we make nanoparticles mimic molecules? **Z. Nie, C. Yi, Y. Liu, J. He**
- 10:00** **COLL 230.** Hierarchical architectures from ordered electroactive small molecules. **N. Martin, C.M. Atienza, J. López, A. Insuasty, J. López-Andarias**
- 10:30** Intermission.
- 11:00** **COLL 231.** Modification of microgel surfaces with a self-assembling peptide. **K.C. Clarke, L.A. Lyon**
- 11:20** **COLL 232.** Probing the dynamic and structure of nanoparticle protein corona by using single molecule spectroscopy. **A.D. Indrasekara, S. Dominguez-Medina, L. Kiskey, C.F. Landes, S. Link**
- 11:40** **COLL 233.** Lipid coated gold nanoparticles as models of faceted and highly curved membranes. **D. Hamilton, S.M. Budy, S.M. Reed**
- 12:00** **COLL 234.** Role of ligands in the structure and properties of molecular silver nanoparticles and their assemblies. **T.P. Bigioni**
- Section C**
Marriott City Center Denver
Colorado C/D
Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion
Sensing, Electronics, & Photophysics
Cosponsored by PRES
Financially supported by Sigma-Aldrich
S. Pan, J. Zheng, Organizers, Presiding
- 8:30** **COLL 235.** Theranostic gold nanorods for synergistic cancer treatment. **Z. Gu**
- 9:00** **COLL 236.** Determining drug efficacy using plasmonically enhanced imaging of the morphological changes of cells upon death. **M. Aioub, L. Austin, M.A. El-Sayed**
- 9:30** **COLL 237.** Functional DNA nanotechnology and its applications in environmental sensing and live cell imaging. **Y. Lu, J. Zhang, L. Li, P. Wu, K. Hwang, H. Xing**
- 10:00** Intermission.
- 10:10** **COLL 238.** Role of the protein corona in mediating nanoparticle targeting. **W. Chan**
- 10:40** **COLL 239.** Prolonged hot electron dynamics in plasmonic-metal/semiconductor heterostructures with implications for solar photocatalysis. **W. Wei**
- 11:10** **COLL 240.** Enhanced light-matter interactions in nanoparticle arrays. **T.W. Odom**
- 11:40** **COLL 241.** Renal clearable metal nanoparticles for cancer imaging. **J. Zheng**
- Section D**
Marriott City Center Denver
Denver III
Biomembrane Synthesis, Structure, Mechanics, & Dynamics
Vesicles and Related Systems
S. Muralidharan, M. Nieh, A. N. Parikh, N. Srividya, Organizers
D. L. Daleke, Presiding
- 9:00** **COLL 242.** Functional reconstitution of integral membrane proteins in giant lipid vesicles by hydrogel swelling. **N. Malmstadt**
- 9:30** **COLL 243.** Membrane shape instabilities induced by BAR domain proteins. **T. Baumgart**
- 10:00** **COLL 244.** Nanoparticle-induced pore formation in lipid bilayers. **J. Schmidt**
- 10:30** Intermission.
- 10:40** **COLL 245.** Nanolipoprotein particles entrapped within nanoporous silica gel. **W. Zeno, S.H. Risbud, M.L. Longo**
- 11:10** **COLL 246.** Multiple faces of cholesterol in membrane fusion. **L.K. Tamm**
- 11:40** **COLL 247.** Designing biotinylated lipids for selective partitioning to liquid ordered phase. **D.Y. Sasaki, N. Momin, S. Lee, C. Hayden, J. Stachowiak, G.D. Bachand**

Section E

Marriott City Center Denver
Colorado G

Plasmonic Catalysis and Sensing

Cosponsored by PRES

C. Matranga, *Organizer*
E. Borguet, *Organizer, Presiding*

8:30 COLL **248**. Photoinduced dynamics at metallic and semiconducting nanoparticles: time-domain ab initio studies. O.V. Prezhdo

9:05 COLL **249**. Plasmons, hot electrons, and artificial photosynthesis. M. Moskovits

9:40 COLL **250**. Ligand effects on the aqueous plasmonic catalysis by alloyed gold-copper nanorods. S.V. Jenkins, J. Chen

10:00 Intermission.

10:15 COLL **251**. Surprisingly efficient plasmon-induced hot electron transfer and photochemistry in semiconductor-Au nanostructures. T. Lian

10:50 COLL **252**. Characteristics of reaction intermediates at plasmon-induced water oxidation processes. K. Suzuki, S. Yasuda, K. Murakoshi

11:25 COLL **253**. Surface-enhanced spectroscopies by rational nanoantenna design. N.J. Halas

Section F

Marriott City Center Denver
Colorado H

Particles at Fluid Interfaces

Cosponsored by PRES

M. A. Bevan, J. Frechette, *Organizers*
N. Wu, *Presiding*

8:30 COLL **254**. Synthesis of hybrid dumbbells with combined compositional and interfacial asymmetries. S. Wang, N. Wu

8:50 COLL **255**. Synthesis and characterization of chemically and physically bonded Janus particles. L.M. Hernandez, S. Razavi, I. Kretzschmar, W.L. Vargas

9:10 COLL **256**. Salt-induced detachment of non-touching colloidal particles from oil-water interfaces. N. Elbers, J. van der Hoeven, A. van Blaaderen

9:30 COLL **257**. Direct view of the nanobio interface. F. Geiger

9:50 COLL **258**. Carbon dioxide-in-water foams stabilized with interfacially active nanoparticles and surfactants. A.J. Worthen, P.S. Parikh, T.R. Dickey, D.A. DiCarlo, M. Prodanovic, S.L. Bryant, C. Huh, K.P. Johnston

10:10 COLL **259**. Studying the molecular orientation and behavior of ionic liquid films at solid-liquid interface. R.S. Anaredy, S.K. Shaw

10:30 COLL **260**. Interactions and ordering of soft microgels at oil-water interfaces. W. Richtering

10:50 COLL **261**. Synthesis of monodisperse, colloidal microcapsules, and their use in controlled encapsulation and release studies. N. Elbers, J. Jose, A. Imhof, A. van Blaaderen

11:10 COLL **262**. Nanoparticle induced charge redistribution of the air-water interface and its role in regulating nanoparticle spatial distributions. M.A. Brown

11:30 COLL **263**. Inverted pendant drop set-up for X-ray absorption spectroscopy of electrolyte solutions and their surfaces. M.K. Bera, M.R. Antonio

Section G

Marriott City Center Denver
Colorado F

ACS Award in Colloid and Surface Chemistry: Symposium in Honor of Paul S. Weiss

N. Kotov, *Organizer, Presiding*

9:00 COLL **264**. Plasmonic gold nanoparticles in the cancer cell: Following cell cycle, cell death, drug delivery dynamics and efficacy. M.A. El-Sayed

9:40 COLL **265**. Chemically modified 2D nano-electronic heterostructures. M. Hersam

10:20 COLL **266**. Surface chemistry and interface engineering for high performance perovskite solar cells. A.K. Jen

11:00 COLL **267**. Adaptive wavelet approach for signal/image processing. J. Gilles

WCC Rising Stars Awards Symposium

Sponsored by WCC, Cosponsored by BIOT, COLL, GEOC, INOR, ORGN, PHYS, PMSE and PROF

Chemical Processes at Environmental Interfaces**Chemistry at Aqueous/Mineral(Solid) Interfaces**

Sponsored by ENVR, Cosponsored by COLL

MONDAY AFTERNOON**Section A**

Marriott City Center Denver
Colorado A/B

Molecular Engineering of Peptide Assembly

Financially supported by Institute for Molecular Engineering, University of Chicago

H. Cui, M. V. Tirrell, *Organizers, Presiding*

2:00 COLL **268**. Periodically sequenced peptides: A new tool for nanoscale materials synthesis. M. Kubillus, R.S. Tu

2:30 COLL **269**. Design of 3-helix micelles as viable nanocarriers. T. Xu

3:00 COLL **270**. Molecular design of peptide nucleic acid amphiphiles as self-assembled probes for electrophoretic miRNA detection. J.W. Schneider, B.A. Armitage, D.H. Ly, J.M. Goldman

3:30 Intermission.

