COLL

Division of Colloid and Surface Chemistry

R. Nagarajan, *Program Chair*

SUNDAY MORNING

Section A

San Diego Convention Center
Room 6E

Adsorption & Reaction at Surfaces: Symposium in Honor of Charles T. Campbell

Catalysis

Cosponsored by CATL
J. Rodriguez, S. L. Tait, *Organizers*
D. Starr, *Organizer, Presiding*
L. Grabow, *Presiding*

8:30 COLL 1. Surface science of molecular catalysis and integration of the three fields of catalysis: Heterogeneous, homogeneous, and enzyme. **G.A. Somorjai**

9:00 COLL 2. Identifying single-atom catalysts for CO oxidation from density functional theory. T. Kropp, M. Rebarchik, **M. Mavrikakis**

9:30 COLL 3. Single-site catalysts by metal-ligand complexation at surfaces: From model systems in vacuum to high-pressure catalysis on oxide supports. **S.L. Tait**

10:00 COLL 4. Interactions of methane on and near high-temperature liquid surfaces. **E. McFarland**, H. Metiu

10:30 Intermission.

10:50 COLL 5. 2-Propanol dehydration on single-facet-dominant TiO_2 (101) and (001) nanopowder catalysts. **F. Gao**, F. Lin, Y. Wu, B. Sudduth, H. Wang, D. Mei, Y. Wang

11:20 COLL 6. Applying low temperature titration for determination of metallic sites on active oxide supported catalysts. **Y. Yang**, Z. Liu, J. Li, Y. Dai

11:40 COLL 7. Catalysis with metal phosphides: Synthesis, properties, and reactivity. **M.E. Bussell**, J.D. Springer, R.P. Lynch, R.H. Hagmann

Section B

San Diego Convention Center
Room 6F

Colloidal Quantum Dots for Emerging Technologies

F. Rosei, A. Vomiero, *Organizers*
O. K. Varghese, *Presiding*

9:00 COLL 8. Failure modes in quantum dot bioimaging agents: It's all about the coating. K. Lee, T. Porter, C. Mcpherson, L. Brillson, **J.O. Winter**

9:30 COLL 9. Measuring the absolute photoluminescence quantum yield of colloidal nanoparticles with multipoint method. **Y. Li**, X. Lu, Y. Xue, Z. Ye, H. Qin, X. Peng

9:50 COLL 10. Colloidal perovskite quantum dots as scalable emitters of coherent single photons. **H. Utzat**, W. Sun, A. Kaplan, F. Krieg, M. Ginterseder, B. Spokoyny, N. Klein, K. Shulenberger, C. Perkinson, M. Kovalenko, M.G. Bawendi

10:10 COLL 11. Colloidal quantum dots-based nano-heterostructures for solar fuel generation. **O.K. Varghese**

10:40 COLL 12. Impact of spacers on controlling the optical properties of silicon quantum dots: Fluorescein dyad. **M. Abdelhameed**, D. Machin, P. Charpentier

11:00 COLL 13. Noble- and heavy-metal-free colloidal semiconductor branched frame photocatalyst. **D. Chen**

11:20 COLL 14. Colloidal carbon dots for solar technologies. **D. Benetti**, H. Zhao, A. Vomiero, F. Rosei

11:40 COLL 15. Investigating nucleation and growth kinetics of indium phosphide quantum dots in a continuous flow reactor. **A. Vikram**, A. Zahid, A. Khare, T. SinghRachford, D. Shenai, P. Trefonas, M. Shim, P.J. Kenis

12:00 COLL 16. HgCdSe/HgS/CdZnS colloidal quantum wells with bright short-wave infrared light emission. **S. Lim**

Section C

San Diego Convention Center
Room 31B

Confined Dynamics of Molecules & Particles at Interfaces, in Pores & under Crowded Conditions

Molecular Scale Confinement

J. Conrad, D. K. Schwartz, *Organizers, Presiding*

9:00 Introductory Remarks.

9:05 COLL 17. On the confined orientational motions of dyes diffusing in surfactant templated cylindrical silica mesopores. **D.A. Higgins**, R. Kumarasinghe, T. Ito

9:40 COLL 18. Multicomponent diffusion in mesoporous materials evaluated via diffusion NMR: Guest/host interfacial transport. **A. Erfani**, N. Pickering, C. Aichele, J.L. White

10:00 COLL 19. View of confinement from the perspective of water molecules, as observed by Overhauser dynamic nuclear polarization. **J. Franck**

10:25 Intermission.

10:35 COLL 20. Infiltration of polymers into disordered nanoparticle packings: Polymers under extreme nanoconfinement. **D. Lee**

11:10 COLL 21. Quantitative measurement of nanoconfinement effects on molecular transport and chemical reaction with a core-shell mesoporous particle. **N. Fang**, B. Dong, Y. Pei, W. Huang

11:35 COLL 22. Water permeation behavior thorough vertically-aligned carbon nanotube array/polymer composite membranes: Effect of temperature. **H. Matsumoto**, S. Shirahama, S. Zhang, A. Saeki, M. Ashizawa, H. Inoue, Y. Hayashi, S. Tsuruoka

12:00 COLL 23. Dielectric constant of interfacial water over charged interfaces. **F. Geiger**, M. Boamah

Section D

San Diego Convention Center
Room 31A

Nanoinformatics: Information & Data Sciences Applied to Nanomaterials Synthesis, Properties & Biological Effects

Nanoinformatics for Nanomedicines

Cosponsored by CINF
S. Jiang, A. Schroeder, *Organizers*
J. Dahlman, D. A. Heller, *Organizers, Presiding*

9:00 COLL 24. Exploration of the nanomedicine-design space with high-throughput screening and machine learning. **C.A. Mirkin**

9:40 COLL 25. Machine learning-driven design of nanomaterials: Ingredients for success. **B. Meredig**

10:10 COLL 26. Nanoinformatics in drug delivery: Matching drugs to carriers. **Y. Shamay**

10:40 Intermission.

10:50 COLL 27. caNanoLab: Enhancing retrieval and sharing of cancer nanotechnology data. **L. Russell**, M. Heiskanen, M. Lijowski, C. Liu, P. Grodzinski

11:20 COLL 28. Synthetic closed-loop smart insulin patch. **Z. Gu**

11:50 COLL 29. Nanoinformatics as a driver for nanoparticle synthesis and biomedical imaging paradigms in MRI and CT. **E. Shapiro**

Section E

San Diego Convention Center
Room 30E

Nanomaterials

Self-Assembly of Soft Nanomaterials

J. A. Hollingsworth, R. Nagarajan, *Organizers*
J. R. McBride, *Organizer, Presiding*

9:00 COLL 30. Controlled assembly of block copolymer coated nanoparticles in 2D-arrays. V. Leffler, L. Mayr, M. Dulle, P. Paciok, H. Du, R. Dunin-Borkowski, **S. Förster**

9:20 COLL 31. Molecular design strategies for creating liquid crystals forming gyroid nanostructures and their advanced functions. **T. Ichikawa**, H. Takeuchi, T. Kobayashi, N. Uemura, X. Zeng

9:40 COLL 32. Controlling orientational orders in self assembly of quantum dot gold heterostructural nanocrystals. **H. Zhu**, Z. Fan, Y. Yuan, M.A. Wilson, D. Eggert, Y. Nagaoka, Y. Liu, Z. Wei, X. Wang, J. He, J. Zhao, R. Li, Z. Wang, M. Gruenwald, O. Chen

10:00 COLL 33. Controlled self-assembly of conjugated block copolymers driven by π-π interactions. **F. He**

10:20 COLL 34. Exerting control over random media by directed self-assembly for optical applications. **J.R. Miller**, C. Wang, Z. Liu, C.D. Keating

10:40 COLL 35. Synthesis and self-assembly of Janus dumbbell nanocrystals. **S. Jiang**, F. Liu, S. Goyal, M. Forrester, K. Miller, T. Ma, L. Zhou

