

## 251st American Chemical Society National Meeting & Exposition

March 13 –17, 2016  
San Diego, CA

# Computers in Chemistry

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PROGRAM SUMMARY

**Division of Colloid & Surface Chemistry (continued)**

COLL

*R. Nagarajan, Program Chair*

San Diego Convention Center	S	M	Tu	W	Th
Surface Characterization & Manipulation for Electronic Applications			A	D	A
Computational Modeling & Simulations in Colloid & Surface Chemistry <i>cc</i>			A	D	
Physical Chemistry of Complex Environmental Interfaces* (PHYS)	D	D	A	P	D
Applications of Polymer Surfaces & Interfaces* (POLY)	D	P	DE	D	A
Environmental Interfaces* (GEOC)	P	D	D	DE	
Discussions with the President's Task Force on Employment* (PRES)	P				
My Experience with & Advice for Improving Diversity in Chemistry* (PRES)	E				
My Comments to the President's Task Force on Employment* (PRES)	E				
Elucidation of Mechanisms & Kinetics on Surfaces* (CATL)		P	D	D	D
Diversity-Quantification-Success?* (PRES)	P				

**Division of Colloid & Surface Chemistry**

COLL

*R. Nagarajan, Program Chair*

San Diego Convention Center	S	M	Tu	W	Th
Colloids for Medical Imaging	D	D	A	A	
Biomembrane Synthesis, Structure, Mechanics & Dynamics	D	D	A	D	A
Nanomedicines: Targeting & Clearance	D	D	A	D	
Nanometal: Synthesis, Structure, Property & Application	D	D	A	D	
ACS Award in Colloid & Surface Chemistry: Honoring Nicholas L. Abbott	D	D	D		
Basic Research in Colloids, Surfactants & Nanomaterials	D	D		D	A
Frontier of the Interface of Materials & Biology: Protein-Based Nanomaterials	D	D			
Proteins & Polymers Under Confinement	P				
Fundamental Research in Colloids, Surfaces & Nanomaterials	E				
Computational & Experimental Advances Toward Design of Energy-Efficient Catalysts		D	A		
Sci-Mix		E			

## COLL

## Division of Colloid and Surface Chemistry

R. Nagarajan, Program Chair

## OTHER SYMPOSIA OF INTEREST:

**Detection of Engineered Nanomaterials in Environmentally Relevant Media** (see ENVR, Sun)

**Functional Lignocellulosics & Nanotechnology** (see CELL, Sun, Mon, Tue, Wed)

**Applications of Polymer Surfaces & Interfaces** (see POLY, Sun, Mon, Tue, Wed, Thu)

**Physical Chemistry of Complex Environmental Interfaces** (see PHYS, Sun, Mon, Tue, Wed, Thu)

**Computers in Nanoscience & Nanotechnology** (see MPPG, Mon)

**Nanomaterials for Energy Conversion & Storage** (see ENFL, Mon, Tue, Wed)

**Supramolecular Aggregates: Fundamentals & Applications of Soft Self-Assembled Materials** (see PHYS, Mon, Tue, Wed, Thu)

## SOCIAL EVENTS:

**Social Hour**, 6:00 PM: Sun

**Luncheon**, 12:00 PM: Tue

## BUSINESS MEETINGS:

**Executive Committee Meeting**, 5:00 PM: Sat

**Open Business Meeting**, 5:30 PM: Sun

## SUNDAY MORNING

## Section A

San Diego Convention Center  
Room 7A

**ACS Award in Colloid & Surface Chemistry: Symposium in honor of Nicholas L. Abbott**

## Emulsions

P. Alexandridis, Organizer

M. E. Helgeson, Y. Kondo, Presiding

**9:00 COLL 1.** Structuring materials through droplet templating. D. Weitz

**9:30 COLL 2.** Behaviors of thermotropic liquid crystals 'caged' inside partially filled polymer capsules. D.M. Lynn

**10:00 COLL 3.** Thermoresponsive nanoemulsions: Quenchable colloids through molecular self-assembly. M.E. Helgeson

**10:30 COLL 4.** Photoinduced demulsification and two findings from the study. Y. Kondo

**11:00 COLL 5.** Complex emulsions as stimuli-responsive soft materials. V. Sresht, L. Zarzar, E. Sletten, J.A. Kalow, T.M. Swager, D. Blankschtein

## Section B

San Diego Convention Center  
Room 7B

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

## Characterization

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, N. Srividya, Organizers

D. Y. Sasaki, Presiding

**8:30 COLL 6.** Benzoic acid penetration of surfactant interfaces in the context of *Mycobacterium tuberculosis*. D.C. Crans, B.J. Peters, A. Groninger, D.C. Crick

**9:00 COLL 7.** From thermal fluctuations to extreme mechanics of polymer vesicles. H. Jang, K. Lou, K. Kim, C. Yu, K. Chen, S. Granick

**9:30 COLL 8.** Optimizing fluidity versus stability in planar supported and suspended lipid bilayers using mixtures of polymerizable and fluids lipids. C. Smith, M. Fonseca, K.S. Orosz, S. Saavedra

**10:00** Intermission.

**10:10 COLL 9.** Spontaneous lipid transfer and its implication of membrane lateral organization and structural stability. Y. Xia, K. Charubin, F. Heberle, D. Marquardt, J. Katsaras, J. Tian, X. Cheng, M. Nieh

**10:40 COLL 10.** Studying intracellular pathways of cationic liposome-nucleic acid nanoparticle assemblies with applications in gene delivery. K.K. Ewert, R.N. Majzoub, E.A. Wonder, V. Steffes, C.R. Safinya

**11:10 COLL 11.** Confocal Raman microscopy for *in situ* characterization of hybrid supported phospholipid bilayers within individual C<sub>18</sub>-functionalized chromatographic particles. J.P. Kitt, J.M. Harris

**11:40 COLL 12.** Photo-induced vesicle formation using "click" chemistries. D. Konetski, T. Gong, C. Bowman

## Section C

San Diego Convention Center  
Room 8

**Nanomedicines: Targeting & Clearance Targeting**

Z. Gu, Z. Wang, J. Xie, Organizers

G. Han, J. Zheng, Organizers, Presiding

**8:30 COLL 13.** Renal clearable luminescent gold nanoparticles. J. Zheng

**9:00 COLL 14.** Direct delivery of proteins and nucleic acids to the cytosol. V.M. Rotello

**9:30 COLL 15.** Enhancing tumor delivery and targeting with sub-5 nm ultrafine magnetic nanoparticles and anti-bio-fouling coating. H. Mao, J. Huang, Y. Li, L. Wang, L. Yang

**10:00 COLL 16.** Nanolayered delivery for synergistic tumor therapies. P.T. Hammond

**10:30 COLL 17.** One-component nanomedicine. R. Lin, H. Su, P. Zhang, H. Cui

**11:00 COLL 18.** Mageto-optical nanoparticles for ultrasensitive tumor imaging. X. Gao

**11:30 COLL 19.** Surface chemistry effect: Renal clearance and tumor targeting of NIR-emitting gold nanoparticles. J. Liu, M. Yu, X. Ning, J. Zheng

**11:50 COLL 20.** B-glucan/ODN carrier conjugated with TAT peptide: Specific delivery to cytosol. N. Miyamoto, S. Mochizuki, K. Sakurai

## Section D

San Diego Convention Center  
Room 9

### Nanometal: Synthesis, Structure, Property & Application

#### Nanoclusters

Y. Han, J. Zheng, *Organizers*

D. Jiang, *Organizer, Presiding*

Q. Wang, *Presiding*

**8:30** Introductory Remarks.

**8:35 COLL 21.** Ligand-protected gold superatoms and superatomic molecules. T. Tsukuda

**9:10 COLL 22.** Controlling colloidal gold nanoparticles with atomic precision: Fundamentals and opportunities. R. Jin

**9:45 COLL 23.** Gold and silver in nanoscale, dispersed by ligands to molecular precision. H. Hakkinen

**10:20** Intermission.

**10:50 COLL 24.** High-resolution separation of thiolate-protected gold clusters by reversed-phase high-performance liquid chromatography. Y. Negishi

**11:25 COLL 25.** Comparative studies on ligand binding stability on Au(111) surface. Q. Tang, D. Jiang

**11:45 COLL 26.** Controlling synthesis of atomic precision alloy nanoclusters and their structure related properties. M. Zhu, S. Wang, Y. Song, S. Jin, J. Xiang

## Section E

San Diego Convention Center  
Room 10

### Frontier of the Interface of Materials & Biology: Protein Based Nanomaterials Virus Based Chemistry & Materials Sciences

Q. Wang, *Organizer*

H. Yi, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 COLL 27.** What do you get when you cross a virus with a polymer? M. Hovlid, C. Scheibe, J.K. Pokorski, C.J. Higginson, M. Finn

**9:05 COLL 28.** Water at the tobacco mosaic virus. A. Bittner

**9:35 COLL 29.** Protein-templated self-assembly of hierarchical nanoarchitectures. Q. Wang

**10:05 COLL 30.** Engineering virus-like nanotubes and rods. J.N. Culver

**10:35 COLL 31.** Rod-like plant virus: Functionalization, self-assembly, and bioapplications. Z. Niu, Y. Tian

**11:05 COLL 32.** Dynamic assemblies of virus-like particles in solution and on surfaces. J.J. Cornelissen

**11:35 COLL 33.** Frame-guided assembly. D. Liu

## Section F

San Diego Convention Center  
Room 11A

### Colloids for Medical Imaging

#### Cellular Labeling, Tracking & Delivery

J. M. Berlin, *Organizer*

P. del Pino, W. Parak, *Organizers, Presiding*

J. Berlin, *Presiding*

**8:30** Introductory Remarks.

**8:35 COLL 34.** Degradation of colloids *in vitro* and *in vivo*. W. Parak

**8:45 COLL 35.** Biological interactions of layer-by-layer engineered particles. F. Caruso

**9:15 COLL 36.** Peptide-mediated cytosolic internalization of luminescent quantum dots. A. Kapur, W. Wang, S. Medina, J. Schneider, H.M. Mattoussi

**9:45 COLL 37.** Co-precipitation of SPIONs for stem cell tracking: How synthesis conditions affect particle properties, stem cell labelling, and MR contrast. M. Barrow, A. Taylor, J. Garcia Carrion, P. Mandal, H. Poptani, P. Murray, M. Rosseinsky, D. Adams

**10:05** Intermission.

**10:35 COLL 38.** Multicompartmental particles for combined imaging and release. J. Lahann

**11:05 COLL 39.** Perfluorocarbon-loaded polymeric nanoparticles for cell tracking using multimodal *in vivo* imaging. O. Koshkina, E. Swider, M. Boerman, J. van der Weijden, S. Xiaofeng, J. van Hest, E. van Dinther, C. Figdor, J. de Vries, M. Srinivas

**11:25 COLL 40.** Gold nanocages for imaging and therapy of prostate cancer by active targeting of neuropeptide Y-receptor. S. Avakumova, E. Galbiati, L. Sironi, S.A. Locarno, C. Macchi, M. Ruscica, P. Magni, S. Romeo, D. Prosperi

**11:55 COLL 41.** Mesoporous silica nanoparticles for ultrasound/magnetic resonance imaging and therapeutic drug delivery for stem cell therapy. P. Kempen, J. Campbell, S. Greasley, J. Jones, S. Gambhir, R. Sinclair, J.V. Jokerst

## Section G

San Diego Convention Center  
Room 11B

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Metal & Metal Oxide Nanoparticles

R. Nagarajan, *Organizer*

J. E. Whitten, *Presiding*

**8:30 COLL 42.** Direct measurement of the functionalization of metal oxide nanoparticles through radioanalytical methods. K. Davis, J. Mayer, M. Witmer, B. Qi, B.A. Powell, C.L. Kitchens, O.T. Mefford

**8:50 COLL 43.** Synthesis and optical characterization of cysteine- and cystine-coated metal nanoparticles. A. Thomas

**9:10 COLL 44.** Synthesis of Co-based bimetallic nanocrystals with rod-like branches for selective hydrogenation of CO. Y. Zhu

**9:30 COLL 45.** Fluorescence properties of hybrid core-shell superparamagnetic Fe@C-CNx nanoparticles. S. Murugesan, O. Kuznetsov, Z. Zhou, V.N. Khabashesku

**9:50 COLL 46.** 2D Cu<sub>2</sub>xS nanocrystals from thermolysis of a lamellar template. W. Bryks

**10:10 COLL 47.** Electrochemical control of vanadium dioxide nanocrystal films. G. LeBlanc, A. Bergerud, C.J. Dahlgren, D.J. Milliron

**10:30 COLL 48.** Palladium nanoparticle seed mediated growth of palladium nanoshell on silica core. K. Bandyopadhyay, J. Jeffries, R. Teh

**10:50 COLL 49.** Temperature dependence of the nanocrystal nucleation revealed through plasmon resonance of bimetallic nanoparticles. N. Razgoniaeva, M. Zamkov

**11:10 COLL 50.** Photoluminescent zinc oxide nanoparticles: Surface chemistry and gas sensing. J.E. Whitten

**11:30 COLL 51.** Remediation of organophosphates by mixed metal oxide nanocomposites. M.M. Allard, K. Gates, R.S. Kellow, B. Figueroa, V. Liu, J. Song, K. Nick, C.C. Perry

## Section H

San Diego Convention Center  
Room 24B

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Nanomaterials Design & Applications

R. Nagarajan, *Organizer*

J. V. Jokerst, *Presiding*

**8:30 COLL 52.** Engineering cascade reactions via supraparticle assemblies. N. Ramesar, N. Kotov

**8:50 COLL 53.** Saporin magnetic nanodriv-ers for suicide breast cancer therapy. R. Vago, V. Collico, S. Zuppono, M. Colombo

**9:10 COLL 54.** Ternary sol-gel nanoparticle for ultrasound imaging of mesenchymal stem cells. F. Foroutan, J. Knowles, J.V. Jokerst

**9:30 COLL 55.** Molecular imprinted bio-sensor for rapid detection of CEA from pancreatic fluid cysts. Y. Yu

**9:50 COLL 56.** Light responsive supra-molecular nanoparticles. E. Cavatorta, J. Voskuhl, J. Brinkmann, D. Wasserberg, J. Huskens, P. Jonkheijm

**10:10 COLL 57.** Copper sulfide nanodisks are photoacoustic imaging contrast agents. J. Wang, B. Marin, A.R. Tao, J.V. Jokerst

**10:30 COLL 58.** Synthesis and characterization of ash rice husk supported manganese nanocomposite and its application for adsorption of Cd(II), Pb(II) and Cu(II) ions. O.A. Dada, F.A. Adekola, E.O. Odebumni

**10:50 COLL 59.** Design and preparation of surface Au-Pd alloy nanocatalysts for alkyne semihydrogenation. M. Jin, X. Li

**11:10 COLL 60.** Synthesis, characterization, viability assessment and silica encapsulation of thiol- capped CdSe quantum dots. M.R. Rodriguez, O. Rivera, J.G. Medina, J. Lopez-Colon, G.J. Ortiz-Torres, O.M. Primera

**11:30 COLL 61.** Echogenicity of mesoporous and nonporous silica nanoparticles. F. Chen, J.V. Jokerst

### Applications of Polymer Surfaces & Interfaces

#### New Processes & Surface Functionalization

*Sponsored by POLY, Cosponsored by COLL and PMSE*

#### Physical Chemistry of Complex Environmental Interfaces

*Sponsored by PHYS, Cosponsored by COLL*

## SUNDAY AFTERNOON

### Section A

San Diego Convention Center  
Room 7A

#### ACS Award in Colloid & Surface Chemistry: Symposium in honor of Nicholas L. Abbott

#### Stimuli-Responsive Interfaces

P. Alexandridis, *Organizer*

J. Frechette, J. Texter, *Presiding*

**2:00 COLL 62.** Redox-mediated electro-sorption for chemical and environmental separations. T. Hatton

**2:30 COLL 63.** Engineering responsive liquid crystal interfaces with surfactants, lipids, and nucleic acids. D.K. Schwartz

**3:00 COLL 64.** Surface engineering using vapor-deposited polymers. J. Lahann

**3:30 COLL 65.** Programming polymeric nanomaterials with enzymes, peptides and nucleic acids. N.C. Gianneschi

**4:00 COLL 66.** Stimuli-responsive surfactants, polymers, and materials. J. Texter

**4:30 COLL 67.** Approach to contact of soft or structured surfaces in fluids. J. Frechette

### Section B

San Diego Convention Center  
Room 7B

#### Biomembrane Synthesis, Structure, Mechanics & Dynamics

#### Spectroscopy & Microscopy

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

M. L. Longo, *Presiding*

**2:00 COLL 68.** Molecular interactions between cell membranes and biological molecules. Z. Chen

**2:30 COLL 69.** Quantifying molecular transport through cell membranes by nonlinear light scattering. H. Dai

**3:00 COLL 70.** Molecular origins of cholesterol accelerated lipid flip-flop. J.C. Conboy, J. Allhusen

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3:30 Intermission.