3:45 COLL **271**. Multistimuli responsive polypeptides and stimuli responsive hydrogels. T.J. Deming

4:15 COLL **272**. Molecular engineering of peptide and protein therapeutics. M.J. Webber, D.G. Anderson, R. Langer, S.I. Stupp

4:35 COLL **273**. Biomimetic silica formation probed at the molecular level using SFG spectroscopy and MD simulation. H. Lutz, J. Baio, V. Jaeger, A. Roehrich, J. Pfleandtner, G. Drobny, T. Weidner

4:55 COLL **274**. Engineering mitochondria-penetrating peptides. S.O. Kelley

Section B

Marriott City Center Denver
Colorado I

Functionalization of Complex Nanosurfaces

Cosponsored by PRES

L. Liz Marzan, *Organizer*
W. Parak, *Organizer, Presiding*

2:00 COLL **275**. Charge shuttling across membranes by functionalized gold nanoparticles. M. Brust

2:30 COLL **276**. Hyaluronic acid-modified Fe₃O₄@Au core/shell nanostars for multimodal imaging and photothermal therapy of tumors. J. Li, Y. Hu, J. Yang, P. Wei, W. Sun, M. Shen, G. Zhang, X. Shi

2:50 COLL **277**. Nanostructured gold model catalysts on thin film substrates. W.C. McKee, M. Patterson, D. Huang, L. Liu, R. Kurtz, P. Sprunger, Y. Xu

3:10 COLL **278**. Nonwettability, oxidation stable, brightly-luminescent silicon nanocrystal film. C. Qian, W. Sun, G.A. Ozin

3:30 COLL **279**. Enzyme multilayer coatings prevent bacterial biofilm formation on urinary catheters. K. Ivanova, M. Fernandes, A. Francesko, T. Tzanov

3:50 Intermission.

4:20 COLL **280**. Chemical and structural transformations in colloidal inorganic nanocrystals. L. Manna

4:50 COLL **281**. Dithiocarbamate-anchored ligands on smooth and nanostructured gold surfaces. A. Wei

5:20 COLL **282**. Mesoporous membranes, zwitterionic monomers, and iniferter-initiated polymerization: Where does the polymerization proceed? L. Sillies, H. Ditzoleit, C. Hess, B. Stühn, A. Brunsten

Section C

Marriott City Center Denver
Colorado C/D

Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion**Spectroelectrochemistry, Imaging, & Surface**

Cosponsored by PRES

Financially supported by Sigma-Aldrich

J. Zheng, *Organizer*
S. Pan, *Organizer, Presiding*
W. Wei, *Presiding*

2:00 COLL **283**. Spectroelectrochemistry and electrochemiluminescence of mixed-thiolate protected Au130 clusters. G. Wang, D. Wang, J. Padelford, T. Ahuja, T. Wang

2:30 COLL **284**. Imaging nanoscale energy transfer at the limits of temporal resolution and spatial accuracy. K.L. Knappenberger, J.W. Jarrett, S. Biswas, X. Lui, P.F. Nealey, R. Vaia

3:00 COLL **285**. Tailoring optical and plasmon resonances in core-shell and core-multishell nanowires for plasmonic light harvesting. C. Yang

3:30 Intermission.

3:40 COLL **286**. Single-particle photoelectrocatalysis. P. Chen

4:10 COLL **287**. Aqueous growth of fluorescence-tunable gold nanoclusters capped with lipoic acid-polyethylene glycol ligands. D. Mishra, F. Aldeek, G. Palui, H.M. Mattoussi

4:40 COLL **288**. Vivid, full-color plasmonic pixels. S. Link

Section D

Marriott City Center Denver
Denver III

Biomembrane Synthesis, Structure, Mechanics, & Dynamics**Dynamics**

S. Muralidharan, M. Nieh, A. N. Parikh, N. Sridivya, *Organizers*
D. Y. Sasaki, *Presiding*

2:00 COLL **289**. Substrate specificity of the plasma membrane phosphatidylinositol flippase. D.L. Daleke

2:30 COLL **290**. Anionic phospholipid asymmetry and translocation in lipid membranes. J.C. Conboy

3:00 Intermission.

3:10 COLL **291**. Infrared study of membranes and membrane proteins. F. Gai

3:40 COLL **292**. Molecular transport through living cell membranes: Effects of molecular structure, membrane structure, and electrolyte composition. H. Dai

4:10 COLL **293**. Molecular interactions at model cell membranes. Z. Chen

Section E

Marriott City Center Denver
Colorado G

Plasmonic Catalysis and Sensing

Cosponsored by PRES

E. Borguet, *Organizer*
C. Matranga, *Organizer, Presiding*

2:00 COLL **294**. Plasmonic hetero-oligomer nanoparticle arrays for hydrogen sensing. T.W. Odom

2:35 COLL **295**. Optical gas sensors based on localized surface plasmon resonance. A. Martucci

3:10 COLL **296**. Localized surface plasmon resonance (LSPR) optical detection of hydrogen. D. Sil, K.D. Gilroy, S. Syla, S. Neretina, E. Borguet

3:30 Intermission.

3:45 COLL **297**. Thermal energy harvesting plasmonic based chemical sensors.

M. Carpenter, N. Karker, G. Dharmalingam

4:20 COLL **298**. Plasmonic spectroscopy and photochemistry on highly damping platinum group metals. K. Ikeda

4:55 COLL **299**. Nanocomposite fiber optic pH sensor for high temperature applications. C. Wang, P. Ohodnicki, X. Su

Section F

Marriott City Center Denver
Colorado H

Advances in Formulations Science & Technology

Cosponsored by PRES

R. Y. Lochhead, *Organizer, Presiding*

2:00 COLL **300**. Advances in targeted multifunctional inhalation aerosols with nanotechnology and solid-state particle engineering design. H.M. Mansour

2:30 COLL **301**. Effects of formulation on the affinity of an SPD peptide fragment toward hair keratin: Experimental and molecular dynamics data. A. Cavaco-Paulo

3:00 COLL **302**. Design of thermal gelling polymer formulations for spray applications. J.L. Curtis-Fisk, M. Knarr, R. Adden, S.L. Jordan, T. Rogers

3:30 COLL **303**. Novel parameter to replace HLB. K. Sakamoto

4:00 COLL **304**. Watching paint age. M.H. Keefe, M. Linsen, M. Clark, J. Calderaio, J. Refiner

Section G

Marriott City Center Denver
Colorado F

ACS Award in Colloid and Surface Chemistry: Symposium in Honor of Paul S. Weiss

N. Kotov, *Organizer*

Y. Zheng, *Presiding*

2:00 COLL **305**. Development of multifunctional nano carrier platforms for cancer treatment. A. Nel

2:30 COLL **306**. Enabling biomolecule selection by small molecule-functionalized substrates: A decade of collaborative progress. A.M. Andrews, H. Cao, N. Nakatsuka, S. Deshayes, A. Vaish, M.J. Shuster, L.S. Slaughter, W. Liao, A.M. Kasko, P.S. Weiss

3:00 COLL **307**. Nanoparticle-mediated sorting of circulating tumor cell subpopulations. S.O. Kelley

3:30 COLL **308**. Graphene integration by molecular assembly. P. Han, K. Akagi, F. Federici Canova, H. Mutoh, S. Shiraki, K. Iwaya, P.S. Weiss, N. Asao, T. Hotsugi

4:00 COLL **309**. Reactions and functionalizations of graphene and surfaces. K.N. Houk

WCC Rising Stars Awards Symposium

Sponsored by WCC, Cosponsored by BIOT, COLL, GEOC, INOR, ORGN, PHYS, PMSE and PROF

MONDAY EVENING**Section A**

Colorado Convention Center
Halls C/D

Sci-Mix

R. Nagarajan, *Organizer*

8:00 - 10:00

8, 26, 53, 64, 74-75, 78, 82, 106, 119, 164, 174-175, 191, 212, 220, 232-233, 243, 262, 269, 272-273, 302-303. See previous listings.

310- 311, 322, 341, 351, 365, 367, 378, 380-382, 390, 400, 411, 413, 419, 423, 430, 434, 437, 455, 458, 465, 468-469, 492, 502-503, 518, 521, 523-524, 535, 545-546, 549-550. See previous listings.

TUESDAY MORNING

Section A

Marriott City Center Denver
Colorado A/B

Molecular Engineering of Peptide Assembly

Financially supported by Institute for Molecular Engineering, University of Chicago

H. Cui, M. V. Tirrell, *Organizers, Presiding*

8:30 COLL 311. Protein analogous micelles: Versatile, modular nanoparticles. M.V. Tirrell

9:00 COLL 312. Enzymatic transformation and self-assembly of peptides for future cancer therapy. B. Xu, J. Zhou, X. Du, J. Shi, Y. Kuang

9:30 COLL 313. Designability of peptide-based materials. V.P. Conticello

10:00 Intermission.