11:00 COLL 36. Surface-directed, DNA-programmed crystallization of nanoparticles. **R. Macfarlane**

11:20 COLL 37. Activity-enhanced self-assembly of a colloidal kagome lattice. **S. Mallory**, A. Cacciuto

11:40 COLL 38. Multi-stimuli responsive nanocomposite tectons. **Y. Wang**, R. Macfarlane

12:00 COLL 39. Thin carbon nanostructure mat with high electromagnetic interference shielding performance. **H. Younes**, A. Al Ghaferi, A. Bani Younes

Section F

San Diego Convention Center
Room 30D

Formulation Strategies to Control the Physicochemical Parameters of Drug & Nucleic Acid Delivery Systems

M. A. Ilies, *Organizer*
K. Sakurai, *Organizer, Presiding*

9:00 COLL 40. Novel self-assembling drugs for amino-acid delivery system. **Y. Nagasaki**

10:00 COLL 41. Hyperloaded poly(2-oxazoline) micelles as personalized drug carriers for brain tumors. D. Hwang, T. Dismuke, E.P. Rosen, J.R. Kagel, C. Lim, W. Zamboni, A.V. Kabanov, T.R. Gershon, **M. Sokolsky-Papkov**

10:30 Intermission.

10:45 COLL 42. Effects of the polymer corona on the drug loading in ultra-high drug loaded poly(2-oxazoline)/poly(2-oxazine) micelles. H.S. Malik, M. Lübtow, **R. Luxenhofer**

11:15 COLL 43. Drug-loaded polymer scaffold parameters on treatment of postsurgical glioblastoma. E. Graham-Gurysh, **K. Moore**, E.M. Bachelder, C.R. Miller, S.D. Hingtgen, K.M. Ainslie

Section G

San Diego Convention Center
Room 30C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Metallic Nanomaterials

H. Fan, Y. Sun, *Organizers*
O. Chen, J. He, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 44. Chemical transformations of nanostructures. **Y. Yin**

9:05 COLL 45. Immobilized metal nanoparticle catalysts for energy applications. **Q. Xu**

9:35 COLL 46. Phase engineering of novel nanomaterials. **H. Zhang**

10:05 Intermission.

10:15 COLL 47. Designing highly durable core@shell electrocatalysts. **S.E. Skrabalak**

10:45 COLL 48. Selective chemical transformations on ordered surfaces of intermetallic nanoparticles. **W. Huang**

11:15 COLL 49. Tailoring cooperative metal-support interfaces for catalysis. **S. Dai**

11:45 COLL 50. Phase-controlled synthesis of colloidal metal nanocrystals. **Y. Xia**

Section H

San Diego Convention Center
Room 29B

Water & Tribological Interfaces

From Nature to Biomimicking Systems

F. Mangolini, M. Ruths, *Organizers, Presiding*

9:00 Introductory Remarks.

9:05 COLL 51. Why is ice slippery? Simulations of solid-liquid friction and the shear viscosity of the quasi-liquid layer on ice. **J.D. Gezelter**

9:35 COLL 52. Ice-rubber friction mechanisms. D. Mazuyer, S. Hemette, **J. Cayer-barrioz**

10:05 COLL 53. Partial slip takes time. **D. Johannsmann**, F. Meyer

10:25 Intermission.

10:35 COLL 54. Relating dermal friction to water and skin moisture content. **M. Masen**, E. de Vries

11:05 COLL 55. Psychotribology: How friction, materials properties, and age influence tactile perception. **M.W. Rutland**

11:35 COLL 56. Structure of water inside thin polysaccharide films. H. Ro, O. Zavgorodnya, G. Yuan, M. Chawathe, L. Granado, C.M. Stafford, **D. Bendejacq**

11:55 COLL 57. Macroscale water-based superlubricity achieved by PDMS under boundary lubrication regime. **Y. Li**, **S. Li**, Y. Tian

Section I

San Diego Convention Center
Room 33C

Hierarchical Assembly of Peptide & Protein: From Interaction & Structure to Application

M. Dong, *Organizer*
S. Zhang, *Organizer, Presiding*
C. Chen, *Presiding*

8:30 COLL 58. Withdrawn.

9:00 COLL 59. Hierarchical folding and assembly of protein-mimetic nanomaterials. S. Xuan, A.I. Nguyen, **R.N. Zuckermann**

9:30 COLL 60. Peptide assembly at interfaces templated by striped phases of amphiphiles. **S.A. Claridge**

9:50 COLL 61. Multicomponent coordination self-assembly toward hierarchical supramolecular nanocolloids for efficient photodynamic therapy. **Q. Zou**, X. Yan

10:10 COLL 62. Predictive modeling of bionanomaterials from picometers to micrometers. **H. Heinz**

10:40 COLL 63. Synthesis and applications of peptoid-based crystalline nanomaterials. **C. Chen**

11:10 COLL 64. Peptide-modulated self-assembly of photosensitive nanocolloids for antitumor phototherapy. **X. Yan**, S. Li, R. Chang

11:40 COLL 65. Hierarchically assembled three-dimensional array materials composed of virus-like particles (VLPs). **M. Uchida**, N. Brunk, K. McCoy, B. Lee, V. Jadhao, T. Douglas

12:00 COLL 66. Two-step model for liquid-liquid phase separation in therapeutic antibody solutions. **B.A. Rogers**, K.B. Rembert, E.A. Graff, M. Poyton, H. Okur, A.R. Kale, T. Yang, J. Zhang, P.S. Cremer

Nanotechnology & Single Cell Analysis in Biology & Medicine

Nanoscience, Biology & Medicine

Sponsored by ANYL, Cosponsored by BIOL, COLL, MPPG and PHYS

Ambient Pressure Spectroscopy in Complex Environments

Sponsored by CATL, Cosponsored by COLL

SUNDAY AFTERNOON

Section A

San Diego Convention Center
Room 6E

Adsorption & Reaction at Surfaces: Symposium in Honor of Charles T. Campbell

Reactions at Surfaces

Cosponsored by CATL
J. Rodriguez, D. Starr, S. L. Tait, *Organizers*
L. Arnadottir, F. Gao, *Presiding*

1:30 COLL 67. Reactions in confined space: Can surface science contribute? **H. Freund**

2:00 COLL 68. Computational approach to determine entropy of adsorbates in catalytic reactions. **L. Arnadottir**, C.T. Campbell, L.H. Sprowl

2:30 COLL 69. How water improves the selectivity of preferential oxidation of CO in the presence of excess H_2 over Au/TiO_2. **L. Grabow**, K. Sravan Kumar, T.N. Whittaker, B.D. Chandler

3:00 COLL 70. Heterolytic H_2 cleavage and water-assisted hydrogen spillover on single palladium atoms supported on $Fe_3O_4(001)$. N. Doudin, S. Yuk, M. Marcinkowski, M. Nguyen, J. Liu, Y. Wang, B. Kay, J. Li, V. Glezakou, G. Parkinson, R. Rousseau, **Z. Dohnalek**

3:30 Intermission.