3:40 **COLL 71.** Fluorescent lipids with selective partitioning to liquid ordered membrane domains. **D.Y. Sasaki**, S. Bordovsky, J. Stachowiak, G.D. Bachand

4:10 **COLL 72.** Kinetics of peptide-membrane interactions. **F. Gai**

4:40 **COLL 73.** NMR structural studies on functional cannabinoid type II receptor in a lipid matrix. **T. Kimura**, K. Vukoti, D.L. Lynch, D.P. Hurst, A. Grossfield, M.C. Pitman, P.H. Reggio, A.A. Yeliseev, K. Gawrisch

5:10 **COLL 74.** Correlating lipid-protein interactions with single particle tracking and PIE-FCCS. **A.W. Smith**, X. Shi, X. Li

## Section C

San Diego Convention Center  
Room 8

### Nanomedicines: Targeting & Clearance Delivery

Z. Gu, G. Han, Z. Wang, *Organizers*

J. Xie, J. Zheng, *Organizers, Presiding*

2:00 **COLL 75.** Coating nanoparticles with cell membranes for targeted drug delivery. **L. Zhang**

2:30 **COLL 76.** Nucleic acid delivery systems for RNA therapy and gene editing. **D.G. Anderson**

3:00 **COLL 77.** Enzyme-instructed assembly to form nanostructures for selectively inhibiting cancer cells. **B. Xu**, J. Zhou, X. Du, J. Shi, J. Li, H. Wang, Z. Feng

3:30 **COLL 78.** Surfactant additives to improve the distribution of inhaled drugs in the lungs. **T.E. Corcoran**, R. Sharma, A. Khanal, A. Stetten, T.M. Przybycien, R.D. Tilton, S. Garoff

4:00 **COLL 79.** Leveraging physiology for programmed precision nanomedicine. **Z. Gu**

4:30 **COLL 80.** Neutrophil-mediated transport of nanoparticles across blood barriers. **Z. Wang**

5:00 **COLL 81.** Nano-theranostics for photothermally triggered immunotherapy against cancer. **Z. Liu**

5:30 **COLL 82.** Using neural stem cell: Nanoparticle constructs to selectively deliver therapeutics to ovarian cancer. **P. Cao**, R. Tirughana-Samban, S. Aramburo, U. Nwokafor, K. Aboody, J. Berlin

## Section D

San Diego Convention Center  
Room 9

### Nanometal: Synthesis, Structure, Property & Application

#### Nanoclusters

Y. Han, D. Jiang, J. Zheng, *Organizers*

H. Hakkinen, T. Tsukuda, *Presiding*

2:00 **COLL 83.** Distinguishing superatomic, metallic, and ligand-state electron dynamics in monolayer protected nanoclusters using femtosecond nonlinear spectroscopy. **K.L. Knappenberger**

2:35 **COLL 84.** New design strategies for highly luminescent gold nanoclusters. **D. Lee**

3:10 **COLL 85.** Modulation of optical property and response of small gold clusters through the design of surface organic ligands. **K. Konishi**

3:45 Intermission.

4:15 **COLL 86.** Chirality of nanoscale gold particles and clusters. **T. Bürgi**

4:50 **COLL 87.** Nonlinear optical properties of thiolate-protected gold clusters: Second-harmonic scattering. **S. Knoppe**, T. Verbiest

5:10 **COLL 89.** Jahn-Teller effects in thiol protected gold nanoclusters and doped thiol protected gold nanoclusters. **C.J. Ackerson**, M.A. Tofanelli, T.W. Ni

5:45 **COLL 88.** Interconversion between superatomic electron configurations of  $M@Au_{24}(SR)_{18}$  ( $M = Au, Pd, Pt$ ) clusters. **K. Kwak**, Q. Tang, M. Kim, D. Jiang, D. Lee

## Section E

San Diego Convention Center  
Room 10

### Frontier of the Interface of Materials & Biology: Protein Based Nanomaterials

#### Virus Based Chemistry & Materials Sciences

H. Yi, *Organizer*

Q. Wang, *Organizer, Presiding*

1:30 **COLL 90.** From pathogen to cure: Plant virus-based therapeutics. **N. Steinmetz**

2:00 **COLL 91.** Dynamics of the adsorption and reduction of palladium on plant viruses. **O.O. Adigun**, E.L. Retzlaff-Roberts, G.D. Novikova, **M.T. Harris**

2:30 **COLL 92.** Viral templated palladium nanocatalysts. **H. Yi**

2:50 **COLL 93.** Effect of nanotopography created by plant virus nanoparticles on osteogenic differentiation of bone derived mesenchymal stem cells. **K. Metavarayuth**, P. Sitasuwan, J. Luckanagul, Q. Wang

3:10 **COLL 94.** Virus-like-particles in advanced materials applications. **J.J. Gassensmith**

3:30 **COLL 95.** Virus bionanomaterials development and potential clinical applications. **P. van Rijn**

4:00 **COLL 96.** Plasmonically active filamentous viruses as protein sensors. **J. Cha**

4:30 **COLL 97.** Influencing material properties using biomolecular interactions. **R.R. Naik**

5:00 **COLL 98.** Synthesis and characterization of metal-organic frameworks coated virus particle. **S. Li**, M. Dharmawardana, R. Welch, J.J. Gassensmith

## Section F

San Diego Convention Center  
Room 11A

### Colloids for Medical Imaging

#### Targeted Imaging & Therapy

J. M. Berlin, P. del Pino, W. Parak, *Organizers, Presiding*

2:00 **COLL 99.** Layer-by-layer near-IR II theranostic systems for ovarian cancer. **L. Gu**, X. Dang, J. Qi, S. Correa, G. Zhang, A.M. Belcher, **P.T. Hammond**

2:30 **COLL 100.** Theranostics of tumoral cells with nanoparticles. **P. Taboada Antelo**, A. Topete, E. Villar-Alvarez, S. Barbosa

3:00 **COLL 101.** Tumor-specific nuclear targeting *in vivo* of graphene quantum dots via a mesoscopic interstitial fluid. **Y. Wang**, C. Yao, L. Ding, C. Li, D. Pan, M. Wu

3:30 **COLL 102.**  $^{99m}Tc$ -labeled multifunctional low-generation dendrimer-entrapped gold nanoparticles as a platform for targeted dual mode SPECT/CT imaging of tumors. **X. Shi**, X. Li, C. Peng, X. Xu, Y. Luo, M. Shen

3:50 **COLL 103.** Improved contrast in whole-body imaging with targeted colloids and membrane-impermeable quenchers and etchants. **G.B. Braun**, X. Liu, K. Sugahara, E. Ruoslahti

4:10 Intermission.

4:40 **COLL 104.** Size-selected imageable nanoparticles for effective image-guided vaccine delivery and cancer immunotherapy. **J.C. Mareque-Rivas**, **A. Ruiz de Angulo**, **N. Gomez Blanco**, **A. Zabaleta**, **A. Garaikoetxea Arguinzoniz**, **A. Bocanegra**, **V. Gómez Vallejo**, **D. Padro**, **B. Szczupak**

5:10 **COLL 105.** Two-step Raman imaging-guided chemo-photothermal cancer therapy. **N.M. Khashab**

5:40 **COLL 106.** Targeting polydopamine-coated gold nanocages to tumor cells using the anti-angiogenic peptide anginex. **S.V. Jenkins**, R.P. Dings, J. Chen, R.J. Griffin, D. Nedosekin

6:00 **COLL 107.** Labelling of mesenchymal stem cells with gold nano: An initial *in vitro* study towards future *in vivo* tracking of mesenchymal stem cells. **W. Parak**, N. Feliu, P. Nold, K. Kantner, R. Hartmann, M. Gamal, B. Pelaz, M. Lim, S. Sjöqvist, P. Jungebluth, P. del Pino, H. Hackstein, P. Macchiarini, C. Brendel

## Section G

San Diego Convention Center  
Room 11B

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Gold Nanoparticles & Plasmonics

R. Nagarajan, *Organizer*

K. Bandyopadhyay, *Presiding*

2:00 **COLL 108.** Impact of the gold nanoparticle stabilizing ligands on catalysis. **S.M. Ansar**, C.L. Kitchens

2:20 **COLL 109.** Probing the surface chemistry of ligand capped gold nanostructures by nuclear magnetic resonance (NMR) spectroscopy. **C. Guo**, B. Cherry, S. Amin, J.L. Yarger

2:40 **COLL 110.** Changes in alkanethiolate chain length result in large changes to the electronic properties of the metallic core in gold nanoparticles, as probed by conduction electron spin resonance. **B.J. Lear**, A. Cirri

3:00 **COLL 111.** Evaluation of thiolated ligand exchange on gold surfaces by using surface-enhanced Raman scattering. **W. Qian**

3:20 **COLL 112.** Synthesis of carbon-based nanomaterials loaded with silver and gold and their Raman and SERS characterization. **T.A. Saleh**, A. Alabsi

3:40 **COLL 113.** Controlling gold nanorod synthesis via surface acoustic waves. **J. Hartanto**, M. Miansarigavzan, J. Wang, J. Friend, J.V. Jokerst

4:00 **COLL 114.** Synthesis and characterization of nanodiamond based hybrid nanostructures. **J. Gong**, N. Steinsultz, M. Ouyang

4:20 **COLL 115.** *In situ* spectroscopy of the ligand exchange at the surface of colloidal Au nanoparticles. **R. Dinkel**, B. Braunschweig, W. Peukert

4:40 **COLL 116.** Withdrawn.

5:00 **COLL 117.** Aryl bisthiolate functionalized plasmonic nanoporous discs: New direction for detecting polycyclic aromatic hydrocarbons using surface-enhanced Raman spectroscopy. **O. Zenasni**, F. Zhao, Y. Sung, G. Santos, T. Lee, W. Shih

## Section H

San Diego Convention Center  
Room 24B

### Proteins & Polymers Under Confinement

R. G. Toomey, R. S. Tu, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 **COLL 118.** Sequence-dependent self-assembly of peptide amphiphiles via molecular simulations. **H. Nguyen**

2:35 **COLL 119.** Recognition in tight spaces. **D.E. Leckband**, N. Shashikanth

3:05 **COLL 120.** Colloid-enhanced polypeptide polydispersities: Synthesis of self-assembling, amphipathic  $\beta$ -sheets. **M.B. Kubiilus**, R.S. Tu

3:25 **COLL 121.** Interactions between water-soluble peptoids and silica surfaces studied by second harmonic generation. **G.Y. Stokes**, A.L. Calkins, A.A. Fuller

3:45 **COLL 122.** Use of a unique protein model system to explore the effects of crowding by sol-gel confinement, polymeric crowding and small-molecule osmolyte crowding on different levels of protein structure. **V. Krejci**, K. Christensen, K. Lozier, J. Caballero, M.V. Wilson, E.E. Wilson

4:05 **COLL 123.** Dynamics of periodically sequenced polypeptides at the aqueous/liquid crystal interface. **R.S. Tu**

4:25 **COLL 124.** Scaling of polymer dynamics at an oil-water interface in regimes dominated by viscous drag and desorption-mediated flights. **D. Wang**, D.K. Schwartz

4:45 **COLL 125.** Surface tension of nano-confined lattice polymers. **P. Zhang**, **Q. Wang**

5:05 **COLL 126.** Frustration by shape design: A colloidal glass of hard Brownian kites. **T.G. Mason**

5:25 **COLL 127.** Nanoscale surface creasing induced by post-polymerization modification. **K. Brooks**, J. Razavi, X. Wang, J.J. Locklin

### Discussions with the President's Task Force on Employment

*Sponsored by PRES, Cosponsored by BIOL, BMGT, CARB, CELL, CHED, CINP, COLL, COMSCI, DAC, GEOC, I&EC, IAC, INOR, MEDI, ORGN, PHYS, PMSE, POLY, PROF, SCHB and WCC*

### Applications of Polymer Surfaces & Interfaces

#### New Processes & Surface Functionalization

*Sponsored by POLY, Cosponsored by COLL and PMSE*

### Environmental Interfaces

#### Surface Structures

*Sponsored by GEOC, Cosponsored by COLL, ENVR and MPPG†*

### Physical Chemistry of Complex Environmental Interfaces

*Sponsored by PHYS, Cosponsored by COLL*

## SUNDAY EVENING

## Section A

San Diego Convention Center  
Hall E

## Fundamental Research in Colloids, Surfaces &amp; Nanomaterials

R. Nagarajan, *Organizer*

6:00 - 8:00

- COLL 128.** Synergistic enhancement of antibiotic activity with silver nanoparticles. G. Vildor, K. LaiHing
- COLL 129.** Enhanced solid state fluorescence of nano-colloid and its application on a immunofluorescence labeling. H. Kim
- COLL 130.** Maneuvering the growth pathways of silver nanoplates in kinetically controlled synthesis. M. Kim
- COLL 131.** Synthesis of multilayer organic thin film with variable densities by layer-by-layer (LBL) deposition technique. M. Rashed, M. Hara, S. Nagano, Y. Nagao
- COLL 132.** High throughput protein biomarker studies for early cancer detection. D. Angrish, M.L. Stolowitz, R. Elison, S.S. Datwani
- COLL 133.** Tobacco mosaic virus stabilized by coordination polymers. R. Welch, S. Li, M. Dharmawardana, J.J. Gassensmith
- COLL 134.** Synthesis of PbS/CdS core/shell nanocrystals for emerging optoelectronics applications. S. Krishnamurthy, S. Rupich, J.A. Hollingsworth, A. Malko
- COLL 135.** Optical detection of phosphatase activity with fluorescent graphene oxid. J. Ju, S. Jeon, T. Kang, H. Kim, J. Kim
- COLL 136.** Behavior of nanoscopic quantities of water in reverse micelles using NMR and fluorescence spectroscopies. B. Shone, B.L. Gourley
- COLL 137.** Preparation of octanoic acid coated  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles monolayers using a mixed solvent system. J. Feng, H. Jayathilake
- COLL 138.** What controls the biological stability of RNA immobilized on nanoparticle surfaces? S.N. Barnaby, G. Perelman, C.A. Mirkin
- COLL 139.** PbS/CdS and PbS/ZnS all inorganic quantum dot thin films for solar cells. J.G. Beltran
- COLL 140.** Morphologies of poly(vinyl alcohol) films adsorbed on polydimethylsiloxane substrates with and without plasma treatment. Y. Yan, A. Karki, W. Chen
- COLL 141.** XPS and SERS characterization of plasma-treated Ag colloids. S. Lee, Z. Yang
- COLL 142.** Performance of a new anti-fouling coating on biofilm growth on nanofiltration membranes. Y. Li, W. Hui, K. Yeung
- COLL 143.** Synthesis and biomedical applications of carbon nanomaterials: Investigation of PEG-HCCs in the treatment of ROS-mediated conditions and glioblastoma. L.G. Nilewski, M.A. Sharpe, W. Sikkema, A.S. Jallio, D. Baskin, J.M. Tour
- COLL 144.** Partitioning of organics into surfactant bilayers. R.K. Lindsey, S.N. Jamadagni, D. Eike, P.H. Koenig, J.I. Siepmann
- COLL 145.** Modified atomic layer deposition of ZnS on CdSe quantum dot thin films. F. Al-Qaithi, D. Khon, P. Moroz, A. Lahey, M. Zamkov
- COLL 146.** Size-tunable interfacial charge transfer with CdSe/CdS nanorod photocatalysts. V.L. Bridewell, R. Alam, P.V. Kamat
- COLL 147.** Room temperature growth of CdS monolayers on spherical quantum dots. L.J. Carrillo, D. Khon, N. Razgoniaeva, M. Zamkov
- COLL 148.** Probing nano-bio interactions via a multipronged approach. F. Geiger, H. Fairbrother, J.A. Pedersen, J. Troiano, T. Kuech, A. McGeachy, L.L. Olenick, E. Melby, R. Lankone, E. Ehimighe
- COLL 149.** Characterizing the aggregation of chromonic dyes in the isotropic phase via prodan, an extrinsic fluorophore. Z. Evans, A. Zhang, K.K. Karukstis
- COLL 150.** Synthesis of unusually large magnetic nanospheres and their novel applications in protein detection. Y. Chen, S. Xu, T. Lee
- COLL 151.** Long-range hydrophobic interaction and contact mechanic between rough polymer films in H<sub>2</sub>O, D<sub>2</sub>O, and electrolyte solutions. D. Kienle, J. Ventrici de Souza, T. Kuhl
- COLL 152.** Characterizing divalent metal ion binding sites in graphene oxide with Mn(II) ions. G.E. Decker, L. Nolasco, K. Gesuelli, D.J. Hirsh
- COLL 153.** Method for attaching thiol groups on a silicon (111) substrate. X. Zhang, D. Brodus, V. Hollimon
- COLL 154.** Fabrication of thermoresponsive PEGMA colloids for controlled drug delivery. M. Atas, A. Ozkaya Balci, M. Yavuz
- COLL 155.** Iron oxide nanocages for medical applications. H. Matsui, S. Rampersaud, J. Fang
- COLL 156.** Adsorption of amphoteric polyacrylamide on silica and cellulose surfaces monitored by QCM. Y. Zhu, F. Yang, E. Jin, J. Song
- COLL 157.** Withdrawn.
- COLL 158.** Surface oxidation-reduction of CuOx nanoparticles for the catalytic oxidative reaction. D. Tsai, Y. Lu, C. Lin, F. Chiou, F. Lee
- COLL 159.** Amyloid targeting polymeric nanoparticles which inhibit the enhancement of HIV infectivity related to binding and internalization of HIV virions by SEVI amyloid fibril-mediated mechanisms. D. Sheik, L. Brooks, K. Frantzen, S. Dewhurst, J.C. Yang
- COLL 160.** Zeta potential measurements for the characterization of polymer surfaces with varying amide/amine contents. Z. Zhang, A. Kelly, I. Mühlbacher, F. Stelzer, F. Wiesbrock
- COLL 161.** Modeling the effect of varying surface thickness on the photomobilities of Si slabs. R. Hembree, T. Vazhappilly, D.A. Micha
- COLL 162.** Fluorescently multiplexed proteinase K: Non-mesoporous silica nanoparticle. N. Ledra, T. McCaffrey, J. Cabrera
- COLL 163.** Targeting the role of tyrosine in amot protein-lipid binding events. N. Abufares
- COLL 164.** Withdrawn.
- COLL 165.** Cross-linked polystyrene sulfonic acid and polyethylene glycol as a low-fouling material. A. Alghunaim, B.M. Zhang Newby
- COLL 166.** Development and characterization of surface modified metal oxide nanoparticles. A. Torres, O. Santillan, B. Veldman
- COLL 167.** Gas-phase synthesis of functional nanoparticles for energy applications. D. Tsai, F. Lee, Y. Lu
- COLL 168.** Understanding and controlling the magnetic properties of chemically modified graphene oxide flakes using sulfates. D. Lee, D. Litvinov, T. Lee
- COLL 169.** Probing the conductivity peak of organic electrolyte gated transistors. R. Enright, E. Schmidt, S. White, C.D. Frisbie
- COLL 170.** Structural characterization of red light photoreceptors isolated from *Stigmatala aurantiaca* using atomic force microscopy. R. Rebiai, A. Frost, E.A. Stojkovic, S. Tsonchev, K.T. Nicholson
- COLL 171.** Sol-gel synthesis of modified silica gels containing incorporated heteropolyacids. O. Adetola, L. Golovko, A. Vasiliev
- COLL 172.** ZnO/TiO<sub>2</sub> bilayer film: Energy storage and photocatalytic properties. P. Rangsunwigit, U. Sitthiwong, S. Buama, P. Ngoatrankanwivat
- COLL 173.** Interfacial control of highly absorbent polymers for hemostatic and drug-releasing properties. J. Lundin, B. Streifel, G. Daniels, R. Baumann, J. Duncan, M.G. Stockelman, C.M. Watters, J.A. Stanbro, B.T. Rasley, J.H. Wynne
- COLL 174.** Understanding interactions of organophosphates and thioethers with polyoxometalate clusters. S.L. Giles, J. Lundin, J.H. Wynne, P. Pehrsson, W. Gordon, G.W. Peterson
- COLL 175.** Thiol-functionalized substrates for protein immobilization. S. Xu, W. Chen
- COLL 176.** Hydrotreating properties of nickel phosphide on modified oxide supports. T.R. Clinkingbeard, C.E. Miles, P. Topalian, S.J. Danforth, M.E. Bussell
- COLL 177.** Effects of colloidal C<sub>60</sub> particle size on zeta potential. K. Fujimoto, S. Cates, K. Ausman
- COLL 178.** Phosphatidylserine-containing supported lipid bilayer as a separation medium for copper binding compounds. C.F. Monson, C. Reynolds
- COLL 179.** Holographic imaging of protein aggregates, slurry agglomerates, and waste water contaminants. D.B. Ruffner, D.G. Grier, L.A. Phillips
- COLL 180.** Effect of molecular topology on hydrocarbon surfactant performance. J.A. Clark, M. Ritz, E.E. Santiso
- COLL 181.** Photothermal lens characterization of Ag nanoparticle colloids and films. B. Gebear-Eigzabher, D.R. Radu, C. Lai, A. Marciano
- COLL 182.** CRISPR-Cas9 delivery by DNA nanoclews for efficient genome editing. W. Sun, W. Ji, J.M. Hall, Q. Hu, C. Wang, C. Beisel, Z. Gu
- COLL 183.** Size-tunable dendritic nanoparticles through thiol-yne click chemistry. O. Munkhbat, J. Guo, S. Thayumanavan
- COLL 184.** Layer-by-layer low-temperature passivation of semiconductor nanocrystals with transition metal chalcogenides. P. Moroz, M. Zamkov
- COLL 185.** Fabrication and characterization of germanane as a lithium-ion battery anode. A. Serino, J. Ko, M. Yeung, J. Schwartz, R.B. Kaner, B. Dunn, P.S. Weiss
- COLL 186.** Withdrawn.
- COLL 187.** Flash sintering of solution synthesized Bi<sub>2</sub>Te<sub>3</sub> nanoplatelets. S. Chou, B. Kaehr, B. Swartzenruber, A. Cook, M. Janish, T. Beechem, C. Carter, C. Brinker, D. Ingersoll
- COLL 188.** Convenient bio-inspired approach to the synthesis of multifunctional, stable fluorescent silica nanoparticles. G.W. Chi, C. Bauer
- COLL 189.** Fabrication of mesoporous gold-coated polystyrene particles for enzyme immobilization. S. Choi, O. Graeve
- COLL 190.** Application of soy protein flour as a novel detackifier agent in the recycled pulp. A.H. Tayeb, O.J. Rojas, K.D. Wing, C.L. Salas
- COLL 191.** Effect of incorporation of lysolipid on the stability of dipalmitoyl phosphatidyl choline bilayer membrane at various temperatures: Molecular dynamics simulation approach. K. Lee, H. Yoon, S.S. Jang
- COLL 192.** Single-molecule chemical investigations on DNA nanostructures. M. Freeley, N. Ahlsten, I. Larrosa, M. Palma
- COLL 193.** Nonlinear optical interactions between silver nanoplatelet surface plasmons and various organic/inorganic excitons. Z. Zander, B.G. DeLacy
- COLL 194.** Study of mobility of tri-metallic alloyed nanocrystal in a glassy silica nanosphere. J. Choi, K. Jeon, I. Lee
- COLL 195.** Designing and building an effusive molecular beam doser for methane sticking on vanadium. E. Gabilondo, H. Abbott-Lyon
- COLL 196.** Wettability and packing structure of partially fluorinated  $\omega$ -alkylated self-assembled monolayers. M.D. Marquez, O. Zenasni, T. Lee
- COLL 197.** Deoxygenation properties of bimetallic phosphide catalysts. P.M. Cochran, P. Topalian, B. Carrillo, M.E. Bussell
- COLL 198.** Investigating polymer mediated depletion stabilization of gold nanoparticles in nonpolar solvents. L.B. Thompson, K.T. Lerner
- COLL 199.** Novel nano-drug carrier based on ginsenoside Rb1. J. Lei
- COLL 200.** Quantum chemical studies on the adsorption of DNA bases on Ge(100). D. Kim, Y. Youn
- COLL 201.** Oils derived from native plants to generate a naturally-derived wound dressing. K. Velez, J.J. Rizzo
- COLL 202.** Multifunctional coatings created using an antimicrobial polymer as a platform for titania precipitation on cotton. J.S. Lum, S. Salinas, S. Filocamo
- COLL 203.** Surface assembly of octadecyltrimethoxysilane and 2-[methoxy(polyethyleneoxy)propyl]trichlorosilane nanostructures for the deposition of metal nanoparticles. A.M. Taylor, J.C. Garno
- COLL 204.** Factors affecting morphologies and hydrophilicity of poly(vinyl alcohol) thin films spin-cast on polydimethylsiloxane substrates. K. Lim, W. Chen
- COLL 205.** Synthesis of diphosphine-protected Au<sub>22</sub>(C<sub>28</sub>H<sub>28</sub>OP)<sub>4</sub> nanocluster. Q. Zhang, P.G. Williard, L. Wang
- COLL 206.** Molecular adsorption and surface coverage effects on the morphology of gold nanoparticle. K. Kim, J. Han