10:15 COLL 314. Tumor-penetrating peptides in the targeting of drugs and theranostic nanoparticles. E. Ruoslahti

10:45 COLL 315. Peptide-guided drug assembly. H. Cui

11:15 COLL 316. Engineering underwater adhesives: Leveraging cation- π interactions to govern peptide cohesion. M.A. Gebbie, W. Wei, A.M. Schrader, T.R. Cristiani, J. Waite, J.N. Israelachvili

11:35 COLL 317. Peptide-polymer amphiphiles as programmable synthons for biologically-responsive nanomaterials. N.C. Gianneschi

Section B

Marriott City Center Denver
Colorado I

Functionalization of Complex Nanosurfaces

Cosponsored by PRES

L. Liz Marzan, *Organizer*

W. Parak, *Organizer, Presiding*

8:30 COLL 318. Interaction of colloidal nanoparticles with mammalian cells: Correlation of uptake and toxicity with physicochemical properties, such as surface coating. N. Feliu, S. Ashraf, C. Carrillo-Carrion, P. del Pino, B. Pelaz, W. Parak

8:50 COLL 319. Impact of gold nanoparticles on cells: PEGylation's type matters. P. del Pino, W. Parak

9:20 COLL 320. Silanization of layer-by-layer assemblies: Mechanisms and application for the fabrication of superhydrophobic surfaces. A. Dirani, A. Fernandes, P. Lipnik, C. Poleunis, B. Nysten, K. Gilnel, A.M. Jonas

9:40 COLL 321. Verification of anti-icing/icephobic properties of different chemical modified superhydrophobic surfaces. Y. Wang, Q. Wang, Q. Chen

10:00 Intermission.

10:30 COLL 322. Super-high resolution of control assembled fluorescent-TMV using microlens. R. Balaraman, C. Zhou, P. Kohli

10:50 COLL 323. Surface-enhanced Raman scattering nanoparticles as optical labels for imaging cell surface proteins. G.C. Walker, C. MacLauglin

11:20 COLL 324. Surface modification of inorganic nanoparticles for biomedical applications. B. Pelaz, M.G. Soliman, P. del Pino, W. Parak

11:40 COLL 325. Engineering the optical properties of gold nanoparticles by assembling into highly packed 2D arrays of different structure. M.A. Mahmoud

12:00 COLL 326. Protein resistant nanoparticle surfaces designed for the assembly of biodegradable plasmonic gold nanoclusters. R. Stover, A.K. Murthy, S.P. Gourisankar, M. Martinez, A. Issac, T. Truskett, K. Sokolov, K.P. Johnston

Section C

Marriott City Center Denver
Colorado C/D

Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion

Biosensing, Energy Conversion & Catalysts

Cosponsored by PRES

Financially supported by Sigma-Aldrich

J. Zheng, *Organizer*

S. Pan, *Organizer, Presiding*

C. Yang, *Presiding*

8:30 COLL 327. Metallic nanocomposites of carbon nanotube and their bioconjugates: effective antimicrobials? A. Chaudhari, S. Singh, S. Pillai

9:00 COLL 328. Au/CdS plasmonic photocatalytic nanostructures constructed using P22 virus-like particles for enhanced photoactivity. A. Gupta, Z. Zhou, S. Palchoudhury, G. Bedwell, R. Li, P.E. Prevelige

9:30 COLL 329. Scalable metal-semiconductor nanostructure integration for multimode gas sensing at high temperature. P. Gao

10:00 Intermission.

10:10 COLL 330. Plasmonic enhancement characteristics of multilayered metallic nanostructures. D.D. Evanoff, E.R. Butcher, J.P. Cook

10:40 COLL 331. Exotic Au nanostructures: structure solution, properties, and applications. Y. Han

11:10 COLL 332. Ultrasensitive detection using SERS and SEHRS: From nonlinear optical properties to nuclear forensics. J.P. Camden

Section D

Marriott City Center Denver
Denver III

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

Structure and Interactions

S. Muralidharan, M. Nieh, A. N. Parikh, N. Srividya, *Organizers*
F. Gai, *Presiding*

9:00 COLL 333. Conformation and dynamics of endogenous cannabinoid ligand 2-AG in a lipid matrix and its interaction with cannabinoid type II receptor. T. Kimura, M. Mihailescu, D.L. Lynch, P.H. Reggio, A.A. Yeliseev, K. Gawrisch

9:30 COLL 334. Studying the mechanism of coiled coil mediated membrane fusion. A. Kros

10:00 COLL 335. Exploring the interactions of ions with supported lipid membranes. P.S. Cremer

10:30 Intermission.

10:40 COLL 336. Dynamic reorganization and correlation among lipid raft components probed by imaging mass spectrometry. S.G. Boxer

11:10 COLL 337. Functionalized lipid-nucleic acid nanoparticles for delivery applications. C.R. Safinya, R.N. Majzoub, K.K. Ewert

11:40 COLL 338. Nanometric gap structure between substrate-supported model membrane and silicone elastomer. K. Morigaki

Section E

Marriott City Center Denver
Colorado G

Plasmonic Catalysis and Sensing

Cosponsored by PRES

C. Matranga, *Organizer*

E. Borguet, *Organizer, Presiding*

8:30 COLL 339. Super-resolution imaging of plasmonic nanostructures. K.A. Willets

9:05 COLL 340. Plasmonic efficiency enhancement for up-hill photocurrent generation at gold electrode modified with self-assembled monolayer. K. Uosaki, K. Ikeda

9:40 COLL 341. Localized surface plasmon (LSPR) based optical detection of ions in aqueous solution. D. Sil, K. Gilroy, C. Murphy, S. Sylla, R.A. Hughes, S. Neretina, E. Borguet

10:00 Intermission.

10:15 COLL 342. Nanogap plasmonic structures for Raman studies of single molecules and heating. D. Natelson, Y. Li, P. Zolotavin

10:50 COLL 343. Ultrabright luminescent metallic nanoparticles. H. Dai

11:25 COLL 344. Hybrid core-shell and coupled nanostructures: Design and applications. S. Hunyadi Murph

Section F

Marriott City Center Denver
Colorado I/J

Interfacial Biomolecular Recognition

Cosponsored by BIOL \ddagger

Financially supported by Avanti Polar Lipids, Inc.

J. Ross, *Organizer*

B. E. Bowler, M. Kastantin, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 345. Nanoparticle assembly and gelatin binding mediated by collagen mimetic peptide hybridization. S. Yu

9:05 COLL 346. Supercritical angle fluorescence (SAF) microscopy with nanometer resolution investigating the interaction and aggregation of proteins at lipid bilayer. S. Seeger

9:35 COLL 347. Fibrinonection conformation and integrin binding on crowded surfaces. M. Kastantin, N. Grover, D.F. Marruecos, D.K. Schwartz, J. Kaar

10:05 Intermission.

10:20 COLL 348. Docking model of synaptotagmin 7 C2A via electron paramagnetic resonance. A. Boo, J.R. Osterberg, F. Maynard, N.L. Chon, H. Lin, J. Knight

10:45 COLL 349. Lateral diffusion of synaptotagmin 1 and 7 on supported lipid bilayers: Assessing the frictional additivity of C2A-C2B tandem domains. D.T. Giardina, J. Vasquez, J.D. Knight

11:10 COLL 350. Molecular dynamics simulations of PEGylated dendron-based micelles adsorption on biological membranes. S. Sen, P. Kral

11:35 COLL 351. Xanthan/magnetite scaffolds for neuronal adhesion, proliferation and differentiation of embryonic stem cells. D. Petri, T. Glaser, V. Bueno, H. Ulrich

Section G

Marriott City Center Denver
Colorado F

ACS Award in Colloid and Surface Chemistry: Symposium in Honor of Paul S. Weiss

N. Kotov, *Organizer*

A. K. Jen, *Presiding*

9:00 COLL 352. Programmable atom

equivalents from nucleic-acid modified nanostructures: constructing a new "Table of Elements". C.A. Mirkin

9:40 COLL 353. Colloidal nanocrystal building blocks for large-area optical metamaterials. C.R. Kagan, A.T. Fafarman, S. Hong, W. Chen, X. Ye, T. Paik, H. Caglayan, C.B. Murray, N. Engheta

10:20 COLL 354. Surface chemistry of DNA at the single molecule level: Plenty of room at the bottom? T. Ye

10:50 COLL 355. Molecular photonics for materials science, energy and healthcare. Y. Zheng