3:50 COLL 71. Control the reactions on surfaces. **J. Zhu**

4:20 COLL 72. Parahydrogen-induced hyperpolarization on ordered surface of intermetallic nanoparticles. E. Zhao, R. Maligal Ganesh, C.R. Bowers, **W. Huang**

4:40 COLL 73. Selective oxidation of acetaldehyde to acetic acid on Pd–Au(111) bimetallic surfaces. **S. Han**, K. Shin, G.A. Henkelman, C.B. Mullins

5:00 COLL 74. Surface reactions of complex molecular systems: From supported graphene to hydrogen storage molecules. **H. Steinrueck**

Section B

San Diego Convention Center
Room 6F

Colloidal Quantum Dots for Emerging Technologies

F. Rosei, A. Vomiero, *Organizers*
D. Kilin, P. V. Radovanovic, *Presiding*

2:00 COLL 75. Impact of shell imperfections in colloidal quantum dots. **J.R. McBride**, S. Click, K.R. Reid, M.F. Chisholm, J.A. Hollingsworth, S.J. Rosenthal

2:20 COLL 76. Linker-free deposition of Au nanoparticles from a Au colloid. **N.J. Quitoriano**

2:40 COLL 77. Modulating ferroelectric response in colloidal semiconductor nanocrystals through cation exchange. **C. Bradsher**, J.R. McBride, S.J. Rosenthal

3:00 COLL 78. First-principles modeling of photoluminescence of colloidal nanostructures. Y. Han, A. Forde, D.J. Vogel, F. Fatima, T.M. Inerbaev, E. Hobbie, **D. Kilin**

3:30 COLL 79. Shortwave infrared highly emissive nanostructures derived from Cd/Hg chalchogenide platelets. S. Tenney, V. Vilchez, **J.R. Caram**

3:50 COLL 80. Influence of quantum dot and nanomaterial composition on aqueous and non-aqueous digital microfluidics. **U.N. Tohgha**, N.P. Godman

4:10 COLL 81. Controlling carrier polarization in plasmonic semiconductor nanocrystals. **P.V. Radovanovic**

4:40 COLL 82. High temperature digestive ripening and size focusing of semiconductor nanocrystals in ligand-saturated solutions. **D. Porotnikov**, M. Zamkov

5:00 COLL 83. Synergistic approach towards understanding the mechanistic behavior for eradication of superbugs using multifunctionalized nanoplatforms. **A. Pramanik**, K. Gates, Y. Gao, S. Begum, P.C. Ray

Section C

San Diego Convention Center
Room 31B

Confined Dynamics of Molecules & Particles at Interfaces, in Pores & under Crowded Conditions

Confined Biomacromolecules

J. Conrad, D. K. Schwartz, *Organizers, Presiding*

2:00 COLL 84. Linking interfacial protein dynamics to macroscale elutions. **C.F. Landes**

2:35 COLL 85. Single-molecule spectroscopy study of crowding-induced protein spontaneous denature and crowding-perturbed unfolding-folding conformational fluctuation dynamics. **H. Lu**

3:00 COLL 86. Superresolution (fcsSOFI) imaging of porous polymer support and active control of protein dynamics. **C. Dutta**, S. Chatterjee, C.F. Landes

3:20 COLL 87. Cadherin cluster formation in two dimensional confinement. **C. Thompson**, V. Vu, D.E. Leckband, D.K. Schwartz

3:40 COLL 88. Reversible nanobubble surface modifications form protective surface layers at solid/liquid interfaces. **D. Bull**, D. Kienle, A. Chaparro Sosa, N. Nelson, D. Konetski, S. Roy, C. Bowman, J. Cha, D.K. Schwartz, J. Kaar, A.P. Goodwin

4:00 Intermission.

4:10 COLL 89. Impact of confinement and crowding on the kinetics of enzyme encapsulated in virus-like particles. **J. Sharma**

4:30 COLL 90. Manipulating biological systems with polymer chemistry: Encapsulating enzymes. **J.A. Martin**, E. Pinkhassik

Section D

San Diego Convention Center
Room 31A

Nanoinformatics: Information & Data Sciences Applied to Nanomaterials Synthesis, Properties & Biological Effects

Nanoinformatics for Nanomaterials

Cosponsored by CINF
J. Dahlman, D. A. Heller, *Organizers*
S. Jiang, A. Schroeder, *Organizers, Presiding*

2:00 COLL 91. Experimental and computational search strategies for function in the peptide sequence space. **R. Ulijn**, T. Tuttle

2:30 COLL 92. Combinatorial targeting for phenotypic targeting. **G. Battaglia**

3:00 COLL 93. Transitioning to predictive analysis for nanoparticle biocorona studies. **K. Wheeler**, A.J. Chetwynd, M. Findlay, I. Lynch

3:30 COLL 94. Rapidly identifying nanoparticles for *in vivo* RNA and gene editing using DNA barcoding. **J. Dahlman**

4:00 Intermission.

4:10 COLL 95. Learning to predict single-wall carbon nanotube-recognition DNA sequences. **A. Jagota**, Y. Yang, M. Zheng

4:40 COLL 96. Chemometric analysis of nanosensor libraries for developing short-wavelength infrared optical probes for anthracyclines. **J.T. Del Bonis-O'Donnell**, R. Pinals, S. Jeong, A. Thakrar, R. Wolfinger, M. Landry

5:10 COLL 97. Development of targeted nanomedicines facilitated by nanoinformatics. **D.A. Heller**, Y. Shamay, J.D. Chodera, M. Isik

Section E

San Diego Convention Center
Room 30E

Nanomaterials

Synthesis & Functional Design of Colloidal Nanocrystals

J. A. Hollingsworth, J. R. McBride, R. Nagarajan, *Organizers*
G. Strouse, *Presiding*

2:00 COLL 98. Seeded growth and cation exchange strategies for the synthesis of complex multi-component nanoparticles. **R.E. Schaak**

2:30 COLL 99. Molecular programming the phase determination of colloidal nanocrystals with dichalcogenide precursors. **R.L. Brutchey**

3:00 COLL 100. Quantum dot design strategies for accurate molecular imaging in cells and tissues. **A. Smith**

3:30 COLL 101. Metal-tipped CdSe@CdS tetrapods: Enhanced solar energy conversion and fuel generation enabled by precision nanoscale syntheses and Interface engineering. **N.G. Pavlopoulos**, J. Pyun

3:50 COLL 102. Soft-release of captured cells via plasmonic gold nanostars. **G. Vinnacombe**, N. Chiang, L. Heidenreich, Y. Hu, I. Frost, Y. Gong, D. Inouye, T. Fisher, L. Scarabelli, P.S. Weiss, S.J. Jonas

4:10 COLL 103. Colloidal ReO_3 nanocrystals: Extra rhenium d-electron instigating a plasmonic response. **S. Ghosh**

4:30 COLL 104. Dielectric environment effects on doping efficiency in PbSe nanostructures. **Q. Zhao**, T. Zhao, C.R. Kagan

4:50 COLL 105. Gelation of plasmonic metal oxide nanocrystals by polymer-induced depletion attractions. **C. Saez Cabezas**, G. Ong, R. Jadrich, B. Lindquist, A. Agrawal, T. Truskett, D.J. Milliron

Section F

San Diego Convention Center
Room 30D

Formulation Strategies to Control the Physicochemical Parameters of Drug & Nucleic Acid Delivery Systems

K. Sakurai, *Organizer*
M. A. Ilies, *Organizer, Presiding*

2:00 COLL 106. *In vivo* nucleic acid delivery systems for therapeutic targeting of multiple myeloma-microenvironment interactions. **M. Mitchell**

2:30 COLL 107. Functionalized cationic lipid systems for the delivery of nucleic acid and small molecule therapeutics. **K.K. Ewert**, V. Steffes, E.A. Wonder, C.R. Safinya

3:00 COLL 108. Machine-learning approach for *in silico* prediction of lipid-based nanoparticles self-assembly. E. Selwa, **B.I. Iorga**

3:30 Intermission.

3:45 COLL 109. Development of gene therapies with novel tropisms by high-throughput *in vivo* screening of lipid nanoparticles. **C. Sago**

4:15 COLL 110. Tailoring HDL mimetics for *in vivo* delivery of mRNA. **N. Fischer**, W. He, A. Rasley, M.A. Coleman

4:45 COLL 111. RNAi therapeutics delivered. **M. Manoharan**

Section G

San Diego Convention Center
Room 30C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Phase & Surface Chemistry of Nanomaterials

H. Fan, Y. Sun, *Organizers*
O. Chen, J. He, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 COLL 112. Low temperature selective oxidation of methane using unsupported gold-palladium colloidal catalysts. N. Agarwal, S.J. Freakley, R.D. Armstrong, N. Dimitratos, Q. He, **M. Douthwaite**, D.J. Morgan, R.L. Jenkins, D.J. Willock, S.H. Taylor, C. Kiely, G. Hutchings

2:05 COLL 113. Probing surface sites on metal/alloy nanocatalysts in gas-phase catalytic oxidation reactions. **C. Zhong**

2:35 COLL 114. Designing oxide-based nanomaterials for energy applications. **T. Hyeon**

3:05 COLL 115. Structure-function properties of electrocatalysts at nanoscale. D. Strmcnik, P. Papa Lopes, D. Jung, N. Becknell, N. Markovic, **V. Stamenkovic**

3:35 Intermission.