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- COLL 207.** Graphene quantum dot-Titania composite materials for photocatalytic water splitting and photovoltaic applications. **S. Chinnusamy Jayanthi, R. Kaur, F. Erogbogbo**
- COLL 208.** Synthesis, characterization, and cellular uptake of cholesterol-modified poly(ethylene glycol)-poly(D,L-lactic acid) polymeric micelles for effective delivery of curcumin in cancer. **P. Kumari, O. Muddineti, B. Ghosh, S. Biswas**
- COLL 209.** Transferrin modified vitamin E: Conjugated lipid mixed micellar system as nanocarrier for the delivery of curcumin in cancer. **O. Muddineti, P. Kumari, B. Ghosh, S. Biswas**
- COLL 210.** 2-photon fluorescence of quantum dots for investigations of nanoparticle formation and growth. **R. Dinkel, B. Braunschweig, W. Peukert**
- COLL 211.** Effects of defective graphene on the enhanced gas sensing: A density functional theory study. **A. Cho, K. Kim, J. Han**
- COLL 212.** Development of a multiplexed point-of-care SERS immunoassay based on antigen mediated aggregation of gold nanoparticles. **S. Filbrun, Y. Lai, A. Lopez, J. Driskell**
- COLL 213.** Asymmetric functionalization of gold nanoparticles to produce controlled dimers: A novel approach to aggregation based immunoassays. **A.B. Mandl, S. Filbrun, Y. Lai, F. Lovato, J. Driskell**
- COLL 214.** Graphene quantum dots enhanced microfluidics based paper analytical device ( $\mu$ pads) for glucose detection. **N. Gobi, D. Vijayakumar, F. Erogbogbo**
- COLL 215.** Structural conformation of methacrylate-based functionalized monomers and polymer thin films at the air interface. **K.A. Cimat, S.C. Chan, N.M. Adhikari**
- COLL 216.** Detection and identification of negatively-charged gold nanoparticles using pH indicator arrays. **J.C. Williams, S.E. Lohse**
- COLL 217.** Layer-by-layer assembly and catalysis from polymer-capped Au nanoparticles. **N. Sieps, D.A. Rider**
- COLL 218.** Mechanism and characterization of inorganic mineralization of palladium on virus templates. **O. Adigun, M.T. Harris**
- COLL 219.** Elucidating the mechanism behind spin-dependent charge transport through DNA monolayers. **J.M. Abendroth, P.S. Weiss**
- COLL 220.** Colloidal self-assembly of multi-fluorescent hybrid silsesquioxane particles. **H.P. Rathnayake**
- COLL 221.** Lithium fluoride nanoparticles injected with hyaluronic acid for management of osteoarthritis pain. **T. Todd, Z. Zhen, H. Chen, J. Xie**
- COLL 222.** Four criteria demonstrating cross-linking of ultrasmall superparamagnetic iron oxide (USPIO) nanoparticles. **E.V. Groman**
- COLL 223.** Emulsion properties depend on the equilibrium phase behavior and structure encountered during the emulsification process. **K. Kaizu, P. Alexandridis**
- COLL 224.** Tracking and aiding the survival of stem cells by indocyanine green- and insulin growth factor-loaded mesoporous cellular foam. **F. Chen, J. Wang, F. Wang, J.V. Jockerst**
- COLL 225.** Nanoporous materials genome center: Methods and software to optimize gas storage, separation, and catalysis. **J.J. Siepmann, L. Gagliardi**
- COLL 226.** Solvent and ligand effect on ultrafast and temperature-dependent optical properties of bi-icosahedral Au<sub>25</sub> clusters. **V.D. Thanthirige, A. Chaffee, R. Guda, E. Sinn**
- COLL 227.** Microdroplet traps for the investigation of nanocrystal interactions in small volumes. **B. Rossi, M. Stoller, S. Morin**
- COLL 228.** Novel polymeric silsesquioxane nanocolloids and their assembly. **P.M. Huzyak, J. Sharpsteen, H.P. Rathnayake**
- COLL 229.** Chiral ceramic nanoparticles. **S. Jiang, N. Kotov, A. Yelitik**
- COLL 230.** Interferences in reflected infrared extinction spectra from a gold-coated periodic particle array. **A. Carrillo, E. Miller, D.E. Thompson**
- COLL 231.** Silver nanoparticles synthesis as SERS substrates for ketoconazole determination. **M. Alshalfah, A.A. Al-Saadi, T.A. Saleh**
- COLL 232.** Localization of porphyrins to spatially confined sites of self-polymerized 4-(chloromethyl)phenyltrichlorosilane studied with atomic force microscopy. **P.C. Chambers, J.C. Garno**
- COLL 233.** One-step and one-pot preparation of ampicillin-functionalized antibacterial gold and silver nanoparticles. **Y. Park, S. Cho**
- COLL 234.** Optical and structural characterization of stoichiometric and indium-rich CuInS<sub>2</sub>/ZnS colloidal quantum dots. **A. Nguyen, C. Robinson, C.D. Heyes**
- COLL 235.** Ultrasmall metal nanoclusters as electrocatalysts for hydrogen evolution reaction. **W. Choi, K. Kwak, M. Kim, D. Lee**
- COLL 236.** Effects of antifreeze polypeptides on calcium carbonate crystallization. **J. Lugo, A.A. Kishishita, Y. Bagdagulyan, A. Morita, X. Wen**
- COLL 237.** Green silver nanoparticles synthesized by *Caesalpinia sappan* extract and their antibacterial activities against methicillin-resistant *Staphylococcus aureus*. **Y. Park, S. Cho**
- COLL 238.** Catechin-capped gold nanoparticles: Eco-friendly synthesis and catalytic activity toward 4-nitrophenol reduction. **Y. Park, S. Cho**
- COLL 239.** Green gold nanoparticles synthesized with earthworm extracts and their enhancement on anticoagulant activities of heparin. **Y. Park, S. Cho**
- COLL 240.** Resveratrol-capped gold and silver nanoparticles and their antibacterial activity against *Streptococcus pneumoniae*. **Y. Park, S. Cho**
- COLL 241.** Ultrasound signal of mesocellular foam and mesoporous nanoparticles. **F. Wang, F. Chen, J.V. Jockerst**
- COLL 242.** Gold nanostructures stabilized with peptide self-assembly for chemical and biological applications. **S. Lee**
- COLL 243.** Electrocatalytic behaviors of metal nanoparticles for CO<sub>2</sub> reduction. **Y. Lee, S. Im, D. Lee**
- COLL 244.** Charge anisotropy of gold nanorods. **J. Kim, M. Han, Y. Zhu, N. Kotov**
- COLL 245.** Bio-activity of a series of novel multi-functional bio-compatible polymers. **P. Fulmer, B. Streifel, J. Duncan, J. Lundin, J.H. Wynne**
- COLL 246.** Few-layered 2D nanosheets generated by green liquid-phase exfoliation methods. **S. Ravula, G.A. Baker**
- COLL 247.** Plasmonic coupling in nanoparticle cluster and random arrays. **J. Jenkins, X. Tian, Y. Zhou, S. Thota, S. Zou, J. Zhao**
- COLL 248.** Nano-confinement induced phase transitions of dithiol monolayers with applications in directing the assembly of electro-active porphyrin molecules. **A. Pawlicki, E. Avery, M.J. Jurow, B. Ewers, A. Vilan, C.M. Drain, J.D. Batteas**
- COLL 249.** Surface patterns of inorganic nanoparticles characterized with force modulation atomic force microscopy. **D. Alexander, X. Zhai, J.C. Garno**
- COLL 250.** Dynamic surface on gold nanorods for reversible Raman enhancement. **J. Li, K.G. Schmitt, C.J. Murphy**
- COLL 251.** Langmuir monolayer and AFM analysis of a collagen/phospholipid/titanium model membrane system for the investigation of osteoblast affinity to titanium rods. **M. Gulley, K.B. Eskandar, L.J. Moore, A. Sostarecz**
- COLL 252.** Using AFM to study transcription factor binding. **K.B. Eskandar, M.M. Ahmad, A. Sostarecz, L.J. Moore**
- COLL 253.** Synthesis and AFM characterization of designed nanostructures of transition metal-doped-ceria. **A. Francis, S.M. Deese, J.C. Garno**
- COLL 254.** Patterning proteins at the nanoscale using spatially selective surfaces prepared by particle lithography. **C.N. Leegwater, Z.L. Highland, J.C. Garno**
- COLL 255.** Designed synthesis of lanthanide doped core-shell nanoparticles with excitation at a benign wavelength. **C.A. Arboleda, S. He, N.J. Johnson, A. Almutairi**
- COLL 256.** Adsorption of methanol on ZIF-8 thin films under low temperature and low pressure conditions. **F. Tian, A. Mosier, H. Larson, E. Webster, M. Ivos, L.B. Benz**
- COLL 257.** Influence of surface chemistry on gold nanoparticle biostability. **J. Delaney, S.E. Lohse**
- COLL 258.** Characterization of nanofoam collapse in response to exposure to volatile organic compounds. **C. Tysinger, N. Borodinov, B.V. Zdyrko, A.E. Soliani, Y.D. Galabura, J.M. Giammarco, I.A. Luzinov**
- COLL 259.** Examination of 4',6'-diamidino-2-phenylindole in silica gels through surface-enhanced Raman spectroscopy and fluorometry. **N. Trujillo, E.J. Atkinson**
- COLL 260.** Adsorption and surface reactivity of Zn<sub>x</sub>Ce<sub>1-x</sub>O<sub>2-y</sub> nanoparticles. **T.H. James, M.L. Kumbier, D. Wilson, M.A. Langell**
- COLL 261.** Withdrawn.
- COLL 262.** Fabrication of superhydrophobic wood surfaces with micro-/nano-composite particles. **X. Zhai, Z. Gao, C. Wang**
- COLL 263.** Reduction of CO<sub>2</sub> on Cu and Au/W electrode surfaces: A study by differential electrochemical mass spectrometry. **A. Javier, J.H. Baricuato, Y. Kim, M.P. Soriaga**
- COLL 264.** Synthesis and characterization of magnetic Fe and Fe-Co polypyrrole-encapsulated nanoparticles. **N. Longoria, R. Morales**
- COLL 265.** Elucidating the structure and assembly of amino acids on silica nanoparticles. **H.L. Swanson, C. Guo, S.K. Davidowski, G.P. Holland**
- COLL 266.** Tethering of lipids leads to increased resistance to membrane leakage at elevated temperature. **G. Leriche, Y.H. Kim, T. Koyanagi, K. Diraviyam, K. Gao, O. Eggenberger, D. Onofrei, J. Patterson, N.C. Gianneschi, G.P. Holland, M.K. Gilson, D. Sept, M. Mayer, J.C. Yang**
- COLL 267.** Characterization of CdSSe and CdS<sub>2</sub> quantum dots prepared via microwave assisted synthesis. **C. Aviles, I.N. Leon Feliciano, G. Rivera Rodriguez, L. Alamo Nole**
- COLL 268.** Polarization mapping sum frequency generation vibrational spectroscopy of methacrylate based functional polymer thin film on dielectric substrate. **N.M. Adhikari, K.A. Cimat, S.C. Chan**
- COLL 269.** Modifying lipid bilayer permeability with inorganic nanoparticles. **S.M. Ansar, C.L. Kitchens**
- COLL 270.** Computational study of lumazine assembly around single-walled carbon nanotubes. **E. Karunarathne, M. Mollahosseini, F. Papadimitrakopoulos**
- COLL 271.** Morphology-tunable synthesis, growth and optimization of copper nanowires. **M. Ghabadi, S. Darmakolla, S.B. Rananavare**
- COLL 272.** Controlling void development in phenolic composites. **A. Hollcraft, D.A. Rider, C. Grubb**
- COLL 273.** Solution phase investigation of free charge carriers in single-walled carbon nanotubes. **A. Sykes**
- COLL 274.** Colloidal nanocrystals for self-assembled optical nanotenna. **T. Dill, D. Zwisler, S. Palani, A.R. Tao**
- COLL 275.** Preparation of (Cu-ZnO)<sub>2</sub>C core- and yolk-shell nanoparticles. **C. Hong, J. Wang, Y. Wei, W. Lin, H. Wang**
- COLL 276.** Withdrawn.
- COLL 277.** Robust hybrid membrane-coated nanoparticles for targeting tumors. **M.R. Mackiewicz, P.J. Sanchez**
- COLL 278.** Withdrawn.
- COLL 279.** ROS-responsive nanoparticles to extend the lifetime of anti-angiogenic drug. **V. Nguyen Huu, J. Zhu, G. Collet, S. Patel, C. de Gracia Lux, K. Zhang, A. Almutairi, J. Luo**