Molecular-Scale Processes Controlling Reactivity at Mineral-Water Interfaces

Sponsored by GEOC, Cosponsored by COLL

TUESDAY AFTERNOON

Section G

Marriott City Center Denver
Colorado F

ACS Award in Colloid and Surface Chemistry: Symposium in Honor of Paul S. Weiss

N. Kotov, *Organizer*

M. Hersam, *Presiding*

2:00 COLL 356. Surface chemistry in solar energy harvesting materials. E. Sargent

2:40 COLL 357. Anomalous nanocolloids defying the likes dissolves likes rule. N. Kotov, J. Bang, B. Yeom

3:10 COLL 358. Dimensional control of chemical interfaces using polymerizable amphiphiles. S.A. Claridge

3:40 COLL 359. Award Address (ACS Award in Colloid and Surface Chemistry sponsored by Colgate-Palmolive Company). Assembly and measurements of isolated and coupled functional molecules. P.S. Weiss

Molecular-Scale Processes Controlling Reactivity at Mineral-Water Interfaces

Sponsored by GEOC, Cosponsored by COLL

WEDNESDAY MORNING

Section A

Marriott City Center Denver
Colorado A

Natural Resource Capture, Storage & Energy Conversion

Theory, Synthesis, Hybrid/Soft Materials, Catalysts, MOFs and Related Application (TSHSCMA)

S. Bashir, *Organizer*

J. Liu, *Organizer, Presiding*

J. Uddin, *Presiding*

8:30 COLL 360. Light-activated multicomponent materials for tandem catalysis. M.R. Knecht, E.M. Zahran, M.A. Nguyen, N. Bedford, Y. Chang, B.S. Gupton, R.R. Naik, L. Bachas

9:00 COLL 361. Zn-MOFs with pyridine-based organic linkers and their carburized, N-doped carbons analogues as CO₂ capture adsorbents. J. Kim, A.G. Oliver, G.T. Neumann, J.C. Hicks

9:25 COLL 362. Synthesis of VTMS(X)-HMS-3 mesoporous ordered silica for hydrogen storage. Y. Mao, D. Owens, A. Han, L. Sun

9:50 COLL 363. Insights in sol-gel matrix diffusion methodology in the synthesis of soft materials from second group (Ca²⁺, Ba²⁺, Mg²⁺) earth alkaline metals. T. Chavez-Gil

10:15 COLL 364. Synthesis of Pt-based catalysts for DMFCs by microfluidic reactors. D. Zhang, F. Wu, X. Wang, D. Xia, J.L. Liu, G. Guo

10:40 COLL 365. Design of polymeric solid acid catalyst for efficient biofuel production. X. Sun, X. Qian

11:05 COLL 366. Metal-organic frameworks for on-board storage of hydrogen and natural gas. J.A. Mason, E.D. Bloch, M.T. Kapelowski, M.K. Taylor, J. Oktawiec, K. Sumida, M.I. Gonzalez, D. Gygi, W. Queen, J.R. Long

11:30 COLL 367. Detecting biomolecular interactions and photodynamics in solution by suppression of Brownian motion. W.E. Moerner, Q. Wang, G. Schlu-Cohen, H. Yang

Section B

Marriott City Center Denver
Colorado I/J

Interfacial Biomolecular Recognition

Cosponsored by BIOL \ddagger

Financially supported by Avanti Polar Lipids, Inc.

J. Ross, *Organizer*

B. E. Bowler, M. Kastantin, *Organizers, Presiding*

8:30 COLL 367. Detecting biomolecular interactions and photodynamics in solution by suppression of Brownian motion. W.E. Moerner, Q. Wang, G. Schlu-Cohen, H. Yang

9:00 COLL **368**. Super-resolution imaging and reaction mapping of P450 3A4 and P450 reductase in heterogeneous biomimetics: Starry night. **J.A. Brozik**, S.C. Humphreys, C. Barnaba, A.O. Barden, J.P. Jones

9:30 COLL **369**. Stimuli-responsive chymotrypsin conjugates synthesized using polymer-based protein engineering. **C.S. Cummings**, H. Murata, A.J. Russell

10:00 Intermission.

10:15 COLL **370**. Cytochrome c: An electrostatically bound peripheral membrane protein. **P.K. Kinnunen**

10:45 COLL **371**. Interfacial exposure, recognition, and signaling by mitochondrial cardiolipins. **V. Kagan**

11:15 COLL **372**. Conformational diversity of cytochrome c on cardiolipin containing liposomes probed by fluorescence and circular dichroism spectroscopy. **R. Schweitzer-Stenner**, L.A. Pandiscia, L. Serpas, D. Malyskha

Section C

Marriott City Center Denver
Colorado C/D

Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion

Biosensing, Catalysts, & Electrochemistry

Cosponsored by PRES

Financially supported by Sigma-Aldrich

S. Pan, Organizer

J. Zheng, Organizer, Presiding

B. Nelson, Presiding

8:30 COLL **373**. Template free fabrication of vertically aligned Ag nanorods for surface plasmon enhanced photocatalytic reactions and Raman spectroscopy. **J. Wang**, S. Pan

8:50 COLL **374**. Copper plasmonics and catalysis: Role of electron-phonon interactions in dephasing localized surface plasmon. **Q. Sun**, Y. Ding, S.M. Goodman, H.H. Funke, P. Nagpal

9:10 COLL **375**. Electrodeposited alloy thin films for catalysis applications. **M. Gira**, M. Milliken, K. Tkacz, **J.R. Hampton**

9:30 COLL **376**. Block copolymer template-directed synthesis of mono- and bimetallic nanoparticle catalysts. **D.A. Rider**, K. Mikkelsen, A. Taylor, D.S. Perez

9:50 Intermission.

10:00 COLL **377**. Rational design of nanocatalysts for oxygen reduction reaction. **S. Guo**

10:20 COLL **378**. Tunable plasmonic nanoparticles for enhancing photocatalytic reactions. **C. Li**, T. Lee, T. Lee

10:40 COLL **379**. Enhanced photocatalytic activities of chemical vapor deposited hematite films for solar water splitting by Au NPs in embedded configuration. **A. Panikar**, N. Pachauri, Z. Shan, S. Pan, A. Gupta

11:00 COLL **380**. Electrochemical investigation of nanoparticles modified glassy carbon electrode and its application for ketoconazole determination. **M. Alshalafeh**, K. Alqaad, **T.A. Saleh**

Section D

Marriott City Center Denver
Denver III

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

Structure and Modeling

S. Muralidharan, A. N. Parikh, N. Srividya, Organizers

M. Nieh, Organizer, Presiding

9:00 COLL **381**. Biomembrane structure using neutron scattering and molecular labeling. **J.D. Nickels**, S. Chatterjee, J.G. Elkins, F.A. Heberle, R.F. Standaert, D.A. Myles, **J. Katsaras**

9:30 COLL **382**. Experiment and simulation reveal the bending properties of nanoscopic lipid domains. **J. Nickels**, M. Ohl, X. Cheng, F. Heberle, C.B. Stanley, M. Feygenson, J. Neuefeind, P. Zolnierczuk, B. Mostofian, B. Linder, R.F. Standaert, J. Katsaras

10:00 COLL **383**. Shear flow-induced de-registration of compositional domains in supported lipid bilayer membranes. **M. Haataja**

10:30 Intermission.

10:40 COLL **384**. Determination of membrane bending moduli from fully atomistic simulations. **F.L. Brown**

11:10 COLL **385**. Nanoscale structure of sphingolipid containing liquid-ordered phases. **E. Lyman**, A. Sodt, R. Pastor

11:40 COLL **386**. Withdrawn.

Section E

Marriott City Center Denver
Colorado G

Plasmonic Catalysis and Sensing

Cosponsored by PRES

E. Borguet, Organizer

C. Matraga, Organizer, Presiding

8:30 COLL **387**. Enhancing catalytic efficiency of hollow palladium nanoparticles by photothermal heating of added gold nanoparticles to their cavity: palladium-gold nanorattles. **M.A. Mahmoud**, M.A. El-Sayed

9:05 COLL **388**. Plasmon resonant enhancement of photocatalytic processes. **S. Cronin**, J. Qiu, G. Zeng

9:40 COLL **389**. Visible-light, plasmonic, heating for catalytic CO₂ conversion applications. **C. Matraga**

10:00 Intermission.