3:45 COLL 116. Nanoparticles for oxygen in heterogeneous catalysis and electrocatalysis. **H. Yang**

4:15 COLL 117. Plasmonic circular dichroism of Janus nanoparticle emulsions. **S. Chen**

4:45 COLL 118. To pNP or not to pNP? Broader scope study of nitrophenol reduction with noble metal nanoparticles. **T. Jurca**

5:10 COLL 119. Controlling acid diffusion rate into gold nano-particle doped silica-based sol–gel material. **K. Yokoyama**

Section H

San Diego Convention Center
Room 29B

Water & Tribological Interfaces

Water & Solid Lubricants: Friends or Foe?

F. Mangolini, M. Ruths, *Organizers*
A. C. Dunn, J. M. Helt, *Presiding*

2:00 COLL 120. Friction on graphite in the presence of adsorbates: Physical and chemical effects on the basal plane and at step edge defects. **A. Martini**

2:30 COLL 121. Experiments and simulations of the humidity dependence of friction: Role of interfacial contact quality. **R. Carpick**, K. Hasz, Z. Ye, A. Martini

3:00 COLL 122. Friction and mechanochemical reactivity of 2D nanomaterials. **J.D. Batteas**

3:20 COLL 123. Lubricated friction at surface nano-defects. **C. Cafolla**, J.W. Foster, K. Voitchovsky

3:40 Intermission.

3:50 COLL 124. Mechanisms underlying lubrication of faults. Y. Diao, **R.M. Espinosa-Marzal**

4:20 COLL 125. Energy barriers and the temperature-dependent friction of MoS_2. **A.R. Hinkle**, M. Chandross, J. Curry, T. Babuska, M. Wilson, M. Dugger, N. Argibay

4:40 COLL 126. Probing and understanding elementary steps in tribochemical reactions. **W.T. Tysoe**

5:00 COLL 127. Ambient-pressure friction force microscopy studies on ultrananocrystalline diamond films: Effect of environment on nanoscale friction. **J. Kim**, J. Choi, J. Kim, J. Park

Section I

San Diego Convention Center
Room 33C

Hierarchical Assembly of Peptide & Protein: From Interaction & Structure to Application

M. Dong, *Organizer*
S. Zhang, *Organizer, Presiding*
R. Alberstein, *Presiding*

1:30 COLL 128. Heterodimer assembly from *de novo* repeat protein structures. **p. huang**

2:00 COLL 129. Functional protein assemblies by chemical design. **F.A. Tezcan**, R. Alberstein, R. Subramanian, Z. Zhang

2:30 COLL 130. Reconfigurable hybrid colloids: Using solid-binding proteins to control nanoparticle assembly and disassembly. **F. Baneyx**

3:00 COLL 131. Nucleation pathway selection yields morphologically diverse two-dimensional protein crystals at solid-liquid interfaces. **R. Alberstein**, S. Zhang, J.J. De Yoreo, F.A. Tezcan

3:20 COLL 132. Nanomaterials for nervous regeneration. **F. Gelain**

3:50 COLL 133. Polymer particles for bio-nano interactions and cancer therapy. **J. Cui**

4:20 COLL 134. Phospholipid self-assembly-based artificial cells. **x. han**

4:50 COLL 135. Self-assembling endogenous biliverdin as a versatile near-infrared photothermal nanoagent. **R. Xing**, K. Chen, X. Yan

5:10 COLL 136. Water-induced β-sheet crosslinking of α-helix rich spider prey-wrapping silk. **B. Addison**, D. Stengel, D. Onofrei, G.P. Holland

Nanotechnology & Single Cell Analysis in Biology & Medicine

Nanoscience

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Ambient Pressure Spectroscopy in Complex Environments

Sponsored by CATL, Cosponsored by COLL

SUNDAY EVENING

Section A

San Diego Convention Center
TBD

Adsorption & Reaction at Surfaces: Symposium in Honor of Charles T. Campbell

Posters

J. Rodriguez, D. Starr, S. L. Tait, *Organizers*

5:30 - 7:30

COLL 137. Tuning metal (hydr)oxide composites via functionalized polymers. **R.B. Balow**, J. Lundin

COLL 138. Interactions of ascorbic acid on copper for fuel cell applications. **J. Cruz**, M. Groves

COLL 139. Quantifying sorption and diffusion in polymeric materials: Experimental results and high fidelity modeling. **S. Matt**, H.N. Sharma, J. Knipe, P. Roy, S. Castonguay, Y. Sun, E. Glascoe

Section A

San Diego Convention Center
TBD

Basic Research in Colloids, Surfactants & Interfaces

Posters

R. Nagarajan, *Organizer*

5:30 - 7:30

COLL 140. Withdrawn.

COLL 141. New finds about the mechanism of wormlike micelle formation involving a cationic surfactant and salicylate. **R.N. Nunes de Souza**, M.Z. Jora, L.T. Duarte, T.D. Atvars, E. Sabadini

COLL 142. Functional superhydrophobic and icephobic coatings made of new biomimetic "gecko leg" soft dendritic colloids. **A. Williams**, S. Roh, O.D. Velev

COLL 143. Removing fine solids suspended in oil media through wettability modification and water-assisted agglomeration. **J. Liu**

COLL 144. Structure-dependent properties of nanoporous hydrogels: Rheology and swelling. **Z. Abbasian Chaleshtari**, J. Banuelos, R. Foudazi

COLL 145. Dynamics and mechanism of polyelectrolyte-neutral block copolymer micellization in aqueous solution by atomistic MD simulations. **U. Natarajan**

COLL 146. Multiresponsive microspheres crosslinked by rotaxane networks. **S. Hiroshige**, T. Kureha, D. Aoki, J. Sawada, D. Aoki, T. Takata, D. Suzuki

COLL 147. Thioether–polyglycidol as multivalent and multifunctional coating system for metal nanoparticles. **K. Albrecht**, S. Feineis, J. Lutz, J. Groll, E. Endl

COLL 148. Enzyme triggered rapid disassembly of polymeric nanoassemblies. **V. Kumar**, Y. Bae, O. Munkhbat, M. Franc, S. Thayumanavan

COLL 149. Hydrothermal synthesis of monodisperse tin oxide nanoparticles and doped tin oxide nanoparticles. **R. Medhi**, T. Lee, T. Lee

COLL 150. Interfacial rheology with sub-phase exchange used to investigate dynamics of cyclopentane hydrate film formation and dissociation. **J. Samaniuk**, D. Goggin

COLL 151. Olefin-linked dithiol adsorbates for the generation of self-assembled monolayers on gold. **S. Sakunkaewkasem**, T. Lee, M.D. Marquez, M.A. Gonzalez

COLL 152. Seedless, one-pot synthesis and simulations of infrared-absorbing silver nanoparticles. **N. Yamamoto**, **M.P. Zepeda Torres**, D. Harris, D.P. Pullman

COLL 153. Bidentate phosphonic acid-based self-assembled monolayers on silver oxide. **J. Lee**, T. Lee

COLL 154. New water-free method for the synthesis of chiral QDs and fine tuning of their optical activity. **K. Varga**, Y. Joh, S. Tannir, J. Kubelka, M. Balaz

COLL 155. Monitoring the temperature-responsive behavior of cholesteric liquid crystal films and emulsions using QCM-D. **K. Swana**, P. D'Angelo, C. Tang

COLL 156. Synthetic methods for preparing partially fluorinated and selectively deuterated adsorbates for self-assembled monolayers. **M. Valverde**, H. TranVu, T. Yu, M.D. Marquez, H. Lee, O. Zenasni, T. Lee