### My Comments to the President's Task Force on Employment

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## MONDAY MORNING

### Section A

San Diego Convention Center  
Room 7A

### ACS Award in Colloid & Surface Chemistry: Symposium in honor of Nicholas L. Abbott

#### Self-Assembly

P. Alexandridis, *Organizer, Presiding*

P.R. Van Tassel, *Presiding*

**8:30 COLL 280.** Dynamics of colloidal particles in liquid crystals. **O. Lavrentovich**

**9:00 COLL 281.** Engineering interfaces and particles through the assembly of metal-phenolic networks. **F. Caruso**



**9:30 COLL 282.** Spontaneous vs. on-demand degrafting of polymer brushes and organosilane monolayers from silica surfaces. J. Genzer

**10:00 COLL 283.** Stimuli responsive materials from lipids: Applications into drug delivery systems and diagnostics. B.J. Boyd

**10:30 COLL 284.** Layer-by-layer assembled polyelectrolyte films as porous biomolecular delivery systems. A. Gand, M. Hindie, E. Pauthe, P.R. Van Tassel

**11:00 COLL 285.** Amphiphilic polymer self-assembly and disassembly. P. Alexandridis

**11:30 COLL 286.** Molecular packing and self-assembly. R. Nagarajan

## Section B

San Diego Convention Center  
Room 7B

### Biomembrane Synthesis, Structure, Mechanics & Dynamics

#### Model Systems

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

D. L. Daleke, *Presiding*

**8:30 COLL 287.** Simple routes to all-polymeric corrals, flow-channels and traps for studies of lipid and protein diffusion in supported lipid bilayers. G.J. Leggett, A. Johnson, P. Bao, E. Leeds, S.P. Armes, M. Cartron, C. Hunter

**9:00 COLL 288.** Characterizing the interactions of lipid bilayers with antimicrobial peptides and magnetic fields. S.L. Biswal, J. Wang

**9:30 COLL 289.** Nanolipoprotein particles: Encapsulated in silica gel or targeted to lipid phases. W. Zeno, S.H. Risbud, M.L. Longo

**10:00** Intermission.

**10:10 COLL 290.** Designing beta solenoid proteins for nanoscale materials and devices. M. Peralta, Z. Peng, A. Karsai, A. Ngo, C. Sierra, K. Ravikumar, N.R. Hayre, X. Chen, G. Liu, M. Toney, D. Cox, R.R. Singh, K. Fong, A. Kluber, N. Mirzaee

**10:40 COLL 291.** Dissipative and dynamic self-assembly: Spontaneous osmoregulation in giant vesicles. A.N. Parikh

**11:10 COLL 292.** En route to tunable membrane topography: Induced domain reorganization and switchable protein binding. R. Ashkar

**11:40 COLL 293.** Colloidal properties of nanoerythrocytes derived from bovine red-blood-cells. S.R. Raghavan, Y. Kuo

## Section C

San Diego Convention Center  
Room 8

### Nanomedicines: Targeting & Clearance Therapy

G. Han, Z. Wang, J. Zheng, *Organizers*

Z. Gu, J. Xie, *Organizers, Presiding*

**8:30 COLL 294.** Liposomal spherical nucleic acids: Nanostructures enabling the potential of therapeutic nucleic acids. C.A. Mirkin

**9:00 COLL 295.** Chemoradiotherapy with nanoparticle therapeutics: Improving targeting and reducing toxicity. A. Wang

**9:30 COLL 296.** Self-assembly of nano-conjugates on the cell surface triggers apoptosis. J. Kopeček, J. Yang, J.M. Hartley, R. Zhang, T. Chu

**10:00 COLL 297.** Hybrid nanoparticles for treating resistant cancers. W. Lin

**10:30 COLL 298.** Formulation of nanoparticles through controlled chemistry for drug delivery application. Q. Yin, L. Tang, J. Cheng

**11:00 COLL 299.** Macrophage recognition of 'self' for nano- and micro- medicine. D.E. Discher

**11:30 COLL 300.** Synergistic photothermal and antibiotic eradication of *S. aureus* biofilms using targeted, drug-loaded nanoparticle. S.V. Jenkins, D.G. Meeker, E.K. Miller, M.S. Smeltzer, J. Chen

**11:50 COLL 301.** Kras/P53 targeted RNAi combination nano-therapeutics for treating non-small cell lung cancer. L. Gu, Z. Deng, P.T. Hammond

## Section D

San Diego Convention Center  
Room 9

### Nanometal: Synthesis, Structure, Property & Application

#### Nanoclusters

Y. Han, D. Jiang, J. Zheng, *Organizers*

T. Bürgi, Q. Wang, *Presiding*

**8:30 COLL 302.** Toward synthesis of the Au<sub>20</sub> pyramid and other atom-precise gold nanoclusters using phosphine ligands. J. Chen, Q. Zhang, P.G. Williard, L. Wang

**9:05 COLL 303.** Ligand exchange and catalysis on thiolate-protected nanoparticles. C.M. Aikens, A. Fernando, B.M. Barngrover

**9:40 COLL 304.** Magic sized gold nanoclusters as supermolecules. C. Zeng, R. Jin

**10:00** Intermission.

**10:30 COLL 305.** Tuning the properties of atomically precise silver nanoclusters. O.M. Bakr

**11:05 COLL 306.** Molecular silver nanoparticles: Chemical, optical, and structural properties. T.P. Bigioni

**11:40 COLL 307.** Structure and properties of nanometals from X-ray absorption spectroscopy. P. Zhang

## Section E

San Diego Convention Center  
Room 10

### Frontier of the Interface of Materials & Biology: Protein Based Nanomaterials

#### Protein Assembly & Materials Development

Q. Wang, *Organizer*

H. Yi, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 COLL 308.** Creation of stable protein films through nanoimprint lithography. V.M. Rotello

**9:05 COLL 309.** Construction of functional nano protein assembly. J. Liu

**9:35 COLL 310.** Design of functional nanostructured materials. E. Paskaleva, K. Mehta, X. Wu, R. Mundra, J.S. Dordick, R.S. Kane

**10:05 COLL 311.** Peptide assembly for nanoparticle fabrication in complex shapes and the shape matters for drug delivery efficiency in cancer cells and MR imaging. H. Matsui, J. Fang, N. Yakob, S. Rampersaud

**10:35 COLL 312.** Building hybrid architectures for optical sensing and protonic devices with solid binding proteins. F. Baneyx

**11:05 COLL 313.** Charge effects on the self-assembly of protein block copolymer nanostructures. B.D. Olsen, C. Lam, D. Chang, M. Kim

**11:35 COLL 314.** Atomistic modeling of biologically active nanoparticles and nanomedicines. P. Kral

## Section F

San Diego Convention Center  
Room 11A

### Colloids for Medical Imaging

#### Nanoparticles as Contrast Agents

J. M. Berlin, P. del Pino, W. Parak, *Organizers, Presiding*

**8:30 COLL 315.** Multifunctional nanoprobe for targeted photoacoustic imaging and photothermal therapy of cancer stem-like cells. D. Cui

**9:00 COLL 316.** Plasmonic ruler: From cells to detection of micrometastasis in patients. L. Geoffrey P., J. Aaron, M. Jeffrey N., A. Gillenwater, S. Emelianov, K.V. Sokolov

**9:30 COLL 317.** <sup>19</sup>F MRI contrast agent based on mesoporous silica nanoparticles. J.L. Steinbacher, J. Rutowski, S. Fitzgerald, J. Binns, J. Kasper

**9:45 COLL 318.** New approach to achieve enhanced MRI signal using <sup>19</sup>F-containing polymeric tracer. O. Munkhbat, S. Thayumanavan

**10:00 COLL 319.** Layer-by-layer assembled theranostics in the second near-infrared window for Non-invasive monitoring of ovarian cancer treatment. L. Gu, X. Dang, P.T. Hammond, A.M. Belcher

**10:15 COLL 320.** Hydrophobic mesoporous silica nanoparticles as fluorocarbon-free nanoscale ultrasound contrast agents. A. Yildirim, R. Chattaraj, N.T. Blum, G.M. Goldscheliter, A.P. Goodwin

**10:30** Intermission.

**11:00 COLL 321.** Magneto-liposomes for magnetic resonance imaging theranostics. P. Ramos-Gabrer

**11:30 COLL 322.** Multifunctional silica nanoparticles for MR imaging and high intensity ultrasound ablation. J. Wang, A. Liberman, R. Viveros, S. Sammet, N. Lu, M. Kim, W.C. Trogler, A. Kummel

**11:45 COLL 323.** Ultrasound activated film for *in vivo* biomedical marker. J. Yang, J. Wang, N. Mendez, C. Barback, E. Ward, C.N. Ta, S. Blair, W.C. Trogler, A. Kummel

**12:00 COLL 324.** Stöber silica nanoparticles can concentrate methylene blue for a charge-tunable photoacoustic imaging agent. J. Wang, F. Chen, J.V. Jokerst

**12:15 COLL 325.** *In vivo*, ppb uranium detection via a porphyrinoid-containing nanoparticle and *in vivo* photoacoustic imaging. I. Ho, J.L. Sessler, J.V. Jokerst

## Section G

San Diego Convention Center  
Room 11B

### Computational & Experimental Advances Towards Design of Energy Efficient Catalysts

K. Challa, C. M. Friend, *Organizers, Presiding*

**8:30 COLL 326.** Multifunctional catalysis for low temperature upgrade of biomass. D.G. Vlachos

**9:00 COLL 327.** Atomic-scale observations of heterogeneous catalyst reactions at up to atmospheric pressure. A.K. Datye, L.F. Allard

**9:30 COLL 328.** Understanding the activity of Pt-Re bimetallic catalysts. D.A. Chen, A. Duke, K. Xie, R.P. Galhenage, G. Seuser

**10:00 COLL 329.** Improving the accuracy of DFT modeling of electrochemistry. M.A. Caro, T. Laurila, O. Lopez-Acevedo

**10:30 COLL 330.** Analyzing the case for bifunctional catalysis. M. Andersen, A.J. Medford, J.K. Norskov, K.U. Reuter

**11:00 COLL 331.** Nickel-gold single and multiple atom alloys; understanding the relationship between atomic geometry and chemical reactivity. E.H. Sykes

**11:30 COLL 332.** Active gold on active oxides. H. Hakkinen

## Section H

San Diego Convention Center  
Room 24B

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Carbon Materials

R. Nagarajan, *Organizer*

H. Liu, *Presiding*

**8:30 COLL 333.** Withdrawn.

**8:50 COLL 334.** Polymer substituted vertically aligned carbon nanotube membranes for protection against aarfare agents. M.B. Herbert, F. Fornasiero, T.M. Swager

**9:10 COLL 335.** Solution processable molecular transport junctions employing carbon nanoelectrodes. J. McMorrow, J. Zhu, R. Crespo-Otore, A. Geyou, M. Zheng, W. Gillin, M. Palma

**9:30 COLL 336.** Photoluminescence quenching of single-walled carbon nanotubes through C<sub>60</sub>: Functionalized flavin helices. M. Mollahosseini, E. Karunaratne, J. Gascon, G. Gibson, F. Papadimitrakopoulos

**9:50 COLL 337.** Keeping graphene clean: Prevention of airborne contamination using water. H. Liu

**10:10 COLL 338.** Synthesis and characterization of meso-graphene oxide roses for cancer applications. S. Sharma, V.H. Pham, J.H. Dickerson, R. Tannenbaum

**10:30 COLL 339.** Crumpling of graphene nanosheets for 3D networks preparation. D. Parviz, M. Plummer, F. Iri, S. Das, M. Green

**10:50 COLL 340.** Withdrawn.

**11:10 COLL 341.** Reversible near-infrared fluorescence quenching of flavin suspended single-walled carbon nanotubes. M. Mollahosseini, F. Papadimitrakopoulos

**11:30 COLL 342.** Characterizing the differences in adsorbed surfactant and hydration layers around single wall carbon nanotubes using analytical ultracentrifugation. S. Lam, J.A. Fagan

## Environmental Interfaces

### Redox Reactions

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### Physical Chemistry of Complex Environmental Interfaces

*Sponsored by PHYS, Cosponsored by COLL*



## MONDAY AFTERNOON

## Section A

San Diego Convention Center  
Room 7A

**ACS Award in Colloid & Surface Chemistry: Symposium in honor of Nicholas L. Abbott**

**Interactions Between Surfaces & Nanoparticles**

P. Alexandridis, *Organizer*

M. A. Bevan, R. D. Tilton, *Presiding*

**2:00 COLL 343.** Precise chemical, physical, and electronic nanoscale contacts. P.S. Weiss

**2:30 COLL 344.** Nanoparticles interactions. N. Kotov, R.G. Larson, C. Silvera Batista

**3:00 COLL 345.** Responsive polymeric nanoassemblies. S. Thayumanavan

**3:30 COLL 346.** Design rules for thermally reversible bioadhesive thin films. D.E. Leckband, S. Choi, C. Xue

**4:00 COLL 347.** Star polymer adsorption and surface forces. J.K. Riley, R.D. Tilton

**4:30 COLL 348.** Design of new classes of responsive soft matter by embedding nanoparticle structures in Pickering foams and multiphasic gels. O.D. Velev

**5:00 COLL 349.** Non-equilibrium colloidal assembly pathways via synergistic dipolar, depletion, and hydrodynamic interactions. M.A. Bevan

## Section B

San Diego Convention Center  
Room 7B

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

J. Katsaras, S. Muralidharan, M. Nieh, N. Srividya, *Organizers*

A. N. Parikh, *Organizer, Presiding*

**2:00 COLL 350.** Specificity and mechanism of an aminophospholipid flippase. D. Dudek, J. Paterson, D.L. Daleke

**2:30 COLL 351.** Probing cellular mechanosensitivity using cadherin-functionalized polymer-tethered lipid bilayer architectures. C. Naumann, Y. Ge, K. Shilts

**3:00 COLL 352.** Fully automated, parallel lipid bilayer platform for specific nucleic acid detection. E. Schopf, J. Poulos, J. Schmidt

**3:30** Intermission.

**3:40 COLL 353.** Consequences of lipid oxidation on bilayer structural and mechanical properties. N. Malmstadt

**4:10 COLL 354.** Interplay of the physical microenvironment, contact guidance and cell signaling in cell decision making. C.D. Paul, K. Konstantopoulos

**4:40 COLL 355.** Evaluation of drug-mediated changes in cardiomyocytes by AFM. S. Zou, A. Chen

**5:10 COLL 356.** Nanomechanical properties of the stratum corneum and its interaction with a single hair fiber. N. Nordgren, R. Álvarez-Asencio, V. Wallqvist, M. Kjellin, M.W. Rutland, A. Camacho, G.S. Luengo

## Section C

San Diego Convention Center  
Room 8

**Nanomedicines: Targeting & Clearance**

G. Han, J. Xie, J. Zheng, *Organizers*

Z. Gu, Z. Wang, *Organizers, Presiding*

**2:00 COLL 357.** Smart pH-activated nanoparticles for targeting the tumor microenvironments. S. Nie, J. Du

**2:30 COLL 358.** Renally excreted ultrasmall silica nanoparticles as clinically translated multimodal cancer-targeted platforms for nanomedicine. M. Bradbury, P. Mohan, K. Ma, B. Yoo, P. Zanzonico, S. Patel, U.B. Wiesner

**3:00 COLL 359.** Renally cleared contrast agents for tissue-specific targeting. H. Choi

**3:30 COLL 360.** What may happen to hybrid nanoparticles once they are administered *in vitro* or *in vivo*. W. Parak

**4:00 COLL 361.** Near IR nanobiophotonics for nanomedicine: From targeting, to theranostics, to clearance. P.N. Prasad

**4:30 COLL 362.** Surface engineered ferritins for drug delivery and photodynamic therapy. J. Xie

**5:00 COLL 363.** Cell membrane-camouflaged nanomotors for biodetoxification and drug delivery. J. Li, L. Zhang, J. Wang

**5:20 COLL 364.** Stability of gold nanoaggregates affects biological fate. A. Liu, D. Van Haute, J.M. Berlin

## Section D

San Diego Convention Center  
Room 9

**Nanometal: Synthesis, Structure, Property & Application**

**Nanoparticles, Nanowires & 2D Materials**

D. Jiang, *Organizer*

Y. Han, J. Zheng, *Organizers, Presiding*

**2:00 COLL 365.** Molecular mimicking self-assembly: Precise positioning of nanoparticles using non-biological molecules. Z. Nie, C. Yi, S. Zhang

**2:35 COLL 366.** Controlled synthesis of nanostructured metal catalysts. S. Dai

**3:10 COLL 367.** Microscopic insights into the synthesis of discrete and hybrid colloidal metal nanoparticles. R.E. Schaak

**3:45 COLL 368.** Computational design of nanoparticles and nanowires for electrocatalysis. Z. Chen, X. Zhang, G. Lu

**4:20** Intermission.

**4:50 COLL 369.** Designed chemical synthesis and assembly of uniform-sized nanoparticles for medical and energy applications. T. Hyeon