10:15 COLL **390**. Photochemical reactions on plasmonic metal nanostructures. **S. Lincic**

10:50 COLL **391**. Active control of surface chemistry on plasmonic nanomaterials. **C.F. Landes**

11:25 COLL **392**. Plasmon-driven CO oxidation in Au-SrTiO₃ nanostructures at room temperature. **B.C. Sweeny**, K. Qian, J.S. DuChene, J. Qiu, A.C. Johnston-Peck, D. Su, E.A. Stach, W.D. Wei

Section F

Marriott City Center Denver
Colorado H

Elucidation of Mechanisms & Kinetics on Surfaces

Cosponsored by CATL and ENVR

A. Savara, Organizer, Presiding

9:00 Introductory Remarks.

9:10 COLL **393**. Elucidation of reaction mechanisms in complex catalytic networks. **T. Bligaard**

9:30 COLL **394**. Isolated metal active site concentration controls catalytic CO₂ reduction selectivity. **J. Matsubu**, P. Christopher, V. Yang

9:50 COLL **395**. Mechanism and kinetics of surface limitations in MF1 ezolite catalysts. **A.R. Teixeira**, C. Chang, W. Conner, W. Fan, **P.J. Dauenhauer**

10:10 Discussion.

10:20 COLL **396**. Hydrogenation of butadiene on Pt in realistic hydrogen pressure: mechanistic insights from DFT. **P. Sautet**, S. Gautier

10:40 COLL **397**. Kinetics and mechanisms of oxidation reactions on metal oxide surfaces. **S.L. Scott**, D.H. Collier

11:00 COLL **398**. Differences in the reaction mechanisms of hydrodeoxygenation (HDO) of m-cresol on platinum and ruthenium catalysts. **D.E. Resasco**, Q. Tan, G. Wang, L. Nie

11:20 COLL **399**. Theoretical studies of oxygenates derivatives by metallic heterogeneous catalysts. A micro-solvation approach. **C. Michel**, P. Sautet

11:40 Discussion.

11:50 COLL **400**. Thermodynamics and kinetics of oxygen induced chain-like reconstructions on the Pt(111) surface. **L. Herder**, W.F. Schneider

12:10 COLL **401**. Adsorbate-adsorbate interaction model for microkinetic trend studies and catalyst screening. **B. Yang**, T. Khan, Y. Xu, A. Lausche, J.K. Norskov, T. Bligaard

12:30 Discussion.

Section G

Marriott City Center Denver
Colorado B

Basic Research in Colloids, Surfactants & Nanomaterials

Amphiphilic Systems

Cosponsored by PRES

R. Nagarajan, Organizer, Presiding

8:30 COLL **402**. Long chain alkylimidazole switchable surfactants. **W. Qiao**, M. Chai

8:50 COLL **403**. Interfacial characterization of chemically modified sphorolipid derivatives. **A. Koh**, R.A. Gross

9:10 COLL **404**. Bilayer self-assembly from single-chain amphiphiles during the origins of life. **S.E. Maurer**

9:30 COLL **405**. Monitoring the effect of surfactant type and process condition on sebum removal from CNF/PET surfaces in an aqueous solution using QCM/SPR technique. **A.H.M. Tayeb**, O.J. Rojas, C.L. Salas, K. Ghosh, M.A. Qudus

9:50 COLL **406**. Study of surfactant influence on the low-pH stability of polyolefin dispersions. **Q. Wan**, M. Crimmins, S.L. Jordan, R. Yan, M. Hus

10:10 COLL **407**. Solutes stabilized by brush amphiphiles: A study of solutes induced morphological transitions of brush amphiphile micelles. **H. Luo**, M. Herrera-Alonso

10:30 COLL **408**. Aqueous delivery of π-π conjugated polymer solutions through a network formed by a fungal Janus-like surfactant. **C. Rosu**, N. Kleinheinz, D. Choi, P.S. Russo, E. Reichmanis

10:50 COLL **409**. Self-assembly of novel fluoro-surfactants with polyoxometalates (POMs) as polar component in acetonitrile/water solution. **B. Zhang**

11:10 COLL **410**. Characterization of a chelating surfactant: Solution behavior and application prospects in ion flotation. **I. Svanelid**, **M. Norgren**, E. Edlund

11:30 COLL **411**. Properties of novel bio-inspired glycolipid surfactants: Tailoring function by disaccharide headgroup and alkyl tail length. **L. Kegel**, L. Szabo, R. Polt, **J.E. Pemberton**

11:50 COLL **412**. CO₂-reactive surfactant ionic liquids for reversible control of colloidal morphology and DNA compaction. **P. Brown**, T. Hattton

Molecular-Scale Processes Controlling Reactivity at Mineral-Water Interfaces

Sponsored by GEOC, Cosponsored by COLL

WEDNESDAY AFTERNOON

Section A

Marriott City Center Denver
Colorado A

Natural Resource Capture, Storage & Energy Conversion

Theory, Synthesis, Hybrid/Soft Materials, Catalysts, MOFs and Related Application (TSHSCMA)

J. Liu, Organizer

S. Bashir, Organizer, Presiding

X. Wang, Presiding

2:00 COLL **413**. Vapor-assisted crystallization synthesis of a microporous (Ti) MIL-125 exhibiting significant mesoporosity. **N.D. McNamara**, J.C. Hicks

2:30 COLL **414**. Synthesis and electromagnetic absorption properties of core-multishell MWCNT/Fe₃O₄/PANI/Au hybrids. **Y. Xu**, C. Liu, Z. Wang

2:55 COLL **415**. Computational discovery of metal-organic frameworks gas capture and storage. **D. Siegel**

3:20 COLL **416**. Enhancement of optical absorptions in oxide nanostructures: Insight from a TDDFT study. **M. Huda**

3:45 COLL **417**. Selective reduction of CO₂ to formate by a homogeneous Iron electrocatalyst in water between pH 5 and 13. **L.A. Berben**, A. Taheri

4:10 COLL **418**. Nanoparticles and nanomaterials for electrochemical conversion of oxygen and carbon dioxide. **A.A. Gewirth**, C. Tse, T. Hoang, K.G. Schmitt

4:35 COLL **419**. Optical response of molecule — semiconducting nanoparticle hybrids. **A. Keller**, V. Mujica

Section B

Marriott City Center Denver
Colorado H

Interfacial Biomolecular Recognition

Cosponsored by BIOL†

Financially supported by Avanti Polar Lipids, Inc.

J. Ross, Organizer

B. E. Bowler, M. Kastantin, Organizers, Presiding

2:00 COLL **420**. Cytochrome c unfolding at cardiolipin-rich membrane surfaces. **E.V. Pletneva**

2:30 COLL **421**. Conformational dynamics of cytochrome c related to peroxidase activity during apoptosis. **L. McClelland**, S. Bandi, T. Mou, S.R. Sprang, **B.E. Bowler**

3:00 COLL **422**. Artificial virus nanoparticles to control cellular processes at the virus-host interface. **B.M. Reinhard**, X. Yu, S. Gummuluru

3:25 Intermission.

3:40 COLL **423**. Tracking amyloids with fluorescent oligo(p-phenyleneethynylene) electrolytes. **P. Donabedian**, T. Pham, D.G. Whitten, E.Y. Chi

4:05 COLL **424**. Super-resolving the dynamics of a membrane-bound virulence regulator in *Vibrio cholerae*. **J.S. Biteen**

4:35 COLL **425**. Proximity energies and their consequences in living systems. **T. Laue**

5:05 COLL **426**. Molecular basis of high-affinity membrane binding by the C2A domain of granuphilin. **A. Watson-Siriboe**, T. Lyakhova, **J. Knight**

Section C

Marriott City Center Denver
Colorado C/D

Metallic Nanostructures for Optical & Electrochemical Sensing & Alternative Energy Conversion

Fabrication for Biosensing, Energy Conversion & Catalysts

Cosponsored by PRES

Financially supported by Sigma-Aldrich

S. Pan, J. Zheng, Organizers, Presiding

2:00 COLL **427**. Gold nanoparticle assembly for selective two photon scattering imaging of cancer cell. **P.C. Ray**

2:20 COLL **428**. Size selective SERS analysis using nanorattles with porous polymer shell and entrapped gold nanoparticles. **Y. Jia**, S. Shmakov, E. Pinkhassik

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- 2:40 COLL 429.** Ultrafast laser induced synthesis of narrowly distributed sub-5 nm surfactant-free Au-Pd nanoparticles. D. Sil, K. Moore Tibbetts, J.H. Odnher, R.J. Levis, E. Borguet
- 3:00 COLL 430.** Fabrication of plasmonic nanoantenna arrays on flexible substrates via colloidal lithography for biosensing. A. Bohlou, V.L. Colvin
- 3:20** Intermission.
- 3:30 COLL 431.** Withdrawn.
- 3:50 COLL 432.** Enhancement of enzymatic colorimetric response by silver island films on high throughput screening microplates. B. Abel, K. Aslan
- 4:10 COLL 433.** Development of polymer-metal colloid hybrid platforms for bioassays with improved dynamic range. E. Bonyi, K. Aslan
- 4:30 COLL 434.** Surface plasmon enhanced photoelectrochemical performance of core-shell Ag@Ag₂S nanoparticles decorated TiO₂ nanowire electrodes. Z. Shan, S. Pan, A. Panikar, A. Gupta
- 4:50** Concluding Remarks.