Section A

San Diego Convention Center
TBD

Biomaterials & Biointerfaces

Posters

S. Romero-Vargas Castrillon, *Organizer*

5:30 - 7:30

COLL 157. Coacervate droplets formation of methylated β-cyclodextrin-threaded polyrotaxanes in aqueous media and their applications as an injectable protein carrier. **A. Tamura**, K. Nishida, N. Yui

COLL 158. Palladium nanoparticles as ROS scavengers. **M. Moglianetti**

COLL 159. Synergistic O_2 generation by manganese ferrite/ceria co-decorated nanoparticles induce M2 polarization of macrophages for rheumatoid arthritis treatment. **J. Kim**, T. Hyeon

COLL 160. Application of hemoglobin-capped fluorescent gold nanoclusters for cancer cell targeting and inhibition of cancer cell proliferation. **S. Tan**, T. Kuo

COLL 161. Evaluation of cancer progression and inhibition of cancer cell proliferation by using target-specific 2A3 antibody-conjugated gold nanoclusters. **J. Kuo**, T. Kuo

COLL 162. Metabolic mechanism of cysteine conjugated fluorescent gold nanoclusters in *Escherichia coli*. **T. Chang**, T. Kuo

COLL 163. Synthesis of cysteine-conjugated silver-gold alloy nanoclusters and their application in antimicrobial. **C. Su**, T. Kuo

COLL 164. Cysteine conjugated silver nanoclusters for the detection and inhibition of *Escherichia coli*. **P. Hsu**, T. Kuo

COLL 165. General model for the permeation of nanoparticles through cellular membranes. **C. Liu**, P. Elvati, Y. Wang, A. Violi

COLL 166. Thermal responses of multi-L-arginyl-poly-L-aspartate conjugated with polyethylene glycol. **W. Tseng**, Y. Lin

COLL 167. Supported lipid bilayer stripping by buffer flow. M.J. Ornstead, R. Hunter, C. Cooper, M.L. Valentine, S.K. Smith, **C.F. Monson**

COLL 168. Surface modification of nanofibrous mats with polymeric micelles for enhanced tissue regeneration. **V. Albright**, Y. Wang, C. Mao, M. Stack, H. Hlushko, S. Hernandez, H. Wang, S.A. Sukhishvili

COLL 169. Synthetic charge-invertible polymer for rapid and complete implantation of layer-by-layer microneedle drug films for enhanced transdermal vaccination. **Y. He**, C. Hong, J. Li, M. Howard, Y. Li, M. Turvey, D.S. Uppu, J.R. Martin, K. Zhang, D.J. Irvine, P.T. Hammond

COLL 170. Size-matching hierarchical micropillar arrays for detecting circulating tumor cells. Z. Wang, D. Xu, **N. Lyu**

COLL 171. Directed cell positioning and photothermally enhanced drug delivery on patterned gold nanorods. **K. TaeHo**, H. An, J. Song, I. Choi

COLL 172. Supported lipid bilayer coated microfluidic device for capturing circulating tumor cells. **L. Kawakami**, S. Zhang, J. Belling, J. Jackman, N. Wattanatorn, L. Scarabelli, N. Cho, S.J. Jonas, P.S. Weiss

COLL 173. Using scanning force microscopy to unveil the main factors responsible for microorganism adhesion. **E.M. Hudzik**, J. Blakeman, J. Clarke, P. McGeechan, J. Petkov, M. Geoghegan

COLL 174. Design of adaptive magnetic carbon nanotubes to mimic stimuli-responsive cell culture substrates. **G. Spiaggia**, D. Septiadi, B. Rothen-Rutishauser, A. Fink

COLL 175. Acoustofluidic gene delivery for cancer immunotherapies. **Y. Gong**, J. Belling, J. Park, T. Chiou, N. Chiang, S. De Oliveira, P. Weiss, S.J. Jonas

COLL 176. NaCl induced changes in unilamellar DOPC liposomes. **J. De Mel**, S. Gupta, R. Perera, L. Ngo, P. Zolnierczuk, A. Farone, M. Bleuel, G. Schneider

COLL 177. Experimental study on the self-assembly of polyesters. **E. Liatsi-Douvitsa**, M. Sipin, G. Battaglia

COLL 178. Characterization of the bioaccessibility of nanoparticles in consumer products advertised to contain colloidal silver. **K.R. Rogers**

Section A

San Diego Convention Center
TBD

Colloid & Surface Chemistry in Industry: Applications & Career Opportunities

Posters

N. A. Falk, R. I. Maccuspie, *Organizers*

5:30 - 7:30

COLL 179. Low-field NMR relaxometry for characterizing wetted surface area in colloids and polymer particle dispersions. **R. Ma**

COLL 180. Building and testing a budget-friendly tensiometer. **M. West**, B. Veldman

COLL 181. Biopolymer functionalized liposomes for enhanced dispersion stability of nano vesicles. **L. Hyppolite**

COLL 182. Effects of humidity on the formation of indoor organic thin films. **S. Schwab**, M. Belsuzarri, V.W. Or, M. Alves, V.H. Grassian

COLL 183. Treated diatomaceous earth particles on polymers. **H.J. Perera**, F.D. Blum

COLL 184. Impact of gold nanostar morphology on bioassay sensitivity. **P. Ansari**, R.C. Willson, T. Lee

COLL 185. Cyclodextrin functionalized 3D-graphene for the removal of Cr(VI) with the easy and rapid separation strategy. **Z. Wang**, F. Lin, L. Huang, Y. Lu, J. Chen

Section A

San Diego Convention Center
TBD

Colloidal Quantum Dots for Emerging Technologies

Posters

F. Rosei, A. Vomiero, *Organizers*

5:30 - 7:30

COLL 186. Effects of alloying on exciton recombination in InP-ZnSe quantum dots. **S. Click**, K.R. Reid, J.R. McBride, S.J. Rosenthal

COLL 187. Second harmonic generation in mesoscale semiconductor helices. **D. Law Hine**, J. Kim, N. Kotov

COLL 188. CdHgSe/HgS/CdZnS colloidal quantum wells: Bright short-wave infrared nanoemitter. **G. Lee**, W. Jeong, J. Seo, D. Chung, H. Choi, H. Lyu, S. Lim

COLL 189. Doping metal ions into CsPbCl3 perovskite nanocrystals with improved optical properties for potential optoelectronic applications. **T. Cai**, H. Yang, K. Hills-Kimball, J. Song, H. Zhu, E. Hofman, W. Zheng, B.M. Rubenstein, O. Chen

COLL 190. Investigation of the effects of quantum confinement and grain size on the photoconductivity of CdSe nanocrystal thin films. **J. Cassidy**, M. Zamkov

COLL 191. Role of spacers towards directing the interactions in silicon quantum dots: Fluorescein dyads. **M. Abdelhameed**, s. Aly, D.D. Machin, P. Charpentier

Section A

San Diego Convention Center
TBD

Colloids & Nanomaterials for Water Purification

Posters

C. Drew, *Organizer*

5:30 - 7:30

COLL 192. Synthesis and photocatalytic performance of recyclable core-shell mesoporous Fe_3O_4@Bi_2WO_6 nanoparticles. Q. Zhang, Y. Wu, **M. Wang**, S. Zhuo, H. Wang, X. Ge

COLL 193. Fibrous N-doped hierarchical porous carbon microspheres: Synthesis and adsorption performance. Y. Xie, W. Yang, M. Wang, **X. Ge**

COLL 194. Prussian blue immobilized filter materials for the selective removal of aqueous cesium. **Y. Hwang**, Y. Seo, H. Kim, D. Oh, S. Kang

COLL 195. Withdrawn.