**5:25 COLL 370.** Crystal phase-controlled synthesis of novel noble metal nanomaterials. H. Zhang

**6:00 COLL 371.** Heterostructures of two-dimensional materials and their potential applications. L. Li

## Section E

San Diego Convention Center  
Room 10

**Frontier of the Interface of Materials & Biology: Protein Based Nanomaterials**

**Protein Assembly & Other Nanoparticles**

Q. Wang, *Organizer*

H. Yi, *Organizer, Presiding*

**1:30 COLL 372.** Fluorescent, edible protein nanoparticles for pH sensing, small molecule sensing, and cellular imaging. B. Stromer, C.V. Kumar

**1:50 COLL 373.** Formation of protein fibers around gold nanoparticles: Fiber formation more likely for hydrophilic proteins at low concentrations. M.R. Hartings, D. Fox

**2:10 COLL 374.** Proton conduction in a cephalopod structural protein. D.D. Ordinario, L. Phan, W. Walkup, J. Jocsion, N. Huesken, A.A. Gorodetsky

**2:30 COLL 375.** Crystalline silk nanodiscs: One material many applications. R. Patwa, P. Dhar, A. Kumar, V. Katiyar

**2:50 COLL 376.** Self-assembly of nanodiscs by apolipoprotein C-III. C. Brisbois, J.C. Lee

**3:10 COLL 377.** Profiling the dielectric constant at the membrane-peptide interface of silica-nanoparticle-supported lipid bilayer using ionizable EPR probes. E. Ou, M. Donohue, M. Vovnov, S. Milkislyants, A.I. Smirnov, T. Smirnova

**3:30 COLL 378.** Edible chemistry 101: Direct exfoliation of graphite to graphene in serum. A. Pattammattel, C.V. Kumar

**3:50 COLL 379.** Peptides with selective affinity to polymers for harvesting the cell sheet. S. Lee, K.J. Shea

**4:10 COLL 380.** Stability of proteins in supraparticles. G.D. Silveira, T.D. Nguyen, J. Bahng, S.C. Glotzer, N. Kotov

**4:30 COLL 381.** Protein-nanoparticle conjugate scaffolds for versatile biosensing. S. Unser, L. Litosh

## Section F

San Diego Convention Center  
Room 11A

**Colloids for Medical Imaging**

**Synthesis & Applications**

J. M. Berlin, P. del Pino, W. Parak, *Organizers, Presiding*

**2:00 COLL 382.** Determination of nanocrystal size by analytical ultracentrifugation: Limits of Stokes law. P. Mulvaney

**2:30 COLL 383.** Upconverting nanoparticles as platforms for multimodal imaging and metal-based photochemotherapy. S. Alonso de Castro, E. Ruggiero, L. Salassa

**3:00 COLL 384.** Controlled assembly of biocompatible metallic nanoaggregates using a small molecule crosslinker. J.M. Berlin

**3:30 COLL 385.** Characterization of amphiphilic copolymer micelles for drug delivery. S. Kaur, B. Gupta, X. Xu, J. Nguyen, A. Watterson, M. Ruths

**3:50** Intermission.

**4:20 COLL 386.** Imaging gold nanoparticles in and around cells. C.J. Murphy

**4:50 COLL 387.** PEGylated gold nanoparticles: Impact on cell fitness. B. Pelaz, P. del Pino, W. Parak

**5:20 COLL 388.** Enhanced two-photon photoluminescence with colloidal plasmonic semiconductor nanocrystals. B. Marin, S. Hsu, A.R. Tao

**5:40 COLL 389.** Controlling the morphology: A facile approach to prepare fluorescent nano-objects via polymerization-induced self-assembly. M. Huo, M. Sun, X. Chen, J. Yuan, Y. Wei

## Section G

San Diego Convention Center  
Room 11B

**Computational & Experimental Advances Towards Design of Energy Efficient Catalysts**

K. Challa, C. M. Friend, *Organizers, Presiding*

**2:00 COLL 390.** Synthesis of bulk mesoporous dilute alloy catalysts. J. Biener, J. Ye, T. Egle, M.M. Biener, J. Shan, N. Janvelyan, L. Wang, C. Barroo, M.A. Worsley, M. Stephanopoulos, R.J. Madix, C.M. Friend

**2:30 COLL 391.** Structure and reactivity of AgAu Alloys. M. Montemore, E. Kaziras

**3:00 COLL 392.** Continuous gas phase catalytic production of methyl acrylates by nanoporous gold-mediated cross coupling. R.J. Madix, B. Zugic, S.G. Karakalos, K. Stowers, M. Biener, J. Biener, C.M. Friend

**3:30 COLL 393.** Catalytic reactions on optically excited plasmonic metal nanoparticles. S. Linic

**4:00 COLL 394.** Experimental establishment of scaling relationships for processes on alloy catalysts. A.J. Gellman, J. Liu, C. Yin, X. Yun

**4:30 COLL 395.** Discovery and optimization of catalysts using high-throughput approaches. J. Lauterbach

**5:00 COLL 396.** Modeling energy efficient catalysts from first principles. A. Tkatchenko

## Section H

San Diego Convention Center  
Room 24B

**Basic Research in Colloids, Surfactants & Nanomaterials**

**Biointerfaces**

R. Nagarajan, *Organizer*

G. P. Holland, *Presiding*

**2:00 COLL 397.** Understanding the interactions of conjugated oligoelectrolytes in phospholipid membranes for enhanced cross membrane charge transfer. J. Jahnke, M. Bryan, J. Belanger, L. Ista, G.C. Bazan, J. Sumner

**2:20 COLL 398.** Fixed membranes for the study of wildtype  $\alpha$ -synuclein's binding to lipid bilayers. W. Lin, D. Berthold, C. Rienstra, C.J. Murphy

**2:40 COLL 399.** Interactions of nano-size antibiotics with biomimetic bacterial cell membranes. J. Hoyo, M. Fernandes, T. Tzanov

**Technical program information known at press time.**

**The official technical program for the 251st ACS National Meeting is available at:**  
[www.acs.org/sandiego2016](http://www.acs.org/sandiego2016)

- 3:00 COLL 400.** Interaction between triblock copolymer poly (propylene glycol) – poly (ethylene glycol) – poly (propylene glycol) and model lipid membranes. Y. Xia, H. Jang, C. Yu, N. Tennakoon, M. Nieh
- 3:20 COLL 401.** Molecular mechanisms of peptide and protein binding at nanostructured interfaces. H.L. Swanson, C. Guo, S.K. Davidowski, G.P. Holland
- 3:40 COLL 402.** Semiconductor nanorods functionalization for plasma membrane insertion. J.J. Li, Y. Kuo, S. Weiss
- 4:00 COLL 403.** Transforming liquid crystal interfaces with enzyme-responsive polymers and surfactants. L. Adamiak, D. Ma, D. Miller, X. Wang, N.L. Abbott, N.C. Gianneschi
- 4:20 COLL 404.** Aggregation properties of a short antimicrobial peptide in the presence of model membranes. N. Phambu, A. Sunda-Meya
- 4:40 COLL 405.** Enzymatically-crosslinked multilayer antioxidant/nanoantibiotic coatings for prevention of bacterial biofilms. K. Ivanova, M. Metieva, T. Tzanov
- 5:00 COLL 406.** Antibacterial approaches from materials engineering perspective: Enzymes on work. T. Tzanov, K. Ivanova, P. Petkova, E. Ramon, M. Fernandes, C. Diaz Blanco
- 5:20 COLL 407.** Contrasting the interactions of dental pulp stem cells with 3-D printed vs molded polymer constructs. M. Rafailovich, M. Simon, A. Pinkas-Sarafova, K. Che

#### Diversity-Quantification-Success?

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## MONDAY EVENING

### Section A

San Diego Convention Center  
Halls D/E

#### Sci-Mix

R. Nagarajan, Organizer

#### 8:00 - 10:00

132, 135-139, 141, 143-144, 146-152, 155-156, 159-162, 169-173, 177-180, 183-185, 189, 192, 196, 198, 200-201, 203, 206, 208, 212-216, 219-220, 222, 224, 226-228, 231, 234, 236, 242, 244-245, 250-251, 262, 264-265, 269-270, 279. See previous listings.

456, 465, 578. See subsequent listings.

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## TUESDAY MORNING

### Section A

San Diego Convention Center  
Room 7A

#### ACS Award in Colloid & Surface Chemistry: Symposium in honor of Nicholas L. Abbott

#### Biomolecules & Biointerfaces

P. Alexandridis, Organizer

R. S. Kane, D. B. Weibel, Presiding

**8:30 COLL 408.** DNA from mm to nm length scales. J.J. De Pablo

**9:00 COLL 409.** Programming molecular self-assembly of intrinsically disordered proteins. G. Lopez, J. Simon, N. Carroll, M. Rubinstein, A. Chilkoti

**9:30 COLL 410.** Design and assembly of nanostructured polyvalent materials. C. Varner, T. Rosen, A. Arsiwala, J.T. Martin, M. Arha, R.S. Kane

**10:00 COLL 411.** Tension in phase separated bilayers: From molecular structure to system-scale morphology. M.M. Santore, D. Chen

**10:30 COLL 412.** Molecular structures of biological molecules at abiotic/biotic interfaces. Z. Chen

**11:00 COLL 413.** Electron transfer within microheterogeneous domains: Colloidal Au-nucleated cytochrome c superstructures. D.R. Rolison, A.S. Harper-Leatherman, J.M. Wallace, C.P. Rhodes, J. Long

**11:30 COLL 414.** Self-propelled particles in anisotropic environments: From collective bacterial behavior to urinary tract infections. D.B. Weibel, G. Auer, R. Trivedi, P. Oliver, R. Maeda, S. Spagnolie, N.L. Abbott

### Section B

San Diego Convention Center  
Room 7B

#### Biomembrane Synthesis, Structure, Mechanics & Dynamics

#### Dynamics & Modeling

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, N. Sridivya, Organizers

F. Gai, Presiding

**8:30 COLL 415.** Growth, coarsening, and alignment of compositional lipid domains in supported bilayer membrane systems. M. Haataja

**9:00 COLL 416.** Influence of periodic boundary conditions on lateral diffusion in membranes. F.L. Brown

**9:30 COLL 417.** Evaluating the raftophilicity of rhodopsin photoreceptor in a patterned model membrane. K. Morigaki, Y. Tanimoto, F. Hayashi

**10:00** Intermission.

**10:10 COLL 418.** Short range interactions in model membranes measured by atom recombination and mass spectrometry. S.G. Boxer, F. Moss

**10:40 COLL 419.** Spatiotemporal control of membrane fusion through photolabile PEGylation of liposome membranes. A. Kros

**11:10 COLL 420.** De novo lipid membrane synthesis using chemoselective reactions. N.K. Devaraj

**11:40 COLL 421.** Glycan density controls the phase behavior of lipid membranes. A. Subramaniam

### Section C

San Diego Convention Center  
Room 8

#### Nanomedicines: Targeting & Clearance Theranostics & Imaging Guided Surgery

Z. Gu, J. Xie, J. Zheng, Organizers

G. Han, Z. Wang, Organizers, Presiding

**8:30 COLL 422.** From nano to micro and back: Theranostic porphyrin assemblies and their *in vivo* fate. G. Zheng

**9:00 COLL 423.** Building nanoparticles *in situ* for molecular imaging applications. J. Rao

**9:30 COLL 424.** Application of optical probes in preclinical imaging and translational disease research. K.P. Francis

**10:00 COLL 425.** Super-enhanced nanodrug delivery after photoimmunotherapy (NIR-PIT): Oncologic applications. H. Kobayashi

**10:30 COLL 426.** Rationally designed theranostic nanoparticles for applications of precision oncology for image-guided cancer treatment. L. Yang

**11:00 COLL 427.** Beyond fluorescence: Small and bright upconversion nanoparticles for biological applications. G. Han

**11:30 COLL 428.** Silver deposited in porous silicon nanoparticles as a potent theranostic antibacterial agent. T. Kim, M.J. Sailor

### Section D

San Diego Convention Center  
Room 9

#### Nanometal: Synthesis, Structure, Property & Application

#### Plasmonics & 3D Structures

D. Jiang, Organizer

Y. Han, J. Zheng, Organizers, Presiding

**8:30 COLL 429.** Plasmonic nanoparticles: From fundamental optical properties to applications. S. Link

**9:05 COLL 430.** Dynamically responsive plasmonic nanostructures. Y. Yin

**9:40 COLL 431.** Recent theory studies of vibrations at surfaces: SERS, FSRS. G.C. Schatz

**10:15** Intermission.

**10:45 COLL 432.** Bifunctional Ag@Pd-Ag nanocubes for highly sensitive monitoring of catalytic reactions by surface-enhanced Raman spectroscopy. D. Qin, J. Li, X. Sun

**11:20 COLL 433.** Plasmon-exciton coupling with colloidal metal nanoparticles. A.R. Tao, A. Rodarte, B. Marin

**11:40 COLL 435.** Three-dimensional positions of individual atoms in nanometals revealed by electron tomography. J. Miao

**12:15 COLL 434.** 3D reconstruction of colloidal superstructures at atomic resolution. N. Nonappa, P. Engelhardt

### Section E

San Diego Convention Center  
Room 10

#### Surface Characterization & Manipulation for Electronic Applications

A. Bergren, C. A. Hacker, Organizers, Presiding

**8:30 COLL 436.** Molecular electronics using carbon: A reliable device platform for rock and roll. A. Bergren, R.L. McCreery, L. Zeer-Wanklyn, M. Sempel, N. Pekas, B. Szeto, T. Schwallenberg

**8:50 COLL 437.** Molecular charge rectification. A. Rodriguez, Y. Li, L. Wang, E. Mucciolo, E. del Barco, C. Nijhuis

**9:10 COLL 438.** Interface engineering in future of computing technologies. C.A. Hacker, S. Pookpanratana, H. Jang, C.A. Richter

**9:30 COLL 439.** Engineering of spin injection and spin transport in organic spin valves (OSVs) using  $\pi$ -conjugated polymer brushes. A. Roy, R. Geng, W. Zhao, R. Subedi, J.J. Locklin, T. Nguyen, X. Li

**9:50 COLL 440.** Towards molecular electronics: Using solution-based methods to deposit nano-objects. A. Ellsworth, A.V. Walker

**10:10 COLL 441.** Investigating the assembly and binding of tetrazine to alkenes via scanning tunneling microscopy (STM) for sensing applications. M. Krikorian, J.M. Azzarelli, T.M. Swager

**10:30 COLL 442.** Molecular rectifiers: Role of the Fermi level alignment and new design based on asymmetric anchoring moieties. C. Van Dyck, M.A. Ratner

**10:50 COLL 443.** Functional high-yield molecular electronic devices. T. Lee

**11:10 COLL 444.** Characterization of polymer/epoxy buried interfaces with silane adhesion promoters before and after hydrothermal aging for the elucidation of molecular level details relevant to adhesion. N.W. Ulrich, J. Myers, Z. Chen

**11:30 COLL 445.** Curing behavior & surface characterization of BADGE-based epoxy resins. Z. Zhang, A. Moser, M. Feuchter, F. Stelzer, F. Wiesbrock

**11:50 COLL 446.** Patterning of Au on PMMA using contact printing of chloroform for adhesion promotion. W. Stahl, C. Hughes, B.H. Augustine, H. Hu

### Section F

San Diego Convention Center  
Room 11A

#### Colloids for Medical Imaging

#### Diagnostics

J. M. Berlin, Organizer

P. del Pino, W. Parak, Organizers, Presiding

J. Berlin, Presiding

**8:30 COLL 447.** Array-based profiling for diagnostics and high-throughput screening. V.M. Rotello

**9:00 COLL 448.** Noble metal nanoparticles for rapid diagnostics. C. Yen, H. de Puig, J.O. Tam, C.R. Clavet, J. Gómez-Márquez, I. Bosch, L. Gehrke, K. Hamad-Schifferli

**9:30 COLL 449.** Quantitative multiplexed nanoparticle platform for the identification and imaging of mammalian cells by surface-enhanced Raman spectroscopy based on surface receptor overexpression. A. Pallao, R. Mirsafavi, G.B. Braun, W.T. Culp, C.D. Meinhart, M. Moskovits

**9:50 COLL 450.** Engineering lanthanide-doped multifunctional nanoparticles for biomedical diagnostic and therapeutic applications. **S. He**, N.J. Johnson, E. Cory Burak, R.L. Sah, A. Almutairi

**10:10** Intermission.

**10:40 COLL 451.** SPIONs and the protein corona: Importance for cellular binding and T2 relaxation. **C.K. Payne**

**11:10 COLL 452.** In-solution biosensing via aggregation of nanodroplets containing mutually reactive, fluorogenic hydrocyanine/quinone reporter molecules. **R. Chattaraj**, P. Mohan, C.M. Livingston, J.D. Besmer, K. Kumar, A.P. Goodwin

**11:30 COLL 453.** Sensing membrane potential by inorganic semiconductor nanorods. **K. Park**, **Y. Kuo**, V. Shvadchak, A. Ingarigiola, X. Dai, S. Hsiung, W. Kim, Z. Zhou, P. Zou, A.J. Levine, J. Li, S. Weiss

**11:50 COLL 454.** Self-assembled split-FP/metal nanoclusters as Raman enhancers for molecular and cellular detection. **T. Koker**, T. Chung, F. Pinaud

**12:10 COLL 455.** Fluorescent silica nanoparticles for selective detection of small ovarian tumors during surgery. **T. Haber**, J. Berlin

## Section G

San Diego Convention Center  
Room 11B

### Computational Modeling & Simulations in Colloid & Surface Chemistry

#### Surfaces & Interfaces

R. Nagarajan, *Organizer*

R. Sureshkumar, *Presiding*

**8:30 COLL 456.** Adsorption of CO<sub>2</sub> on clean CaO(001) surfaces: A joint computational-experimental investigation. **B.H. Solis**, Y. Cui, S. Shaikhutdinov, H. Freund, J. Sauer

**8:50 COLL 457.** DFT study of the Mars-van Krevelen mechanism for ammonia synthesis on Co<sub>3</sub>Mo<sub>3</sub>N (111)-surfaces. **C.D. Zeinalipour-Yazdi**, J. Hargreaves, C.A. Catlow