Section D

Marriott City Center Denver
Denver III

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

Structure and Mechanics

- S. Muraidharan, M. Nieh, N. Sridividya, *Organizers*
A. N. Parikh, *Organizer, Presiding*
- 2:00 COLL 435.** Probing cellular mechano-sensitivity using biomembrane-mimicking cell substrates of adjustable stiffness. C. Naumann, Y. Lin, L. Lautscham, Y. Ge, W. Goldmann, B. Fabry
- 2:30 COLL 436.** Evaluation of drug mediated changes in rhythmic contractile activity of cardiomyocytes. S. Zou
- 3:00** Intermission.
- 3:10 COLL 437.** Changes in the cell surface during progression to cancer of human cervical epithelial cells. I. Sokolov, M. Dokukin, N. Guz, C. Woodworth
- 3:40 COLL 438.** Probing the coupling between polybasic peptides and PIP₂ lipids in asymmetric supported lipid bilayers. A.W. Smith, X. Shi, X. Li
- 4:10 COLL 439.** Oncogene induced stiffening of living cells. N. Nordgren, L.Z. Rathje, T. Pettersson, D. Rönnlund, J. Widengren, P. Aspenström, A.K. Gad

Section E

Marriott City Center Denver
Colorado G

Plasmonic Catalysis and Sensing

Cosponsored by PRES

C. Matrajan, *Organizer*

E. Borguet, *Organizer, Presiding*

- 2:00 COLL 440.** Electronic structure models of plasmon-enhanced processes. G.C. Schatz
- 2:35 COLL 441.** Ultrafast size-dependent electronic interactions in metal clusters. N. Del Fatti, T. Stoll, P. Maioli, A. Crut, F. Vallee
- 3:10 COLL 442.** Plasmon-driven growth of gold nanoprisms with implications for photocatalysis. Y. Zhai, J.S. DuChene, Y. Wang, A.C. Johnston-Peck, B. DiCiaccio, K. Qian, E.W. Zhao, J. Qiu, F. Ooi, D. Hu, D. Su, E. Stach, Z. Zhu, W.D. Wei
- 3:30** Intermission.
- 3:45 COLL 443.** Plasmon enhanced sensing and catalysis. P.J. Nordlander
- 4:20 COLL 444.** Unique properties of metal nanocrystals for driving photocatalysis. P. Christopher
- 4:55 COLL 445.** Analysis of 2- and 3D plasmon coupling between nanoparticles on cellular and viral surfaces. B.M. Reinhard, X. Yu, A. Feizpour

Section F

Marriott City Center Denver
Colorado H

Elucidation of Mechanisms & Kinetics on Surfaces

Cosponsored by CATL and ENVR

A. Savara, *Organizer, Presiding*

- 2:00 COLL 446.** Impact of self-assembled monolayers on (oxidized) cobalt for Si-based molecular electronic junctions. C.A. Hacker, S. Pookpanratana
- 2:20 COLL 447.** Dynamics of self-assembled monolayers on Au(111) studied by time-resolved scanning tunneling microscopy. H. Wu, K. Soththwes, P.M. Schön, G.J. Vancso, H. Zandvliet
- 2:40 COLL 448.** Polyurethane degradation and characterization of aerospace coatings. J.H. Wynne, N.K. Weise, A.E. Mera, D. Bellevou
- 3:00 COLL 449.** Cyclic azasilanes: A kinetic approach to rapid silane surface modification. A.F. Maddox, J.G. Matsons, M.P. Singh, J. Zazyczny, B. Arkles
- 3:20** Discussion.
- 3:30** Intermission.
- 3:40 COLL 450.** Pyridinium as the electrocatalyst in carbon dioxide reduction on polycrystalline gold electrodes. A.J. Lucio, S.K. Shaw
- 4:00 COLL 451.** Rapid formation of reactive initiator monolayers for conjugated polymer brushes using electrochemical reduction of Ni(II). A. Roy, J.J. Locklin
- 4:20 COLL 452.** Vibrational sum frequency generation studies for elucidating mechanisms and kinetics at surfaces. F. Geiger
- 4:40** Discussion.
- 4:50 COLL 453.** Advancements in the determination of membrane zeta potential at high ionic strengths: Specific application to semipermeable polymeric membrane. B.D. Coday, T. Luxbacher, A. Childress, N. Almaraz, T.Y. Cath

- 5:10 COLL 454.** Nucleation and crystallization kinetics of initial apatite nanocrystal formation within biological templates. D. Kim, B. Lee, S. Thomopoulos, Y. Jun
- 5:30 COLL 455.** Three column series approach to investigate role of desorption rates in colloid-facilitated transport of americium, cesium, and plutonium: Experiments and modeling. T.M. Dittrich, H. Boukhalfa, P.W. Reimus

5:50 Discussion.

Molecular-Scale Processes Controlling Reactivity at Mineral-Water Interfaces

Sponsored by GEOC, Cosponsored by COLL

THURSDAY MORNING

Section A

Marriott City Center Denver
Colorado A

Natural Resource Capture, Storage & Energy Conversion

Biofuels, Fuel Cells, Membranes, Electrolytes, & Batteries (BFCMEB)

S. Bashir, *Organizer*

J. Liu, *Organizer, Presiding*

J. Uddin, *Presiding*

- 8:30 COLL 456.** Structure-function relationships into layered solid oxide fuel cell cathode material. S. McIntosh
- 9:00 COLL 457.** Tailoring the structure of active materials for solar thermochemical fuel production through templating. A. Stein, C. Malonzo, S. Rudisill, N. Petkovich, J. Davidson, R. DeSmith, L. Venstrom
- 9:25 COLL 458.** Reducing cracks in photoanode of dye-sensitized solar cells based on binder-free TiO₂ nanoparticles by 1D electrospun metal oxide nanofibers. X. Wang, M. Xi, H. Fong, Z. Zhu

- 9:50 COLL 459.** Metabolic characterization of nonmodel microalgae for sustainable biofuel production. G. Atilla-Gokumen, E. Matich, E. Camgoz, M. Ghafari, B.A. Pfeifer, B.Z. Haznedaroglu

- 10:15 COLL 460.** Pore collapse and regrowth in silicon electrodes for rechargeable batteries. S. DeCaluwe, B. Dhar, J. Dura, H. Wang
- 10:40 COLL 461.** Fast charging of dual lithium-ion-insertion cells. R. Chandrasekaran

Section B

Marriott City Center Denver
Colorado I/J

Interfacial Biomolecular Recognition

Cosponsored by BIOL†

Financially supported by Avanti Polar Lipids, Inc.

J. Ross, *Organizer*

B. E. Bowler, M. Kastantin, *Organizers, Presiding*

- 8:30 COLL 462.** Hierarchical view of DNA based recognition, and the role of flexibility and shape. J.J. De Pablo
- 9:00 COLL 463.** Withdrawn.

- 9:30 COLL 464.** Entropic and electrostatic effects on the folding free energy of a surface-attached biomolecule: An experimental and theoretical study. K. Placco, H. Watkins
- 10:00** Intermission.