COLL 196. Synthesis of hollow structured CuO-rutile phase TiO_2 hybrid nanoparticles and applications for water purification under visible light condition. **H. Lee**, J. Joo, G. Lee, J. Kim

COLL 197. Novel graphene oxide based thin film composite nanofiltration membranes assisted by rapid codeposition of metal-phenolic network/piperzaine. **Y. Yang**, Y. Li, Y. Wang, R. Wang

COLL 198. Gold-decorated barium titanate nanoparticles for enhanced photocatalysis. **P. Srinoi**, T. Lee, T. Lee

COLL 199. Which aminosilane molecules are the most suitable for surface functionalization of GO toward hexavalent chromium adsorption? **J. Lee**, H. Kim, J. Lee, J. Choi, S. Lee

Section A

San Diego Convention Center
TBD

Confined Dynamics of Molecules & Particles at Interfaces, in Pores & under Crowded Conditions

Posters

J. Conrad, D. K. Schwartz, *Organizers*

5:30 - 7:30

COLL 200. Effect of dielectric saturation on the ion activities in membranes. **A. Paspureddi**, M.M. Sharma, L.E. Katz

Section A

San Diego Convention Center
TBD

Formulation Strategies to Control the Physicochemical Parameters of Drug & Nucleic Acid Delivery Systems

Posters

M. A. Ilies, K. Sakurai, *Organizers*

5:30 - 7:30

COLL 201. PLGA fiber containing AuNRs for on-off controlled anticancer drug release system. **Y. Park**, H. Seo, E. Jeong, D. Hyun, **G. Moon**

COLL 202. Delivery of the SN50 peptide via PLGA particles for increased immunological control and delayed boosting. **B. Ross**, B. Moser, A. Esser-Kahn

Section A

San Diego Convention Center
TBD

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Posters

O. Chen, H. Fan, J. He, Y. Sun, *Organizers*

5:30 - 7:30

COLL 203. Piezoelectrically-mediated mechanochemical reactions for adaptive materials. **J.L. Ayarza**

COLL 204. Piezocatalytic activity of piezoelectric nanoparticles induced by audible frequency vibrations. **J. Wang**, Z. Wang, A. Esser-Kahn

COLL 205. Pd nanoparticle-quantum dot nanodisc hybrids for photo-enhanced colloidal catalysis. **B. Wang**, Y. Shon

COLL 206. Liposome-embedded hydrophobic palladium nanoparticles for biphasic catalysis in water. **D. Ortega**, Q. Tufono, N. Pavlakovich, Y. Shon

COLL 207. Pressure induced transformation of formamidinium lead halide perovskite and quantum dot gold heterostructural nanocrystals. **H. Zhu**, Y. Nagaoka, T. Cai, M. Que, J. Song, K. Hills-Kimball, R. Tan, R. Li, B.M. Rubenstein, Z. Wang, O. Chen

Section A

San Diego Convention Center
TBD

Fundamental Research in Colloids, Surfaces & Nanomaterials

Posters

R. Nagarajan, *Organizer*

5:30 - 7:30

COLL 208. Using spin coating to fabricate polydopamine thin films. **W. Chen**

COLL 209. Photophysics of fluorescent probe molecules in confined environments. **M. Opolz**, **N. Meaux**, R.K. Nayak

COLL 210. Interactions of nanomaterials with model lipid bilayer. **M. Skinner**, **R. Warmoth**, S. Lee

COLL 211. Anti-inflammatory drugs and the lipid bilayer. **A. Liles**, M. Wood, M.J. Morales, E. Miller, A. Jagarnath, B. O'Sullivan, S. Lee

COLL 212. Interactions of PAMAM dendrimers with lipid bilayers. **L. Chong**, E. Perez, S. Zurbriggen, S. Lee

COLL 213. Confocal Raman microspectroscopy for biomembrane characterization. **J. Giancaspro**, M. Krmic, E. Miller, P. Scollan, S. Lee

COLL 214. Insights into biomembrane structure by water permeability and raman spectroscopy. **P. Scollan**, J. Rosario, E. Miller, S. Foley, S. Lee

COLL 215. Computational studies of the effect of caffeine on water permeability in DOPC/cholesterol model membrane. **T.A. Johnson**, S. Lee, R. Versace

COLL 216. Role of cis and trans double bond on water permeability of model membrane in the presence and absence of cholesterol: Computational studies. **J. Rosario**, S. Lee, R. Versace

COLL 217. Computational studies on water permeability across a DOPC biological membrane: Effect of cation. **J. Villa**, S. Lee, R. Versace

COLL 218. Ultrasound-stimulated cargo release at low temperature for spatiotemporally and quantitatively controllable contrast enhancement by magnetic resonance guided high intensity focused ultrasound. **C. Cheng**, W. Chen, J.I. Zink, L. Zhang, H. Wu

COLL 219. Amoebae assemble synthetic spherical particles to form reproducible constructs. **T.J. McCarthy**, P. Bian

COLL 220. Enzyme immobilization in mesoporous silica shells of magnetic nanoparticle cluster supports: Does pore size matter? **M. Carbonell**, B.P. Lawson, A.M. Sulman, B.D. Stein, V.G. Matveeva, L. Bronstein

COLL 221. Magnetically recoverable Pd and Ru nanoparticulate catalysts based on polyethyleneimine or chitosan: Major factors in nitroarene reduction. **T.A. Dickstein**, L. Gregor, Y. Losovyj, B.D. Stein, L. Bronstein

COLL 222. Evaluation of stability of concentrated hydrosol with the droplets of unsaturated lipid. **Y. Watanabe**, M. Shinada

COLL 223. High-efficiency electrocatalyst for the oxygen reduction reaction: Atomic Fe-dispersed on N-doped carbon hollow nanospheres. **Y. Chen**, S.E. Skrabalak, L. Xu, Y. Tang

COLL 224. Self-assemblies of truncated tetrahedral quantum dots with anisotropic patchiness. **Y. Nagaoka**, O. Chen, H. Zhu

COLL 225. Amplifying hot electrons with Schottky barrier lowering by application of an external bias on a metal–semiconductor nanodiode. **B. Jeon**, C. Lee, J. Park

COLL 226. Generation of hot electrons at metal-oxide interfaces during the decomposition of hydrogen peroxide on Pt nanowire/Si nanodiodes. **H. Kim**, **Y. Kim**, **Y. Jung**, **J. Park**

COLL 227. Effect of functionalization of porous silica as nanoreactor for preparation of fluorescent carbon dots. **A. Mikhraliieva**, H. Motta, V. Zaitsev

COLL 228. Study of collective magnetic behavior of iron oxide at nanoscale interparticle distances through DNA-assisted self-assembly. **P. Rahmani**, T. Ye

COLL 229. High-spatial single cell histone mapping using optically tunable nanoparticles. **H. An**, K. TaeHo, I. Choi

COLL 230. Novel nanohybrids of chemically active boron based nanosheets with gold nanoparticles and graphene: Assembling mixed dimensional heterostructures in solution. **A. James**, S. Khandelwal, A. Dutta, **K. Jasuja**

COLL 231. Cu-catalyzed synthesis of CdZnSe-CdZnS alloy quantum dots with highly tunable emission. **Y. Yuan**, H. Zhu, X. Wang, D. Su, J. Zhao, O. Chen

COLL 232. Quantum-well CdS/CdSe/CdS nanoshells exhibiting long-lived biexciton populations. **D. Harankahage**, N.N. Kholmicheva, D. Budkina, D. Porotnikov, A.N. Tarnovsky, M. Zamkov

COLL 233. Magnetic chaining of PDMS beads in new gels and anchor sites for the improvement of wall slip conditions. **N.I. Morales Castellanos**, B. Bharti, O.D. Velev

Section A

San Diego Convention Center
TBD

Hierarchical Assembly of Peptide & Protein: From Interaction & Structure to Application

Posters

M. Dong, S. Zhang, *Organizers*

5:30 - 7:30

COLL 234. Formation of 2D liquid crystal phases by *de novo* designed proteins at crystal-solution interfaces. **J. Chen**, S. Zhang, J. Edison, Z. Preisler, S. Whitelam, J.J. De Yoreo