**9:10 COLL 458.** Box effects in nonliving and living polymerization of 2D surface. **A.D. Benedicto**

**9:30 COLL 459.** Effects of surface geometry and surface-interaction potential on water freezing temperature. **D. Slough**, Y. Lin

**9:50 COLL 460.** Charge dynamics at the silica-electrolyte interface. **B. Lowe**, Y. Shibuta, T. Sakata, C. Skylaris, N. Green

**10:10 COLL 461.** Ono-kondo lattice modeling of CO<sub>2</sub> adsorption on various solid adsorbents. **A. Rony**, K. Gasem, M. Fan, Y. Zheng

**10:30 COLL 462.** DFT modeling of zirconium hydroxide. **I. Iordanov**, V.M. Bermudez, C. Knox, W. Gordon, J. Lunding, J.H. Wynne, D. Barlow, R. Balow, C.J. Karwacki, G.W. Peterson, P. Pehrsson

**10:50 COLL 463.** Effect of surface polarity on physisorption of biomolecules: Molecular modeling. **H. Kim**, Y.G. Yingling

**11:10 COLL 464.** Semi-infinite solid model for DFT calculations of surface properties, rather than slab. **S. Smidstrup**, T. Ghosh, E. Jónsson, K. Stokbro, **H. Jonsson**

**11:30 COLL 465.** *Ab initio* thermodynamics of surface properties of ruthenium and rhodium nanoparticles. **L. Cusinato**, I. Del Rosal, R. Poteau

## Section H

San Diego Convention Center  
Room 24B

### Computational & Experimental Advances Towards Design of Energy Efficient Catalysts

K. Challa, C. M. Friend, *Organizers, Presiding*

**8:30 COLL 466.** Thin film oxide systems for electron transfer control. **H. Freund**

**9:00 COLL 467.** Kinetic and surface analysis of active sites in the hydrogenation of phenol using palladium nanoparticles. **A.L. Marsh**, J. Kauffman, N. Ginder, A. Lehman, K. Kelsall

**9:30 COLL 468.** Chemistry in confined environments: Water reaction in MOF-74. **Y.J. Chabal**, K. Tan, E. Fuentes, S. Zuluaga, J. Li, T. Thonhauser

**10:00 COLL 469.** Conversion of small alcohols on ceria surfaces: A DFT study. **A. Beste**, S.H. Overbury

**10:30 COLL 470.** Improved supported metal oxides for the oxidative dehydrogenation of propane. **I. Hermans**

**11:00 COLL 471.** Degree of rate control: A tool for analyzing microkinetic models and high-throughput computational screening of catalyst materials. **C.T. Campbell**

**11:30 COLL 472.** Continuous flow catalytic reactors: Opportunities for *in situ* time-resolved mechanistic investigations. **K. Challa**

### Applications of Polymer Surfaces & Interfaces

#### Energy Conversion

*Sponsored by POLY, Cosponsored by COLL and PMSE*

#### Environmental Interfaces

##### Surface Adsorption

*Sponsored by GEOC, Cosponsored by COLL, ENVR and MPPG†*

##### Physical Chemistry of Complex Environmental Interfaces

*Sponsored by PHYS, Cosponsored by COLL*

##### Elucidation of Mechanisms & Kinetics on Surfaces

*Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS*

## TUESDAY AFTERNOON

### Section A

San Diego Convention Center  
Room 7A

#### ACS Award in Colloid & Surface Chemistry: Symposium in honor of Nicholas L. Abbott

#### Liquid Crystals: Colloidal & Interfacial Phenomena

P. Alexandridis, *Organizer, Presiding*

R. Nagarajan, *Presiding*

**2:00 COLL 473.** Confined liquid crystals: Harnessing director fields to direct colloid assembly. **K.J. Stebe**

**2:30 COLL 474.** Stimuli responsive LC/polymer material combinations. **T.J. Bunning**, T.J. White

**3:00 COLL 475.** Spontaneous emergence of chirality in lyotropic chromonic liquid crystals in cylindrical confinement. **M. Srinivasarao**

**3:30 COLL 476.** Combining theory and experiment for designing liquid crystal-based chemical sensors. **M. Mavrikakis**, L. Rolling, T. Szilvasi, M. Bedolla, S. Choi, N.L. Abbott

**4:00 COLL 477.** **Award Address (ACS Award in Colloid and Surface Chemistry sponsored by the Colgate-Palmer Company).** Colloidal and interfacial phenomena with liquid crystalline solvents. **N.L. Abbott**

### Applications of Polymer Surfaces & Interfaces

#### Membranes

*Sponsored by POLY, Cosponsored by COLL and PMSE*

#### Environmental Interfaces

##### Complex Surface Reactions

*Sponsored by GEOC, Cosponsored by COLL, ENVR and MPPG†*

##### Elucidation of Mechanisms & Kinetics on Surfaces

*Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS*

## TUESDAY EVENING

### Applications of Polymer Surfaces & Interfaces

*Sponsored by POLY, Cosponsored by COLL and PMSE*

## WEDNESDAY MORNING

### Section A

San Diego Convention Center  
Room 7A

#### Basic Research in Colloids, Surfactants & Nanomaterials

#### Surfactants, Amphiphiles, Self-Assembly

R. Nagarajan, *Organizer*

K. Sakurai, *Presiding*

**8:30 COLL 478.** Withdrawn.

**8:50 COLL 479.** Diclofenac sodium-induced micelle-to-vesicle transition in ionic liquid based surfactant systems: Relevance to drug delivery. **Z.S. Vaid**, N.I. Malek, O.E. Seoud

**9:10 COLL 480.** Shape persistence micelles having the same aggregation numbers with the platonic solids. **K. Sakurai**

**9:30 COLL 481.** Enhanced solubility and self-assembly of nonionic surfactants in electrolyte solution. **C. Acevedo-Velez**, M. Gao, W. Yu

**9:50 COLL 482.** Interfacial structure of small molecule surfactant, polymeric surfactant and particle stabilised air-in-water foams. **O.T. Mansour**, J. Hurcoom, P. Griffiths

**10:10 COLL 483.** Thermodynamic study of the self-assembly behaviors of the giant amphiphiles (dihydroxy groups functionalized polyhedral oligomeric silsesquioxane-polystyrene) in solution. **B. Zhang**

**10:30 COLL 484.** Structure and stability of reverse micelles with salt additions: Experimental and modeling insights. **R.E. Ridley**, H. Fathi-Kelly, J.P. Kelly, V.R. Vasquez, O. Graeve

**10:50 COLL 485.** Impact of rock wettability on surfactant-enhanced aquifer remediation. **G. Javanbakht**, L. Goual

**11:10 COLL 486.** Expanding applications and structures of modified sophorolipid derivatives. **A. Koh**, R.A. Gross

**11:30 COLL 487.** Controlled self-assembly of dendritic amphiphiles in micromixers. **A. Bertin**, S. Taabache, M. Maskos

**11:50 COLL 488.** Surfactants and polymers in rinse-off cosmetics: Challenges and innovations. **M.S. Vethamuthu**, E. DiAntonio, V.S. Johnson, S. Ozkan, H. Fares

## Section B

San Diego Convention Center  
Room 7B

### Biomembrane Synthesis, Structure, Mechanics & Dynamics

#### Using X-ray & Neutron Scattering & Simulation

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

J. Katsaras, *Organizer, Presiding*

**9:00 COLL 489.** Development of neutron reflectometry as a probe of biomembrane structure. **C.F. Majkrzak**

**9:30 COLL 490.** Evolution of membrane systems for neutron scattering: From lipid vesicles to living cells. **J. Nickels**, S. Chatterjee, D.A. Myles, R.F. Standaert, J.G. Elkins, J. Katsaras

**10:00 COLL 491.** Investigating the mechanism of electromechanical coupling in voltage-gated ion channels by time-resolved X-ray & neutron interferometry. **A.Y. Tronin**, C.E. Nordgren, J.W. Strzalka, I. Kuzmenko, V. Lauter, J.A. Freitas, D. Tobias, **J.K. Blasie**

**10:30** Intermission.

**10:40 COLL 492.** Using neutron scattering in biology: The case for membrane proteins and lipoprotein particles. **M. Cardenas**

**11:10 COLL 493.** Structure determination of peripheral membrane proteins adopting multiple configuration. **F. Heinrich**

**11:40 COLL 494.** New tools for probing the spatial organization of biomimetic membranes. **F. Heberle**, M. Doktorova, R.A. Dick, D. Marquardt, B. Geier, V.N. Anghel, G. Pabst, J. Katsaras

**12:10 COLL 495.** Frontiers in membrane biophysics. **M. Rheinstadter**

## Section C

San Diego Convention Center  
Room 8

### Nanomedicines: Targeting & Clearance Controlled Delivery

Z. Gu, G. Han, Z. Wang, *Organizers*

J. Xie, J. Zheng, *Organizers, Presiding*

**8:30 COLL 496.** Smart polymeric nanomedicines at work in rational antitumor drug delivery. **X. Chen**, J. Ding, C. Xiao, Z. Tang

**9:00 COLL 497.** Tools for mapping and understanding complex biological systems in normal and disease states. **Y. Zhao**, O. Bucur, P. Valdes Quevedo, N.M. Sobhana, M.S. Viapiano, E. Chioccia, A. Beck, E.S. Boyden

**9:30 COLL 498.** Using elasticity to control biological transport of polymer nanogels. **M. Zhang**, A. Anselmo, M. Nowak, S. Mitragotri, **M.E. Helgeson**

**9:50 COLL 499.** Hemorrhage control using biocompatible polyphosphate bound silica nanoparticles. **C.K. Nguyen**, K. Ploense, D. Kudela, J.H. Morrissey, T. Kippin, G.D. Stucky



**10:10 COLL 500.** Anticancer platelet-mimicking nanovehicles. **Q. Hu, W. Sun, C. Qian, C. Wang, H. Bomba, Z. Gu**

**10:30 COLL 501.** Therapeutic enzyme-responsive nanoparticles for targeted delivery and accumulation in tumors. **C.E. Callmann, N.C. Gianneschi**

**10:50 COLL 502.** Gold nanorod-assisted selective photothermolysis of adipose tissue. **W. Sheng**

**11:10 COLL 503.** Targeted photodynamic therapy with size-controlled nanoscale MOFs. **J. Park, Q. Jiang, D. Feng, L. Mao, H. Zhou**

**11:30 COLL 504.** Withdrawn.

**11:50 COLL 505.** Enzyme-responsive nanoparticles for targeted accumulation and prolonged retention in heart tissue after myocardial infarction. **A.S. Carlini, M.M. Nguyen, M. Chien, S. Sonnenberg, C. Luo, R.L. Braden, K.G. Osborn, Y. Li, K.L. Christman, N.C. Gianneschi**

**12:10 COLL 506.** Neural stem cell/nanoparticle hybrids for targeted cancer therapy and imaging. **J.M. Berlin**

## Section D

San Diego Convention Center  
Room 9

### Nanometal: Synthesis, Structure, Property & Application

D. Jiang, J. Zheng, *Organizers*

Y. Han, *Organizer, Presiding*

Q. Wang, *Presiding*

**9:00 COLL 507.** Synthetic tailoring of Pt-based nanowires for enhanced catalysis. **H. Zhu, S. Sun, S. Dai**

**9:15 COLL 508.** Hybrid Fe<sub>3</sub>O<sub>4</sub>-Au nanostructures: Synthesis, properties, and applications. **S. Hunyadi Murph**

**9:30 COLL 509.** Tuning the size and shape of magnetic-plasmonic core-shell nanoparticles. **E. Kwizera, S. Bhana, X. Huang**

**9:45 COLL 510.** Spectroelectrochemistry of halide anion adsorption and dissolution of single gold nanorods. **B. Hoener, C. Byers, S. Indrasekara, S. Link, C.F. Landes**

**10:00 COLL 511.** Understanding interparticle interactions and properties for SPR and SERS. **Z. Skeete, H. Cheng, Q. Minh Ngo, J. Luo, C. Zhong**

**10:15 COLL 512.** Nanoporous metal films and powders formed with soft templates. **D.B. Robinson, P.J. Cappillino, C.G. Jones, G.F. Garcia, M.A. Hekmaty, B.W. Jacobs, L.R. Parent, I. Arslan**

**10:30 COLL 513.** Nanospace-confined solid-state conversion chemistry for morphology-controlled syntheses of metal/metal-oxide hybrid nanocrystals. **J. Choi, D. Lee, I. Lee**

**10:45 Intermission.**

**11:15 COLL 514.** Withdrawn.

**11:30 COLL 515.** Nanometal synthesis, morphogenesis, and colloidal stabilization enabled by amphiphilic polymers. **T. Sakai, P. Alexandridis**

**11:45 COLL 516.** Synthesis of Au nanocages from Pd templates. **A. Shakiba, S. Shah, A.C. Jamison, T. Lee**

**12:00 COLL 517.** Voltage control of magnetization in FePd nanocrystals for the next generation of magnetoelectric memory. **S. Robbenolt, M. Akylol, X. Li, P. Khalili, K. Wang, S.H. Tolbert**

**12:15 COLL 518.** Withdrawn.

**12:30 COLL 519.** Simultaneous reduction of metal ions by multiple reducing agents initiate the asymmetric growth of metallic nanocrystals. **M.A. Mahmoud**

**12:45 COLL 520.** Strong coupling between periodic arrays of gold nanostructures and excitonic states in light-harvesting complexes. **G.J. Leggett, A. Tsargorodskaya, M. Cartron, C. Hunter**

## Section E

San Diego Convention Center  
Room 10

### Surface Characterization & Manipulation for Electronic Applications

A. Bergren, C. A. Hacker, *Organizers, Presiding*

**8:30 COLL 521.** Impedance spectroscopy as useful tool to study molecule-electrode interfaces and the dielectric response of molecular tunnel junctions. **C.A. Nijhuis**

**8:50 COLL 522.** Replacing a solid with a liquid needle for measuring static and advancing contact angles. **R. Sanedrin, M. Jin, D. Frese, C. Scheithauer, T. Willers**

**9:10 COLL 523.** Scanning Kelvin probe microscopy for understanding the causes of electrical disorder in organic semiconductor. **C.D. Frisbie**

**9:30 COLL 524.** Surface modification of gallium liquid metal alloy interfaces. **C. Tabor, N. Ilyas, B. Cumby, M.F. Durstock**

**9:50 COLL 525.** Chemical self-assembly strategies for conductive metal-organic surface structure. **W.T. Tysoe, J. Kestell, M. Garvey, R. Abulhaha, J.A. Boscoboinik**

**10:10 COLL 526.** Insights on molecular junctions through applied density-functional theory: Examining the changes in molecule and substrate properties upon junction formation. **G. DiLabio, J. Gibbs, A. Otero-de-la-Roza**

**10:30 COLL 527.** Law of corresponding states, scaling properties and other related issues for the charge transport in molecular junctions. **I. Baldea**

**10:50 COLL 528.** Characterizing surface chemistry of high-N-content mesoporous carbon oxygen reduction electrocatalysts. **N.P. Zussblatt, N. Fechner, M. Antonietti, B.F. Chmelka**

**11:10 COLL 529.** Epitaxial self-assembly of polymorphic, porous, and host-guest nanostructures on surfaces using monolayer-substrate interactions. **B. Chilukuri, R.N. McDougald, U. Mazur Hipps, M.A. Omary, K. Hipps**

**11:30 COLL 530.** Precious poison: The self-assembly of cyanide on Au(111). **A. Guttenberg, T. Wächter, K. Barr, J.M. Abendroth, T. Song, Y. Yang, D.L. Allara, M. Zharnikov, P.S. Weiss**

**11:50 COLL 531.** X-ray spectroscopic characterization of organic semiconductor nanowires. **A. Mazaheripour, N. Huesken, J. Jocsion, G. Kladnik, A. Cossaro, L. Floreano, A. Verdini, A.M. Burke, K. Miller, A. Marsukar, I. Kymissis, D. Cvetko, A. Morgante, A.A. Gorodetsky**

## Section F

San Diego Convention Center  
Room 11A

### Colloids for Medical Imaging

#### Synthesis & Applications

J. M. Berlin, P. del Pino, W. Parak, *Organizers, Presiding*

**9:00 COLL 532.** Crucial role of lateral size for graphene oxide in activating macrophages and stimulating pro-inflammatory responses in cells and animals. **S. Liu**

**9:30 COLL 533.** Self-assembling peptide nanotubes. Modulation of internal and external properties. **J.R. Granja, J. Montenegro, M. Amorin, N. Rodriguez-Vazquez, L. Ozores, J. Priegue**

**10:00 COLL 534.** Fluorine labels for 19F-magnetic resonance imaging. **M. Carril**

**10:30 COLL 535.** Anisotropic nanoparticles for multimodal imaging and therapy. **P. Taboada Antelo, S. Barbosa, A. Pardo, M. Blanco-Loimil, R. Martinez-Gonzalez**

**11:00 COLL 536.** Functionalization of metal, metal oxide and semiconductor nanocrystals using a multi-coordinating polymer. **W. Wang, X. Ji, A. Kapur, H.M. Mattoussi**

**11:20 COLL 537.** Effect of morphology and surface chemistry of gold nanoparticles on cellular uptake and cytotoxicity. **M. Bhamidipati, L. Fabris**

**11:40 COLL 538.** In vitro imaging with biodegradable hybrid organic-inorganic bridged silsesquioxane nanoparticles. **Y. Fatiev, J.G. Croissant, K. Julfikyan, L. Deng, D.H. Anjum, A. Gurinov, N.M. Khashab**

**12:00 COLL 539.** Crossing blood-brain-barrier and bio-imaging using carbon dots: A zebrafish model study. **S. Li, Z. Peng, J. Dallman, I. Skromme, R.M. Leblanc**

**12:20 COLL 540.** Exchange-coupled core-shell ferrite nanoparticles for maximal hysteretic loss. **P. del Pino, Q. Zhang, B. Pelaz, W. Parak**