- 10:15 COLL 465.** Surface-mediated DNA hybridization. J. Monserud, D.K. Schwartz

- 10:45 COLL 466.** Single molecule view of conformational changes and hybridization of DNA on dynamic surfaces. T. Ye

- 11:10 COLL 467.** Quantitative single-molecule imaging of DNA hybridization at capture surfaces with sequence specificity. E.M. Peterson, M.W. Manhart, D. Kriech, J.M. Harris

- 11:35 COLL 468.** Using nonlinear optical spectroscopy to monitor DNA molecular recognition and structure at the buried silica/aqueous interface. J. Gibbs-Davis

Section C

Marriott City Center Denver
Colorado C/D

Basic Research in Colloids, Surfactants & Nanomaterials

Polymeric Materials

Cosponsored by PRES

R. Nagarajan, *Organizer*

J. Jahnke, *Presiding*

- 8:30 COLL 469.** Rapid synthesis of faujasite/polyethersulfone composite membrane and application for CO₂/N₂ separation. B. Wang, L. Zhao, W. Ho, P.K. Dutta

- 8:50 COLL 470.** Relationship between polyelectrolyte bulk complexation and kinetics of their layer-by-layer assembly. P.S. Desai, A. Salehi, J. Li, R.G. Larson

- 9:10 COLL 471.** Adsorption of bacteria into electrospun cellulose nanofiber mats: Development of a dynamic model. K. Rieger, R. Thyagarajan, M. Hoen, D.M. Ford, J.D. Schifman

- 9:30 COLL 472.** Multilayer chromophore thin film fabrication via layer by layer deposition technique. M. Zhu, G.H. Aryal, H. Zhang, J. Jayawickramarajah

- 9:50 COLL 473.** Modulating the uptake of dextran coated SPIONs in stem cells: The effect of surface charge. M. Barrow

- 10:10 COLL 474.** Effect of membrane structural dopants on charge transport through conjugated oligoelectrolyte modified phospholipid bilayers. J. Jahnke, G. Bazan, J. Sumner

- 10:30 COLL 475.** Uniform cross-linked cellulase aggregates prepared in millifluidic reactors. L. Nguyen, K. Yang

- 10:50 COLL 476.** Self-healing and disruption of arboral fibrils. G. Parkinson, J. Sun, P.S. Russo

- 11:10 COLL 477.** Two-photon absorption properties of chromophores in polyelectrolytes. M. Hatshan, R. Guida

Section D

Marriott City Center Denver
Denver III

Basic Research in Colloids, Surfactants & Nanomaterials

Biomolecular Materials

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 8:30 COLL 478.** Substrate mediated stability of DNA origami at elevated temperatures and in diverse solvent environments. M.A. Pillers, M. Lieberman

- 8:50 COLL 479.** Exploring biomedical applications of nanoparticles by their surface functionalization. K. Rashwan, G. Sereda, P. Jampani, B. Burum, D. Christianson, E. Brakke, K. Kaufman, C. Pap

- 9:10 COLL 480.** DNA nanotubes and nanotapes via self-assembly of ssDNA-amphiphiles. T.R. Pearce, B. Waybrant, E. Kokkoti

- 9:30 COLL 481.** Connections between nanoparticle (NP) surface chemistry and protein corona formation: Influence of the corona on small ($d_{\text{corona}} < 5.0$ nm) NP-supported lipid bilayer interactions. S.E. Lohse, E. Melby, J. Park, B. Putans, R.J. Hamers, J.A. Pedersen, C.J. Murphy

- 9:50 COLL 482.** New generation of well-defined lipid-based magnetic nanoparticles for theranostics. S. Biswas, J.A. Kulkarni, Y.C. Tam, P.R. Cullis

- 10:10 COLL 483.** Robust and tailored wet adhesion in biopolymer thin film with wet adhesion and toughness superior to wet adhesion in bone. T. Pettersson, S. Pendergraph, S. Utset, A. Marais, E. Gustafsson, L. Wagberg

- 10:30 COLL 484.** Chiral recognition and selection during the self-assembly process of protein-mimic macroanions: The effect of long-range electrostatic interactions. P. Yin, T. Liu

- 10:50 COLL 485.** Synergistic DNA delivery with pyridinium amphiphiles with different packing parameters – toward composite DNA delivery systems. M.A. Ilies, A. Kizewski

- 11:10 COLL 486.** Distinct Adsorption Configurations and Self-assembly characteristics of elongated proteins on chemically uniform and alternating surfaces. S. Song, J. Hahn

Section E

Marriott City Center Denver
Colorado G

Basic Research in Colloids, Surfactants & Nanomaterials

Basic Research on Surfaces and Interfaces

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 8:30 COLL 487.** Superhydrophobicity and oleophobicity via increased modified surface topography. K.T. Flynn, M.D. Tustison, C. Zhou, K. Jiao

- 8:50 COLL 488.** Reconfigurable anisotropic coatings via magnetic field-directed assembly and translocation of locking magnetic chains. A. Tokarev, Y. Gu, A. Zakharchenko, O. Trotsenko, I.A. Luzinov, K. Kornev, S. Minko

- 9:10 COLL 489.** Assembly of surface-anchored metal-organic frameworks: Controlling deposition conditions to tune film morphology. M.L. Ohnson, B. Bowser, L. Gentry, M.E. Anderson

- 9:30 COLL 490.** Estimating sorption kinetics from the transient shape of a pendant drop. A.R. White, T. Ward

- 9:50 COLL 491.** Probing the effect of the HC-FC dipole on the properties of thin films formed from hydrocarbon-terminated perfluorinated alkanethiols. O. Zenasni, M.D. Marquez, T. Lee

- 10:10 COLL 492.** Synthesis and characterization of partially fluorinated self-assembled monolayers having an inverted surface dipole. M.D. Marquez, O. Zenasni, T. Lee

- 10:30** COLL **493**. Analysis of interactions at fluid-solid interface: Exploring the complete slip boundary condition. S.L. Nania, S.K. Shaw
- 10:50** COLL **494**. Multilayered metallic nanostructures with an embedded internal standard as surface enhanced Raman substrates. E.R. Butcher, D.D. Evanoff
- 11:10** COLL **495**. X-ray photoelectron spectroscopy at the liquid-nanoparticle interface: Opportunities for colloidal science. M.A. Brown
- 11:30** COLL **496**. Interfacial liquids, Most soft surfactants probed by AFM. H. Onishi
- 11:50** COLL **497**. Selenium: The better anchor group for self-assembled monolayers (SAMs) on gold? A. Terfort, M. Zhamikov, P. Gyaniik
- 12:10** COLL **498**. Withdrawn.

Section F

Marriott City Center Denver
Colorado H

Basic Research in Colloids, Surfactants & Nanomaterials

Basic Research on Colloids

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 8:30** COLL **499**. Dynamic adhesion forces between microparticles and substrates in water. Q. Xu, Z. Xia, M. Li, L. Zhang, J. Niu
- 8:50** COLL **500**. Formation of luminescent inorganic precipitation tubes. P.J. Fryfogle, E.J. Nelson, J.J. Pagano
- 9:10** COLL **501**. Incorporation of nanoparticles into tunable, highly-ordered, porous silica films. Y. Vasquez, M. Kollé, L.A. Mishchenko, B.D. Hattton, J. Aizenberg
- 9:30** COLL **502**. Ionic and molecular modifiers of calcium oxalate crystallization: Tailoring interfacial interactions. B.G. Alamani, J. Chung, J.D. Rimer
- 9:50** COLL **503**. Colloidal particle dispersions for the synthesis of full color electrophoretic inks. K. Belsey, C. Topping, L. Farrand, S.J. Holder
- 10:10** COLL **504**. Selecting the swimming mechanisms of colloidal particles: Bubble propulsion vs. self-diffusiophoresis. S. Wang, N. Wu
- 10:30** COLL **505**. Characterization and dispersion behavior of quaternary ammonium encapsulated polyoxometalates in polyurethane. J. Lundin, S.L. Giles, P. Fulmer, R.F. Cozzens, J.H. Wynne
- 10:50** COLL **506**. Janus particles for probing and manipulating immune functions. Y. Yu, Y. Gao, L. Sanchez, Y. Jia
- 11:10** COLL **507**. Intra-phase mixing in binary drops translating through corrugated microchannels. T. Ward
- 11:30** COLL **508**. Molecular dynamics simulations of colloidal nanoparticles solvation. S. Sen, P. Kral
- 11:50** COLL **509**. Theoretical description of architectures of nanoparticles. N. Almora Barrios, N. Lopez

THURSDAY AFTERNOON

Section A

Marriott City Center Denver
Colorado A

Natural Resource Capture, Storage & Energy Conversion

Biofuels, Fuel Cells, Membranes, Electrolytes, & Batteries (BFCMBE)

J. Liu, *Organizer*

S. Bashir, *Organizer, Presiding*
X. Wang, *Presiding*

- 2:00** COLL **510**. Understanding abiotic:biotic interface: Molecular-level insights into the behavior of enzymes covalently immobilized on surfaces. T. Ogorzalek, Y. Liu, S. Wei, C.L. Brooks, Z. Chen, N. Marsh

- 2:30** COLL **511**. Direct synthesis of single layer layered double hydroxide nanosheets. J. Yu, B.R. Martin, J.E. Sims, L. Sun
- 2:55** COLL **512**. Silyl electrolytes for lithium-ion battery applications. L.J. Lyons
- 3:20** COLL **513**. Withdrawn.
- 3:45** COLL **514**. Creation of natural dye sensitized solar cell by using nanostructured titanium oxide. J. Uddin, S.S. Jenny, A. Ahmed, S. Yadav, M. Jiru
- 4:10** COLL **515**. Amphiphilic functionalization of cathode catalyst to advance electrochemical reactivity of fuel cells. D. Gaona, S. Bashir, J.L. Liu

Section B

Marriott City Center Denver
Colorado I/J

Interfacial Biomolecular Recognition

Cosponsored by BIOL \ddagger

Financially supported by Avanti Polar Lipids, Inc.