COLL 235. Development of virus-like hierarchical silica nanoparticles using an engineered capsid protein for biomedical applications. **C. Kim**

Section A

San Diego Convention Center
TBD

Nanomaterials

Posters

J. A. Hollingsworth, J. R. McBride, R. Nagarajan, *Organizers*

5:30 - 7:30

COLL 236. Interlayer structure control and self-assembly of two-dimensional MXene thin films for gas sensors. **S. Kim**, H. Koh, H. Jung, C. Ahn, Y. Gogotsi

COLL 237. 2D Pd-based multimetallic nanosheets. **C. Si**, W. Lu

COLL 238. On solid lipid nanoparticles. **D. Pink**, J. Lawrence, C. Lorenz

COLL 239. Creation of gyroid nanostructured polymer films having 3D continuous aqua-sheet for fast proton conduction. **T. Kobayashi**, X. Zeng, T. Ichikawa

COLL 240. Formation of double gyroid nanostructures by self-organization of atropisomeric ionic amphiphiles. **N. Uemura**, T. Kobayashi, K. Goossens, X. Zeng, G. Watanabe, T. Ichikawa

COLL 241. Polymerization of vinylimidazolium-based amino acid ionic liquids in bicontinuous cubic liquid-crystalline assemblies. **H. Takeuchi**, T. Ichikawa

COLL 242. Assembly of anisotropic nanomaterials for flexible resistive switching device. **Y. Park**, E. Jeong, G. Moon

COLL 243. Growth and control of 2D rhombus supramolecular structures of fluorescent block copolymers. **L. Han**

COLL 244. Well-controlled rectangular and square platelet micelles self-assembled by poly(3-hexylthiophene)-b-polyethylene glycol. **R. Qi**

COLL 245. Self-assembled nanochamber arrays for liquid cell transmission electron microscopy. **Y. BAE**, B. Kim, J. Park

COLL 246. Colloidal gold nanostars as a SERS substrate for the detection of methimazole in urine using a handheld Raman spectrometer. **C. Rusin**, A. Mahmoud, M.T. McDermott

COLL 247. Seed-mediated co-reduction as a route to shape-controlled PdCu-PtCu core-shell nanoparticles. **S. Atehortua Bueno**, S.E. Skrabalak

COLL 248. *In situ* monitoring of the heterogeneous nucleation of a second metal on silver nanocubes using an isocyanide molecular probe. **J. Ahn**, Y. Zhang, Y. Wu, D. Qin

COLL 249. Glycation of human serum albumin alters nanoparticle-protein interactions. **K. Fahy**, **K. Leung**, M. Eiken, K. Baumgartner, H. Park, K.R. Riley, K. Wheeler

COLL 250. Tuneable emission in mercury chalcogenide nanoplatelets. **S. Tenney**, J. Caram

COLL 251. Aqueous stability and SERS activity of polydopamine functionalized aluminum nanocrystals. **D. Renard**, S. Tian, B.D. Clark, A. Ahmadivand, C.J. Desantis, P.J. Nordlander, N.J. Halas

COLL 252. Aluminum nanocubes have sharp corners. **B.D. Clark**, C. Jacobson, M. Lou, A. Ali, G. Wu, L. Bursi, D. Renard, A. Tsai, P.J. Nordlander, N.J. Halas

COLL 253. Synthetic control of nanowire structure for high resolution electron microscopy. **A. Bruefach**, **X. Song**, M. Scott

COLL 254. Visible-transparent and UV-reflective supraballs of hollow silica nanospheres in solution. **S. Lee**, G. Yi

COLL 255. Quantum-size effect of the bond dissociation enthalpies and formation enthalpies in single walled carbon nanotubes. **C.D. Zeinalipour-Yazdi**, E. Loizidou, A. Chutia

COLL 256. Ultrathin hydroxide nanosheets for old paper deacidification. **S. Wang**, S. Lei, X. Zeng

COLL 257. Tuning the nitrogen species content in N-doped CNTs for catalytic applications. **J.M. Ruiz Marizcal**, D. Morales G., E. Contreras, H. Borbón Núñez, D. Dominguez, H. Tiznado, O.E. Contreras, J.M. Romo-Herrera

COLL 258. Inclusion of plasmonic nanoparticles into low density materials. **I. Becerril Castro**, A. Castro-Ceseña, F. Muñoz-Muñoz, J. Romo-Herrera

COLL 259. Nanoscale interactions between liposomes and magnetic/plasmonic nanoparticles investigated by means of (surface - enhanced) Raman spectroscopy. **G.F. Stiufiuc**, S. Nitica, V. Toma, C.M. Lucaciu, R.I. Stiufiuc

COLL 260. AgAu alloy nanoshell: Decorated $BaTiO_3/TiO_2$ and $SrTiO_3/TiO_2$ for photoelectrochemical catalysis. **Y. Chang**, T. Lee, Y. Hsu, R. Medhi, P. Srinoi, T. Liu, M.D. Marquez

COLL 261. Tunable 3D DNA origami-gold nanoparticle hybrid: Self-assembled ultrasensitive SERS substrate. **Y. Zhang**, H. Cao, T. Ye

COLL 262. Computational study on the binding affinities of aliphatic α-amino acids with graphene. **J. Lazare**, T. Dinadayalane

COLL 263. Effects of template and molecular nanostructure on the performance of organic-inorganic photomechanical actuator membranes based on aligned nanocrystals. **X. Dong**, C. Bardeen

COLL 264. Relationship between surface topography and ice adhesion on superhydrophobic surfaces. **Y. Wang**

COLL 265. Withdrawn.

COLL 266. Potential of click nucleic acids in widening nanoparticle functionality. **A. Harguindey Sanchez**

COLL 267. Functionalized nanodiamonds in the investigation of the aggregation phenomenon. **L. Lott**, C. Winstead

COLL 268. Chemically modified titanium boride nanosheets: High yield synthesis and hierarchical assembly into paper-like macrostructures. **A. James**, N. Pandey, M. Lenka, K. Jasuja

Section A

San Diego Convention Center
TBD

Surface Chemistry

Posters

S. L. Tait, *Organizer*

5:30 - 7:30

COLL 269. Enhancing electrochemical efficiency of hydroxyl radical formation on diamond electrodes by functionalization with hydrophobic monolayers. **A.H. Henke**, T. Saunders, J.A. Pedersen, R.J. Hamers

COLL 270. Intramolecular insights into adsorbate-substrate interactions by tip-enhanced Raman spectroscopy at the angstrom-scale. **J.F. Schultz**, S. Mahapatra, L. Li, N. Jiang

COLL 271. Evaluating the binding of ligands on silver nanocubes by *in situ* surface-enhanced Raman spectroscopy. **J. Ahn**, B. Vannatter, D. Qin

COLL 272. Breathable moisture responsive fibrous materials. **L. Lao**, J. Fan

COLL 273. Identifying the barriers to sub-nanometer resolution non-contact atomic force microscopy of hydrophobic surfaces in liquid. **W.A. Nanney**, Q. Yang, X. Hu, A. Martini, T. Ye

COLL 274. Domain structures in mechanically exfoliated single-layer MoS_2 on Au(111). **F. Wu**, Z. Liu, N. Hawthrone, M. Chandross, N. Argibay, J. Curry, J.D. Batteas

COLL 275. Surface immobilized thermos- and light-responsive hybrid microgels for modulation of surface properties. **C. Ou**, S. Giasson

COLL 276. Antioxidant hydrogen-bonded coatings of linear synthetic polyphenol polymers. **R. Hlushko**, H. Hlushko, S.A. Sukhishvili

COLL 277. Noncovalent microcontact printing for hierarchically patterned striped phases of polymerized lipids. **T.C. Davis**, J.O. Bechtold, T.R. Hayes, T.A. Villarreal, S.A. Claridge

COLL 278. Intermolecular π-interactions lead to homogeneously mixed phenyl-terminated self-assembled monolayers. **T. Yu**, M.D. Marquez, T. Lee