## Section G

San Diego Convention Center  
Room 11B

### Computational Modeling & Simulations in Colloid & Surface Chemistry

#### Polymers & Colloids

R. Nagarajan, *Organizer*

P. Kral, *Presiding*

**9:00 COLL 541.** Hydration repulsion between carbohydrate surfaces mediated by temperature and specific ions. **H. Chen, J. Cox, H. Ow, R. Shi, A. Panagiotopoulos**

**9:20 COLL 542.** Insight on growth mechanism of gold nanorods from molecular dynamics simulations. **S. Meena, S. Celiksoy, P. Schafer, A. Henkel, C. Sonnichsen, M. Sulpizi**

**9:40 COLL 543.** Emergence of a stern layer from the incorporation of hydration interactions into the Gouy-Chapman model of the electrical double layer. **M.A. Brown, G. Bossa, S.E. May**

**10:00 COLL 544.** Molecular dynamics simulations for emerging computational immunology. **A. Golius, L. Gorb, J.R. Leszczynski, O. Isayev**

**10:20 COLL 545.** Sensing power of two nanoparticles at near sub-nanometer, in different orientations. **N. Hooshmand, J.A. Bordley, M.A. El-Sayed**

**10:40 COLL 546.** ReaxFF reactive force field study of oriented attachment of TiO<sub>2</sub> nanocrystals in non-aqueous solvents. **M. Raju, R. Penn, K.A. Fichtorn, M. Ihme**

**11:00 COLL 547.** Beyond DLVO: Solvation structure and effective interactions of nanocolloids in solutions from 3D-RISM-KH molecular theory of solvation. **A. Kovalenko**

## Section H

San Diego Convention Center  
Room 24B

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Colloidal Systems

R. Nagarajan, *Organizer*

O. D. Velev, *Presiding*

**8:30 COLL 548.** Preparation of non-aqueous pickering emulsions using anisotropic block copolymer nanoparticles. **E. Jones, S. Rizzelli, K. Thompson, S.P. Armes**

**8:50 COLL 549.** Highly stable titanate nanowire dispersions as potential nanocarriers. **M. Pavlovic, E. Horvath, L. Forro, I. Szilagy**

**9:10 COLL 550.** Destabilization of non-ionic surfactant stabilized oil-in-water emulsions: Effect of particle wettability. **H. Katepalli, D. Blankschtein, T. Hatton**

**9:30 COLL 551.** Holographic characterization of individual colloids in complex mixtures. **D.B. Ruffner, J.M. Blusewicz, L.A. Philips**

**9:50 COLL 552.** Colloidal dimerization of hard annular sector particles. **P. Wang, T.G. Mason**

**10:10 COLL 553.** Mechano-switchable, luminescent gels derived from salts of a long-chained, fatty acid gelator. **M. Zhang, R.G. Weiss**

**10:30 COLL 554.** Responsive stabilization of nanoparticles for extreme salinity and high-temperature reservoir applications. **M. Ranka, T. Hatton**

**10:50 COLL 555.** Characterization of Norovirus colloidal interactions as means of controlling virus stability and infectivity. **B.S. Mertens, O.D. Velev**

**11:10 COLL 556.** Nanofiber composites containing fumed silica fillers: From controlled wettability to physical characteristics. **M.T. Geiger, M. Dufficy, C.A. Bonino, S. Khan**

**11:30 COLL 557.** Anomalous dispersion of 'hedgehog' particles. **J. Bahng, B. Yeom, Y. Wang, S. Tung, D. Hoff, N. Kotov**

**11:50 COLL 558.** Inorganic chiral nanomaterials: Design strategies and origin of homochirality. **J. Yeom, B. Yeom, H. Chan, J. Bahng, G. Zhao, P. Zhang, P. Kral, N. Kotov**

**12:10 COLL 559.** Withdrawn.

### Applications of Polymer Surfaces & Interfaces

#### New Techniques & Characterization

*Sponsored by PQLY, Cosponsored by COLL and PMSE*

#### Environmental Interfaces

#### Complex Surface Reactions

*Sponsored by GEOC, Cosponsored by COLL, ENVR and MPPG†*

#### Elucidation of Mechanisms & Kinetics on Surfaces

*Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS*

## WEDNESDAY AFTERNOON

## Section A

San Diego Convention Center  
Room 7A

Basic Research in Colloids,  
Surfactants & Nanomaterials

## Biomolecular Systems

R. Nagarajan, *Organizer*

J. C. Lee, *Presiding*

**2:00 COLL 560.** Determination of structure and morphology of gold nanoparticle-HSA protein complexes. L. Calzolari

**2:20 COLL 561.** Importance of lipopolysaccharide aggregate disruption for the anti-endotoxic effects of host defense peptides. S. Singh, P. Papareddy, M. Kalle, A. Schmidtchen, M. Malmsten

**2:40 COLL 562.** Observing the dynamics of stimuli-responsive nanomaterials at high resolution by liquid cell transmission electron microscopy (LCTEM). M.A. Touve, J.P. Patterson, N.C. Gianneschi

**3:00 COLL 563.** Chitosan-coated BSA nanoparticles for oral delivery. J. Cunha, R. Lima, H. Sousa, A. Cavaco-Paulo

**3:20 COLL 564.** Single-particle tracking of lipoproteins and lipid vesicles. M. de Messieres, A. Ng, V. Melson, C. Duarte, A. Remaley, J.C. Lee

**3:40 COLL 565.** Facile synthesis of archaea-inspired lipids for the assembly of archaeosomes. S. Nguyen, N.C. Bell, G. Leriche, J.C. Yang, N.C. Gianneschi

**4:00 COLL 566.** Protein adsorption to charged nanospheres. J.M. Dennison, W. Lin, J. Zupancic, C.J. Murphy

**4:20 COLL 567.** Picosecond energy relaxation dynamics of amyloid beta peptide at nanoscale interface. K. Yokoyama

**4:40 COLL 568.** Inhibition of amyloid fibrillation of  $\beta$ -lactoglobulin by hydrolyzed hydrophobic alkoxi- and fluoro-silanes. A. Giasuddin

## Section B

San Diego Convention Center  
Room 7B

Biomembrane Synthesis, Structure,  
Mechanics & DynamicsUsing X-ray & Neutron  
Scattering & Simulation

J. Katsaras, S. Muralidharan, A. N. Parikh, N. Srividya, *Organizers*

M. Nieh, *Organizer, Presiding*

**2:00 COLL 569.** Membrane domain formation on nanostructured scaffolds. C.P. Collier, F. Liu, B. Srijanto

**2:30 COLL 570.** Structure analysis of membrane fusion by X-ray diffraction: From model membranes to organelles. T. Salditt

**3:00 COLL 571.** Stress-free asymmetric lipid vesicles for the study of transverse lipid motion. D. Marquardt, F. Heberle, M. Doktorova, B. Geier, J. Katsaras, G. Pabst

**3:30 Intermission.**

**3:40 COLL 572.** Computational and experimental study on the 2D self-assembly of the carboxysome's shell proteins. J. Mahalik, G.K. Vestal, X. Cheng, D. Garcia, M. Doktycz, M. Fuentes-Cabrera

**4:10 COLL 573.** Observation of nanoscale structure in the liquid ordered phase by molecular simulation and small angle neutron scattering. E. Lyman, M. Dorrell, F. Heberle, J. Katsaras

**4:40 COLL 574.** Lateral organization and inter-leaflet coupling of biological membranes. X. Cheng

**5:10 COLL 575.** Hydrophobic mismatch tunes lipid bilayer dynamics. M. Nagao, R. Ashkar, E.G. Kelley, R. Bradbury, P. Butler

## Section C

San Diego Convention Center  
Room 8

## Nanomedicines: Targeting &amp; Clearance

## Basic Research

G. Han, Z. Wang, J. Xie, *Organizers*

Z. Gu, J. Zheng, *Organizers, Presiding*

**2:00 COLL 576.** Controlled synthesis of Au-CuS heterodimers with tunable light absorption for photothermal therapy in the second NIR window. J. Jiang

**2:20 COLL 577.** Carbon nanoparticles as a platform therapeutic for oxidative stress. W.K. Sikkema, L.G. Nilewski, K. Mendoza, J.M. Tour

**2:40 COLL 578.** Controlled assembly of biocompatible metallic nanoaggregates using a small molecule crosslinker. D. Van Haute, J.M. Berlin

**3:00 COLL 579.** Tumor targeted ferritin nanocages for efficient photodynamic therapy. W. Tang, Z. Zhen, J. Xie

**3:20 COLL 580.** Plasma membrane-derived vesicles with engineered transmembrane protein ligands: A new system for cellular targeting. C. Zhao, D. Busch, C. Vershel, J. Stachowiak

**3:40 COLL 581.** Characterizing polymeric micelles employed for DDS combining SAXS and FFF. K. Sakurai

**4:00 COLL 582.** Filomicelles self-assembled from degradable di-block copolymers delay clearance *in vivo*, and deliver retinoids & chemotherapeutics in irreversible control of carcinoma cell fate. P. Nair, K. Spinler, M. Vakili, A. Lavasanifar, D.E. Discher

**4:20 COLL 583.** Immunomodulatory activity of colloidal supramolecular particles made from guanosine derivatives. M. Acosta Santiago, J.M. Rivera

**4:40 COLL 584.** Carbon nanotube-based immunotherapeutic both enhances immune stimulation and inhibits tumor migration. E. White, D. Alizadeh, T. Sanchez, B. Badie, J.M. Berlin

**5:00 COLL 585.** Selective photothermal killing of tumor cells by SELEX-derived RNA aptamer-targeted gold nanorods. R. Chandrasekaran, A. Sheng Wei Lee, L. Wei Yap, D. A. Jans, K. M. Wagstaff, W. Cheng

**5:20 COLL 586.** Withdrawn.

## Section D

San Diego Convention Center  
Room 9

Nanometal: Synthesis, Structure,  
Property & Application

## Biomedical Applications

Y. Han, D. Jiang, *Organizers*

J. Zheng, *Organizer, Presiding*

W. Wang, *Presiding*

**2:00 COLL 587.** Deliberate design of optical properties in DNA-programmed nanoparticle superlattices. M.B. Ross, C.A. Mirkin, G.C. Schatz

**2:15 COLL 588.** Directed movement of magnetic nanoparticle-loaded immune cells using a compact 3D printed chamber. P. Cao, A. Pai, M. Wang, E. White, A. Hajmiri, B. Badie, J.M. Berlin

**2:30 COLL 589.** *In vivo* renewable persistent luminescence nanoparticles. G. Han

**2:45 COLL 590.** Mechanistic investigation into the effect of DNA in shape control of metal nanoparticles. N. Satyavolu, L. Tan, Y. Lu

**3:00 COLL 591.** Bimetallic nanostructures as artificial peroxidases for sensitive colorimetric detection of cancer biomarkers. X. Xia

**3:15 COLL 592.** Selective colorimetric detection of *Staphylococcus aureus* using oligonucleotide-functionalized gold nanoparticles. P. Tiet, J.O. McNamara, J.M. Berlin

**3:30 Intermission.**

**4:00 COLL 593.** Novel method based on photothermal cleavage of thermolabile molecules on Au nanoparticles for controlled release. E. Goren, H. Causoglu, E. Yavuz, H. Usta, M. Citir, M. Yavuz

**4:15 COLL 594.** Plasmonic modulation of fluorescence in gold nanostar-NaYF<sub>4</sub>: Yb/Er for multimodal imaging, photothermal, and photodynamic therapy. L. He, C. Mao, S. Cho, K. Ma, A. Yildirim, A.P. Goodwin, W. Park, J. Cha

**4:30 COLL 595.** Layer-by-layer assembled gold nanoring-photosensitizer complex for enhanced photodynamic therapy in the near infrared. Y. Hu, Y. Yang, H. Wang, H. Du

**4:45 COLL 596.** Biogenic silver metal nanoparticle enhanced bioassays. S. Rajput, M.T. McDermott

**5:00 COLL 597.** Transparent flexible electrodes based on copper and silver nanowires integration into devices and stability study. J. Simonato, A. Cabos, T. Sanniccolo, C. Celle, A. Carella

**5:15 COLL 598.** Understanding the properties of electroactive poly (amic) acid membranes, their interaction with nanoparticles and applications. V.M. Kariuki

**5:30 COLL 599.** Organic surface functionalization technique for colloidal silver nanoparticles designed to inhibit precipitation caused by hydrogen sulfide gas. J.M. Snitker, S. David, M.O. Montes

## Section E

San Diego Convention Center  
Room 10

Surface Characterization &  
Manipulation for Electronic  
Applications

A. Bergren, C. A. Hacker, *Organizers, Presiding*

**2:00 COLL 600.** Surface engineering of two-dimensional nanoelectronic heterostructures. M. Hersam

**2:20 COLL 601.** Directed assembly of 1D nanostructures on lithographically patterned surfaces. R. Wang, E. Penzo, M. Palma, S. Wind

**2:40 COLL 602.** Constructing molecular electronic devices incorporating organic molecules: From simple alkanes to conjugated polymers. R.C. Bruce, T. LaJolie, J. Yablonski, W. You

**3:00 COLL 603.** Lead sulfide quantum dot/lead halide perovskite heterostructures from a single colloidal suspension. T. Hull, O. Semonin, J.S. Owen

**3:20 COLL 604.** Colloidal precursors to ultra-thin-film photovoltaics. D.R. Radu, K. Dobson, P. Hwang, C. Lai

**3:40 COLL 605.** Making connections between molecules and silicon. J.M. Buriak, F. Liu

**4:00 COLL 606.** Hydrogenated graphene for surface engineering and transfer. K.E. Whitener, W.K. Lee, R. Stine, J. Robinson, N. Bassim, R. Stroud, P. Sheehan

**4:20 COLL 607.** Organometallic molecular compound integrated into a memory device by "click" chemistry. S. Pookpanratana, H. Zhu, E. Bittle, S.N. Natoli, T. Ren, C.A. Richter, Q. Li, C.A. Hacker

**4:40 COLL 608.** Processing colloidal-synthesized 2D tin chalcogenide semiconductors for application in electronic devices. A.J. Biacchi, S.T. Le, S. Pookpanratana, J.A. Hagmann, C.A. Richter, A.R. Hight Walker

**5:00 COLL 609.** Conversion of surface silanol to silicon hydride on solid silicon oxide surfaces. S. Darmakolla, H. Tran, A. Gupta, J.M. Blackwell, S.B. Kananavare

## Section F

San Diego Convention Center  
Room 11A

Basic Research in Colloids,  
Surfactants & Nanomaterials

## Colloidal Assembly

R. Nagarajan, *Organizer*

D. Tsai, *Presiding*

**2:00 COLL 610.** Withdrawn.

**2:20 COLL 611.** Shape control of supraparticles on the three-dimensional slippery surfaces. S. Wooh, Y. Lee, H. Huesmann, D. Vollmer, W. Tremel, K. Char, P. Papadopoulos, H. Butt

**2:40 COLL 612.** Acoustic radiation forces for the rapid and programmable assembly of microparticles and nanoparticles. W. Shields, C. Owens, P. Austin Suthanthiraraj, C. Reyes, D. Cruz, L. Fu, B. Wiley, P. Charbonneau, G. Lopez

**3:00 COLL 613.** Electrostatic assembly of functional nanoparticles for biomedical applications. D. Tsai, H. Wang, T. Nguyen, C. Zhou, F. Lee, T. Tang, Y. Lai

**3:20 COLL 614.** Size-controlled and redox-responsive supramolecular nanoparticles. R. Weinhart-Mejia, G.A. Kronig, J. Huskens

**3:40 COLL 615.** Evaporation controlled pattern formation in a polymer droplet. C. Zhang, P. Akcora

**4:00 COLL 616.** Kinetics of nanocrystal superlattice self-assembly revealed by real-time *in situ* X-ray scattering. M.C. Weidman, D. Smilgies, W.A. Tisdale

**4:20 COLL 617.** Dendrimer induced organization and self-assembly of colloidal nanoparticles. D. Jishkariani, B. Diroll, M. Cargnello, C.B. Murray, B. Donnio, D. Klein, L. Hough

**4:40 COLL 618.** Active colloidal polymer. J. Zhang, S. Granick

**5:00 COLL 619.** Understanding local and long-range 3-dimensional arrangements of components in colloidal nanocrystal frameworks using STEM tomography. T.E. Williams, P. Ercius, B. Helms

**5:20 COLL 620.** Formation of semifaceted, oriented thin calcite films by aggregation of nanoparticles. M.H. Schmidt, K. Ullé, S. Callinan

## Section G

San Diego Convention Center  
Room 11B

**Computational Modeling & Simulations in Colloid & Surface Chemistry**
**Surfactants & Self-Assembled Systems**

R. Nagarajan, *Organizer*

M. Dutt, *Presiding*

**2:00 COLL 621.** Double-tailed surfactants simulated on single-walled carbon nanotubes: A molecular dynamics simulation study. **M. Suttipong**, A. Striolo

**2:20 COLL 622.** Interactions between peptide-mimetic nanoparticles and synthetic cells. **X. Chu**, F. Aydin, **M. Dutt**

**2:50 COLL 623.** Multiscale modeling of self-assembled colloidal nanoparticles. **P. Kral**

**3:20 COLL 624.** Confined disordered jammed sphere packings in three dimensions. **D. Chen**, S. Torquato

**3:40 COLL 625.** Integrating molecular-dynamics simulations with molecular-thermodynamics to predict the interfacial tensions of non-ionic surfactants. **V. Sresht**, D. Blankschtein

**4:00 COLL 626.** Molecular dynamics simulations of NAPL removal from contaminated rocks using surfactants. **E. Lowry**, M. Sedghi, L. Goual

**4:20 COLL 627.** Molecular dynamics simulations of micelle and micelle-nanoparticle solutions: Structure, dynamics, and rheology. **S. Dhakal**, A. Sambasivam, **R. Sureshkumar**

**4:50 COLL 628.** Modeling of dynamically self-assembling nanoflasks. **S. Sen**, P. Kral

**5:10 COLL 629.** Molecular dynamics simulations together with experimental studies reveal strong membrane activity of a small peptide. **E. Antunes**, N.G. Azoia, A. Cavaco-Paulo