J. Ross, *Organizer*

B. E. Bowler, M. Kastantin, *Organizers, Presiding*

- 2:00** COLL **516**. Aiding developments of single-molecule force spectroscopy for biosensing via molecular simulation. Z.E. Hughes, K.L. Drew, T. Walsh
- 2:25** COLL **517**. Use of surface-specific spectroscopy techniques to unravel molecular recognition in biosensing. O.N. Oliveira
- 2:50** COLL **518**. New roles for antifreeze proteins in recognizing non-ice surfaces. X. Wen
- 3:15** Intermission.
- 3:30** COLL **519**. Studying receptor-mediated liposome fusion kinetics at aqueous/liquid crystal interfaces. K. Macri, P. Noonan, D.K. Schwartz
- 3:55** COLL **520**. Effect of nanoparticle surface chemistry and salt concentration on binding to RNA and DNA. J.A. Nash, A. Singh, N.K. Li, Y.G. Yingling
- 4:20** COLL **521**. Ultrasound biosensing techniques based on biomolecule-induced aggregation of nanodroplets. R. Chattaraj, P. Mohan, J.D. Besmer, C.M. Livingston, A.P. Goodwin
- 4:45** COLL **522**. Impedimetric biosensors for detecting VEGF based on PEDOT carboxylic acid/PEDOT copolymer. M. Kim, R. Iezzi, D.C. Martin

Section C

Marriott City Center Denver
Colorado C/D

Basic Research in Colloids, Surfactants & Nanomaterials

Carbon and Organic Materials

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 2:00** COLL **310**. Artificial light harvesting system composed of organic dyes and clay minerals. S. Takagi, Y. Ishida, T. Shimada
- 2:20** COLL **523**. SiC porous materials derived from apple for high-performance electromagnetic interference shielding. Z. Wang, C. Liu, Y. Xu
- 2:40** COLL **524**. Modeling fullerene aggregation in electrolyte solutions: A combined deterministic-stochastic framework. S. Mortuza, S. Banerjee
- 3:00** COLL **525**. Synthesis of carbon-based nanoscale composite particles for imaging applications. M.J. Meziani, M.A. Mottaleb, B. Yoo, Y. Sun
- 3:20** COLL **526**. Label-free two photon imaging of live cells using graphene dots. P.C. Ray
- 3:40** COLL **527**. Developing carbenes as surface modifiers. M. Macleod, J.A. Johnson
- 4:00** COLL **528**. Carbon dots preparation and effect on protein fibrillation. S. Li, R.M. Leblanc
- 4:20** COLL **529**. Conductance and rectification through asymmetric biphenyl molecule systems. J.E. Meany, S.A. Woski

- 4:40** COLL **530**. Electron transfer and molecular binding to nanostructured carbon for super-capacitor materials. D. Banks, J. Mitchell, I. Shcherbakov, J.C. Poler

Section D

Marriott City Center Denver
Denver III

Basic Research in Colloids, Surfactants & Nanomaterials

Functionalized Nanoparticles

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 2:00** COLL **531**. Withdrawn.
- 2:20** COLL **532**. Withdrawn.
- 2:40** COLL **533**. Phase transport of citrate stabilized gold nanoparticles using nonspecific adsorbed polymers. L.B. Thompson, A.M. Alkilyani, A. Caravana
- 3:00** COLL **534**. Highly efficient poly-lysine functionalization of gold surfaces by dual click reactions utilizing dithiol adsorbates. A. Shakiba, A.C. Jamison, T. Lee
- 3:20** COLL **535**. Toward understanding electronic and optical properties of colloidal germanium nanocrystals as a function of size and surface ligand. A.L. Holmes, J. Hülges, A. Reckmann, E. Muthuswamy, K. Meerholz, S. Kauzlarich
- 3:40** COLL **536**. Withdrawn.
- 4:00** COLL **537**. Orthogonal functionalization of patchy particles. X. Zheng, Y. Wang, Y. Wang, D. Pine, M. Weck
- 4:20** COLL **538**. Strong hydrophobizer: Laterally chemisorbed low-molecular-weight polydimethylsiloxane. T. Lee, S. Chae
- 4:40** COLL **539**. Elucidating structure/property relationships of peptide-decorated Au nanoparticles using advanced molecular simulations. Z.E. Hughes, T. Walsh

Section E

Marriott City Center Denver
Colorado G

Basic Research in Colloids, Surfactants & Nanomaterials

Semiconductor Materials

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 2:00** COLL **540**. Optical signatures of crystal phase in semiconductor nanocrystals. S. Lim, A. Schleife, A. Smith
- 2:20** COLL **541**. Shape controlled narrow-gap tin chalcogenide nanostructures. S. Guo
- 2:40** COLL **542**. Colloidal synthesis and photocatalytic properties of orthorhombic AgGaS₂ nanocrystals. C. Fan, M. Regulacio, M. Han, A. Xu
- 3:00** COLL **543**. Careful control of confinement potential and interfacial lattice strain in colloidal quantum dots to improve radiative recombination and fluorescence blinking. C.D. Heyes
- 3:20** COLL **544**. Size characterization and alternative synthesis of monolayer-protected quantum dots. A.E. Conner, L.R. Tinoco, W.L. Wright, S.C. Francone, E.V. Aguilar, F.E. Acosta, D.T. Miles
- 3:40** COLL **545**. Excited state dynamics in doped quantum dots. C. Tuinenga, P.V. Kamat
- 4:00** COLL **546**. Withdrawn.
- 4:20** COLL **547**. Characterization of the transformation of colloidal CdSe quantum dots into ferroelectric particles. T. Wrenn, J. McBride, J. Mares
- 4:40** COLL **548**. Formation of 1D-nanostructures using surface-directed vapor-liquid-solid growth process. B. Nikoobakht, A. Herzog

Section F

Marriott City Center Denver
Colorado H

Basic Research in Colloids, Surfactants & Nanomaterials

Colloidal Assembly and Gels

Cosponsored by PRES

R. Nagarajan, *Organizer, Presiding*

- 2:00** COLL **549**. Electric field-directed nanowire assembly. S.J. Boehm, L. Lin, C.D. Keating, T.S. Mayer
- 2:20** COLL **550**. Designing a super-assembly using mixed biological and synthetic nanostructures. J. Reyes, R. Balaraman, N.D. Becerra-Mora, J.B. Fiske, P. Kohli
- 2:40** COLL **551**. Bifurcation in the equilibrium height of colloidal particles near an electrode in oscillatory electric fields. T. Woehl, B. Chen, K. Heatley, N. Talken, C. Dutcher, S. Bukosky, W. Ristenpart
- 3:00** COLL **552**. Self-assembly of colloidal nanoparticles into chiral ribbons and hollow capsules. P. Kral
- 3:20** COLL **553**. Self-assembly of nanometer scaled macroions in dilute solution. J. Zhou, T. Liu
- 3:40** COLL **554**. Direct nanoscale visualization of the kinetics of colloidal gold nanoparticle chain assembly. T. Woehl, T. Prozorov
- 4:00** COLL **555**. Withdrawn.
- 4:20** COLL **556**. Magnetoactive hydrogels for dynamic modulation of pro-angiogenic signaling from mesenchymal stem cells. K.A. Kilian, A. Abdeen
- 4:40** COLL **557**. Monodisperse polymeric ionic liquid microgels by post modifications and their versatile biomedical applications. N. Sahiner, A.O. Yasar, S. Yildiz, S. Demirci, N. Aktas
- 5:00** COLL **558**. Supercooled water in nanoconfinement: Molecular simulation study of single-molecule and collective dynamics. N.J. Kwon, A.A. Milischnik, B.M. Ladanyi
- 5:20** COLL **559**. Ionic liquids and water: The surprising connection. M.A. Gebbie, H.A. Dobbs, M. Valtner, J.N. Israelachvili