## Section H

San Diego Convention Center  
Room 24B

**Basic Research in Colloids, Surfactants & Nanomaterials Semiconductors & Quantum Dots**

R. Nagarajan, *Organizer*

D. A. Rider, *Presiding*

**2:00 COLL 630.** Photoinduced electron transfer as a means to modulate the plasmon resonance of  $Cu_xS$  quantum dots. **R. Alam**, P.V. Kamat

**2:20 COLL 631.** Vibrational spectroscopy of single quantum dots. **C.O. Topal**, J. Bao, A. Kalkan

**2:40 COLL 632.** Size- and surface ligand-dependent photocatalytic performance of  $CuInSe_2$  nanocrystals in water. **R. Sardar**, K.N. Lawrence

**3:00 COLL 633.** Non-spectroscopically dependent study of neutral amine ligand binding interactions with  $CdSe$  quantum dots. **M.Y. Gee**, R. Tan, Y. Shen, A.B. Greytak

**3:20 COLL 634.** Mechanism of energy transfer between molecules and  $PbS$  nanocrystals during upconversion. **M. Mahboub**, M. Tang

**3:40 COLL 635.** Size dependent ligand layer dynamics in semiconductor nanocrystals probed by anisotropy measurements. **I. Hadar**, T. Abir, S. Halilvi, A. Faust, U. Banin

**4:00 COLL 636.** Homochiral semiconductor nanohelices. **W. Feng**, J. Kim, X. Wang, H. Calcaterra, N. Kotov

**4:20 COLL 637.** Optical and electrical properties of a tube-in-a-tube semiconductor. **A.L. Ng**, **Y. Wang**

**4:40 COLL 638.** Counterion-mediated ligand exchange for  $PbS$  colloidal quantum dot superlattices. **D.M. Balazs**, D.N. Dirin, H. Fang, L. Protesescu, G.H. ten Brink, B.J. Koo, M. Kovalenko, M. Loi

**5:00 COLL 639.** Colloidal synthesis of monodisperse semiconductor nanocrystals through the saturated atomic layer adsorption reaction. **M. Zamkov**, N. Razgoniaeva, L. Carrillo

**5:20 COLL 640.** Investigating the doping of nanocrystals with hydrazine. **M. Mahboub**, M. Tang

**Environmental Interfaces**
**Complex Surface Reactions**

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**Applications of Polymer Surfaces & Interfaces**
**Anti-fouling**

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**Elucidation of Mechanisms & Kinetics on Surfaces**

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**Physical Chemistry of Complex Environmental Interfaces**

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**WEDNESDAY EVENING**
**Environmental Interfaces**

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**THURSDAY MORNING**

## Section A

San Diego Convention Center  
Room 7A

**Basic Research in Colloids, Surfactants & Nanomaterials**
**Polymers, Gels, Polyelectrolytes**

R. Nagarajan, *Organizer*

K. Sakurai, *Presiding*

**8:30 COLL 641.** Effect of polyelectrolyte multilayers shell on thermal properties of *n*-octadecane phase change material nanocapsules. **Y. Lamphaojee**, P. Siriphannon

**8:50 COLL 642.** Structural control of self-assembled porous polyelectrolyte films by interaction with specific metal ions. **Y. Tsuge**, S. Shiratori

**9:10 COLL 643.** Microwave welding/reinforcing approach at the interface of thermoplastic materials. **X. Zhang**, S. Poyraz, L. Zhang

**9:30 COLL 644.** Two faces of a polyelectrolyte multilayer: Tailoring the structure and the properties. **Y. Ghousseoub**, J.B. Schlenoff

**9:50 COLL 645.** Electrochemically-triggered microgel size modulation. **O. Mergel**, P. Wünnemann, A. Böker, U. Simon, F. Plamper

**10:10 COLL 646.** Tuning the properties of oligo ethylene glycol and poly (*N*-isopropylacrylamide) microgel for future biomedical applications. **M. Islam**, N. Welsch, L.A. Lyon

**10:30 COLL 647.** Spiky hedgehog particles with conformal layer-by-layer coatings. **D. Montjoy**, J. Bahng, Y. Kim, X. Wang, N. Kotov

**10:50 COLL 648.** Strong and tunable wet adhesion with rationally designed layer-by-layer assembled triblock copolymer films. **A. Traeger**, S.A. Pendergraph, T. Pettersson, A.E. Carlmark, L. Wågberg

**11:10 COLL 649.** Cellulose nanocrystals as additive and reinforcing agent in melt-spinning of polypropylene. **X. Lu**, O.J. Rojas, J. Genzer, K. Efimenko, B. Pourdeyimi

**11:30 COLL 650.** Stimuli responsive polymer capsules with multiple concentric shells. **B.C. Zarket**, S. Antozewski, T. Coyne, J. Heckelman, S.R. Raghavan

**11:50 COLL 651.** *N*-halamines: Antimicrobial surface functionalization of polymers & nanomaterials. **K. Rashwan**, L. Stoeil, G. Sereda, D. Engebretson, G. Bertsch

## Section B

San Diego Convention Center  
Room 7B

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

J. Katsaras, M. Nieh, A. N. Parikh, N. Srividya, *Organizers*

S. Muralidharan, *Organizer, Presiding*

**9:00 COLL 652.** Interlayer coupling and compositional domain growth in stacked lipid bilayer membrane systems. **Y. Xu**, J. Berry, M. Haataja

**9:20 COLL 653.** Engineered nanostructures of lipopolysaccharide triggers rapid morphogenesis among dendritic cells. **Y. Liu**, K. Wang, M. Zhang, H. Chen, J. Li, R.S. Shailise, T. Laurence, F. Liu, G. Liu

**9:40 COLL 654.** Effects of cationic and anionic surfactant concentrations on adsorbed self-assembled micellar structure at graphite surfaces. **B. Micklavzina**, M.L. Longo

**10:00 COLL 655.** Stability of giant vesicles in salinity gradients. **V.N. Ngassam**, N. Wang-Tomic, Y. Deng, Z. Yang, A.N. Parikh

**10:20** Intermission.

**10:30 COLL 656.** Using infrared measurements to probe the structure and local environment of membrane proteins. **B.N. Markiewicz**, W. Zhang, H. Jo, W.F. Degrado, F. Gai

**10:50 COLL 657.** Cholesterol-enriched microdomain formation induced by viral-encoded, membrane active amphipathic peptide. **D.L. Gettel**, J.M. Hanson, A.N. Parikh

**11:10 COLL 658.** Multivalent presentation enhances the evolution of membrane structure and actin assembly. **V. Tran**, A. Karsai, M. Fong, E. Ogorodnik, J. Yip, D. Haudenschild, **G. Liu**

**11:30 COLL 659.** Configurable lipid membrane gradients quantify diffusion, phase separations, and binding densities. **K.N. Liu**, C.S. Hung, M.A. Swift, K.A. Muñoz, J.L. Cortez, B. Sanii

## Section C

San Diego Convention Center  
Room 8

**Basic Research in Colloids, Surfactants & Nanomaterials**
**Nanomedicine**

R. Nagarajan, *Organizer*

P. C. Ray, *Presiding*

**8:30 COLL 660.** Stimuli-responsive hydrogels for treatment of severe limb trauma and controlled drug delivery. **B. Streifel**, J. Lundin, J. Duncan, J.H. Wynne

**8:50 COLL 661.** Cellulose nanocrystals and closite- $Na^+$  clay micro-nano complex formation and its application in drug delivery studies. **P. Dhar**, S. Singh Gaur, A. Kumar, V. Katiyar

**9:10 COLL 662.** Titanium dioxide nanoparticles induce oxidative stress. **S. Runa**, C.K. Payne

**9:30 COLL 663.** Mesostuctured silica nanorod based fluorescent sensor for highly sensitive and visual detection of dopamine. **P. Beyazklic**, M. Bayindir

**9:50 COLL 664.** Profiling heterogeneity of circulating tumor cells using multifunctional nanopillar. **P.C. Ray**

**10:10 COLL 665.** Lateral phase separation in superheated perfluorocarbon nanodroplet monolayers leading to enhanced ultrasound contrast imaging. **R. Chatterai**, G.M. Goldscheiter, A. Yildirim, A.P. Goodwin

**10:30 COLL 666.** Controlled local chemotherapeutic drug delivery through self-assembled peptide amphiphile hydrogels. **G. Gunay**

**10:50 COLL 667.** Probing polymeric nanoparticles with solid perfluorocarbon for *in vivo* imaging. **O. Koshkina**, I. Tirotta, E. Swider, C. Figdor, J. de Vries, G. Resnati, F. Baldelli Bombelli, P. Metrangolo, M. Srinivas

**11:10 COLL 668.** Mixed micelles of chemically modified Pluronic as drug delivery system. **T. Pettersson**, Z. Feng, S. Hassanzadeh, M. Hakkarainen

**11:30 COLL 669.** Pulsed laser generated gold nanoparticles allow optimization of surface tri-functionalization for their targeted delivery into cancer cell nuclei. **W.D. Qian**



**11:50 COLL 670.** Impact of amphiphile packing parameter on the drug loading and delivery properties of an anticancer liposomal delivery system. **M.A. Ilies**, A.M. Shabana, S. Akocak

## Section D

San Diego Convention Center  
Room 9

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Novel Materials

R. Nagarajan, *Organizer*

J. L. Liu, *Presiding*

**8:30 COLL 671.** Surfactant effect on synthesis of silica hollow particles by encapsulation of water droplet with perhydropoly-silazane in octane/dibutylether mixtures. **R. Saito**, T. Kanahara, K. Kuramochi

**8:50 COLL 672.** Solid-state reactivity of nanoparticulate ZnO in templated ZIF synthesis. **I. Brekalo**, C. Kane, J.R. Ramirez, K.T. Holman

**9:10 COLL 673.** Feasible colloidal approach to produce nanostructured composites to inactivate pathogenic bacteria under visible light conditions. **B. Ancha**, S. Bashir, J.L. Liu

**9:30 COLL 674.** Designed mussel-inspired boat for smart crude oil cleanup. **Z. Wang**, L. Shao

**9:50 COLL 675.** Magneto-acoustic hybrid nanomotor: Dynamic actuation and assembly of nanomaterials under complex external stimuli. **J. Li**, J. Wang

**10:10 COLL 676.** Tuning localized surface plasmon resonance wavelengths of nanoparticles by mechanical deformation. **F. Ameer**, J.N. Anker, M. Kennedy, G. Chumanov, S. Varahagiri, D. Benza, D. Willett

**10:30 COLL 677.** WSe<sub>2</sub> nanoflower synthesis and application for catalysis. **O. Lenz**, D. Henckel, K. Krishnan, B.M. Cossairt

**10:50 COLL 678.** Microwave synthesis of colloidal nanozeolite and polymorphism mechanism. **B. Wang**, P. Dutta

**11:10 COLL 679.** Facile immobilization of nano-TiO<sub>2</sub> on cotton fabrics. **P. Siriphannon**

**11:30 COLL 680.** Hydrophobic aluminosilicate aerogel and their composites. **H. Guo**, F.I. Hurwitz

**11:50 COLL 681.** Polymer templated mesoporous frameworks for strain-coupled magnetoelectric composites. **A.N. Buditama**, D. Chien, L. Schelhas, J. Chang, S.H. Tolbert

## Section E

San Diego Convention Center  
Room 10

### Surface Characterization & Manipulation for Electronic Applications

A. Bergren, C. A. Hacker, *Organizers, Presiding*

**8:30 COLL 682.** Transport across 5-25 nm in carbon based molecular junctions. **O. Ivashenko**, A. Bayat, A. Morteza-Najaran, A. Bergren, **R.L. McCreery**

**8:50 COLL 683.** Phenyl ring as an electronic design motif: Orientation and coupling. **A. Vilan**

**9:10 COLL 684.** What is in a contact? Understanding basic interfacial properties of self-assembled monolayers by engineering substrate roughness. **J. Chen**, Z. Wang, **M. Thuo**

**9:30 COLL 685.** Intersection of metals and organics on the properties of molecular-based devices. **R.C. Bruce**, R. Wang, M.J. Therien, W. You, C.A. Hacker

**9:50 COLL 686.** Environmental gating of single-molecule circuits. **L. Venkataraman**

**10:10 COLL 687.** Stereo-electronic effects on charge transport across large area tunneling junction. **J. Chen**, Z. Wang, M. Thuo

**10:30 COLL 688.** Controlling charge transport mechanisms in nanoscaled porphyrin assemblies on Au surfaces. **A. Pawlicki**, E. Avery, M.J. Jurow, A. Vilan, C.M. Drain, **J.D. Batteas**

**10:50 COLL 689.** Size-dependent measurements with spatially confined nano-clusters of porphyrins using conductive probe atomic force microscopy. **X. Zhai**, N. Kuruppu Arachchige, J.C. Garno

**11:10 COLL 690.** Interfacial electron-transfer processes at diamond-aqueous interfaces. **R.J. Hamers**

## Section F

San Diego Convention Center  
Room 11A

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Patterning, Functionalization & Applications

R. Nagarajan, *Organizer*

S. Bashir, *Presiding*

**8:30 COLL 691.** Chemical fabrication of patterned transparent gold-coated polydimethylsiloxane. **L. Slaughter**, H. Cao, Q. Yang, T.D. Young, C.M. Kevin, A.C. Serino, D. Zosso, J. An, J.R. Stevick, N. Takaki, M. Weiss, A. Bertozzi, A.M. Andrews, P.S. Weiss

**8:50 COLL 692.** Directed autonomic flow: Functional motility fluids. **P. Kuhn**, B.S. de Miranda, P. van Rijn

**9:10 COLL 693.** Supramolecular engineering: Applications to molecular recognition and biocatalysis. **P. Shahgaldian**, M.R. Corroero, N. Moridi, S. Sykora, P.F. Corvini

**9:30 COLL 694.** Shear banding in drying films of colloidal nanoparticles. **B. Yang**, J.S. Sharp, M. Smith

**9:50 COLL 695.** Biomolecule triggered shape transformation of hybrid hydrogels. **J. Athas**, C.P. Nguyen, B.C. Zarket, Z. Nie, S.R. Raghavan

**10:10 COLL 696.** Block copolymer template-directed synthesis of mono- and bimetallic nanoparticle catalysts. **D.A. Rider**

**10:30 COLL 697.** Cytotoxicity of metal-organic frameworks derived from wet-chemistry approach. **B. Martinez**, Y. Chen, S. Koppaka, J.L. Liu, **S. Bashir**

**10:50 COLL 698.** Application of reactive amphiphilic clay nanogels for removal of toxic cationic dye and heavy metals water pollutants. **A.M. Atta**, H.A. Al-Lohedan

**11:10 COLL 699.** Enhancing chemical adsorption and biodegradation using bioactive phenyl-functionalized silica gels. **A. Radian**

**11:30 COLL 700.** Morphic atomic switch networks for beyond: Moore computing architectures. **R. Aguilera**, J. Gimzewski, A. Stieg

**11:50 COLL 701.** Diodic fluid flow rectification with low surface energy fluids. **J.E. Mates**, R. Campos, J.R. Alston, J.M. Mabry

**12:10 COLL 702.** Adsorption properties of novel silica gel sorbents surface-functionalized with salicylhydroxamic acid-attached polystyrenes for quercetin. **R. Wang**

## Section G

San Diego Convention Center  
Room 11B

### Basic Research in Colloids, Surfactants & Nanomaterials

#### Surface Chemistry & Surface Science

R. Nagarajan, *Organizer*

M. Ruths, *Presiding*

**8:30 COLL 703.** Lowering the barrier to C-H activation using Pt/Cu single atom alloys. **M. Marcinkowski**, M. El Soda, F.R. Lucci, E.H. Sykes

**8:50 COLL 704.** Surface modification of basic sites on MgO by varying surfactant and precipitating agent concentrations. **N.F. Dummer**, Y. Jiang, L. Joyce

**9:10 COLL 705.** Photoinduced actuation of aqueous solutions containing a photoresponsive surfactant. **Y. Takahashi**, Y. Ayako, Y. Kondo

**9:30 COLL 706.** Nanotribology of a catechol-functionalized alkane with terminal chain branching. **M. Ruths**, K. Persson

**9:50 COLL 707.** Use of chemical kinetics to examine spreading sessile drop behavior on solid surfaces. **J.R. Moffatt**

**10:10 COLL 708.** Probing interfacial chemical reaction and surface interactions of electrochemically active galena mineral surface using atomic force microscope. **L. Xie**, J. Wang, C. Shi, Q. Lu, J. Huang, H. Zeng

**10:30 COLL 709.** Specific ion effects at the silica nanoparticle-electrolyte interface: Quantifying the structure of the electrical double layer. **M.A. Brown**

**10:50 COLL 710.** Structure of zirconium(IV) hydroxide materials for chemical warfare agent decomposition. **D. Barlow**, R. Balow, J. Lundin, J.H. Wynne, A. Ng, R. Stroud, V.M. Bermudez, W. Gordon, I. Iordanov, C. Knox, C.J. Karwacki, G.W. Wagner, G.W. Peterson, P. Pehrsson

**11:10 COLL 711.** Surface profile exploration of thin film auto-stratification with atomic force microscopy. **X. Liu**, A.F. Routh, S. Bhatia

**11:30 COLL 712.** Adsorption of Cu<sup>2+</sup> from aqueous solution on Irvingia gabonensis biomass: Kinetics and thermodynamics studies. **A. Inyinbor**, F. Adekola, G. Olatunji

**11:50 COLL 713.** Reactions in Individual droplets on a superhydrophobic surface: Effect of convection. **Y. Liu**, X. Chen, Q. Xu, A. Greer, Y. Zhao, **A.M. Lyons**

### Applications of Polymer Surfaces & Interfaces

#### Low Energy Surfaces & De-Icing

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### Elucidation of Mechanisms & Kinetics on Surfaces

*Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS*

### Physical Chemistry of Complex Environmental Interfaces

*Sponsored by PHYS, Cosponsored by COLL*

## THURSDAY AFTERNOON

### Elucidation of Mechanisms & Kinetics on Surfaces

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### Physical Chemistry of Complex Environmental Interfaces

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