COLL 279. Recovering rare earth elements (REEs) from coal fly ash and power plant wastewater sludge leachates with an engineered sorbent. **M. Dardona**, T.M. Dittrich, J. Hovey, M.J. Allen, S.K. Mohanty

COLL 280. Reactivity of 4-NBD with single and multilayer layer MoS_2 on Au(111). **Z. Liu**, F. Wu, J.D. Batteas

COLL 281. Copper-based oligomerization/functionalization of patterned, ligand presenting, self-assembling monolayers (SAMs) at the liquid-HOPG interface. **L. Wilczek**, M. Zimmt

COLL 282. Highly efficient, biofriendly exfoliation of a-zirconium phosphate nanosheets in water using proteins. **M. Malhotra**, C.L. Baveghems, J. Gascon, C.V. Kumar

San Diego Convention Center
TBD

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian

Posters

Cosponsored by ENVR‡
A. P. Ault, J. Baltrusaitis, *Organizers*

5:30 - 7:30

COLL 283. Experimental and theoretical study of the optical properties of benzoic acid and benzoate, for understanding complex macromolecular photosensitizers. **N. Karimova**, M. Luo, R. Gerber, V.H. Grassian

COLL 284. Using easy ambient sonic-spray ionization mass spectrometry (EASI-MS) for depth profiling organic particles. **L.M. Wingen**, B.J. Finlayson Pitts

COLL 285. Stability of lipid monolayers at the air/sea water interface. **M. Luo**

COLL 286. Atmospheric organic aerosol acidity sensing via polymer degradation. **Z. Lei**, S.E. Bliesner, C. Mattson, K.A. Pratt, J.N. Albert, A.P. Ault

COLL 287. Surface potential of aqueous fatty acid and alcohol surfaces: Understanding temperature effects and ice nucleation. **M.G. Vazquez de Vazquez**, H.C. Allen

COLL 288. Synergistic performance of antimicrobial coatings deposited on air particulate filters. **O.V. Ezeh**, Y. Li, W. Han, K. Yeung

COLL 289. Effects in cellular physicochemical properties by copper oxide nanoparticulate matter. **S. Hsieh**, M. Kung, J. Wang, A.K. Dwivedi, C. Tang, S. Huang, M. Tai, S. Hsieh

COLL 290. Nanoscale morphology and spectroscopic analyses of glass surfaces in indoor environments. **V.W. Or**, **M. Alves**, M. Wade, S. Schwab, M. Belsuzarri, R. Corsi, A. Novoselac, V.H. Grassian

COLL 291. Investigation of monoethanolamine adsorption on oxide surfaces. **A. Rose**, I. Sit, V.H. Grassian

COLL 292. Impact of concentration and the presence of salt on the surface pKa of fatty acids at the air-water interface. **M. Song**

COLL 293. AFM-IR and SFG analysis on various geochemical interfaces with adsorbed BSA. **D. Kim**, H. Chen, W. Xiong, V.H. Grassian

COLL 294. α-Amino acid adsorption onto metal oxide nanoparticles: A spectroscopic study to understand the effects of pH and particle type. **I.B. Ustunol**, N.I. Gonzalez-Pech, V.H. Grassian

COLL 295. DNA adsorption on iron (III) oxide: Effects of pH and ionic strength on surface interactions. **I. Sit**, V.H. Grassian

Section A

San Diego Convention Center
TBD

Targeted Delivery of Nanomedicines In Vivo

Posters

P. del Pino, N. Feliu Torres, W. J. Parak, *Organizers*

5:30 - 7:30

COLL 296. Design of multi-functionalized liposomes for adsorbing and neutralizing target molecules *in vivo*. **S. Hirano**, H. Koide, T. Ide, Y. Hamashima, N. Oku, T. Asai

COLL 297. Golden age revisited: Developing a resource sparing gold nanoparticle platform to rapidly triage immune cell targeting ligands in discovery. **L. Austin**, N.L. Sullivan, W.A. Rose II, P. Huo, L. Yan, J.S. Smith, G. Swaminathan, S.T. Spagnol, I.T. Raheem, A.J. Bett, M. Gindy

COLL 298. Facile preparation of Au/Silk nanoparticles as a multifunctional drug delivery system. **A.T. Dao**, H. Kasai

Section A

San Diego Convention Center
TBD

Theoretical & Experimental Investigations of Water Interactions with Materials

Posters

Cosponsored by ANYL‡
D. Donadio, T. Guo, *Organizers*

5:30 - 7:30

COLL 299. Counterintuitive droplet motion mediated by printed charges. **Q. Sun**, X. Deng

COLL 300. Designing the armor for ultra-robust superhydrophobic surfaces. **D. Wang**, X. Deng

COLL 301. Identification of natural evaporation-induced ionovoltaic electrical energy conversion system. **S. Yoon**, H. Jin, W. Lee, Y. Kim

COLL 302. Omni-liquid droplet manipulation platform. **J. Guo**, X. Deng

COLL 303. Quantitatively revealing the distribution of water within hydrophobic polymers via differential scanning calorimetry and theoretical prediction of hydrated polymer thermal profiles. **C. Liu**, A. Tripathi, J. Tsavalas

COLL 304. Ionovoltaic device for monitoring ion dynamics in aqueous-phase. **W. Lee**, S. Yoon, H. Jin, J. Han, Y. Cho, Y. Kim

COLL 305. Electrical energy generation from water droplets infiltration in porous copper oxide nanowires film. **H. Jin**, S. Yoon, W. Lee, J. Han, Y. Cho, Y. Kim

Section A

San Diego Convention Center
TBD

Water & Tribological Interfaces

Posters

F. Mangolini, M. Ruths, *Organizers*

5:30 - 7:30

COLL 306. Potential-induced nonlinear friction behavior between silica microsphere and gold surfaces in aqueous solution. **S. Li**, P. Bai, Y. Li, Y. Meng, L. Ma, Y. Tian

COLL 307. Intrinsically lubricating hydrogel coatings for HIV prevention. **M.B. Elinski**, A.I. Bennett, H. Wang, W. Chen, W.Y. Lin, J.A. Bauermeister, S. Yang, R. Carpick

COLL 308. Non destructive method to calibrate the torsional spring constant of atomic force microscope cantilevers in viscous environments. **C. Cafolla**, A.F. Payam, K. Voitchovsky

COLL 309. Static friction phase diagram for hydrogel-like materials. **T. Shoaib**, R.M. Espinosa-Marzal

COLL 310. Understanding the IL-solid interface using water as molecular probes. **M. Han**, R.M. Espinosa-Marzal

COLL 311. Investigating pressure-solution and frictional behavior of calcite with an extended surface forces apparatus. **Y. Diao**, R.M. Espinosa-Marzal

Structure at Solid-Liquid Interfaces: Effects of Confinement & Chemical Patterning

Sponsored by ANYL, Cosponsored by COLL

MONDAY MORNING

Section A

San Diego Convention Center
Room 5B

Adsorption & Reaction at Surfaces: Symposium in Honor of Charles T. Campbell

Mechanisms & Kinetics

Cosponsored by CATL
J. Rodriguez, D. Starr, S. L. Tait, *Organizers*
Z. Dohnalek, J. Zhu, *Presiding*

8:00 COLL 312. Interactions between arsenic and ferric iron during ferric coprecipitation treatment: Effect of arsenic on ferric oxides formation, and possible formation of ferric arsenate complexes. **Q. Shi**, S. Zhang, C. Christodoulatos, X. Meng

8:20 COLL 313. Vibrationally energy-driven reactions of CO_2 on Cu surfaces. **J. Nakamura**

8:50 COLL 314. Oxygen reduction reaction on Pt electrodes: From kinetics and spectroscopy to new materials. **S. Linic**

9:20 COLL 315. Kinetics of 1,4-bis (phenylethynyl) benzene (DEB) in Pd/C catalyzed hydrogenation. **H.N. Sharma**, E. Sangalang, C. Saw, G. Cairns, W. McLean, R.S. Maxwell, L. Dinh

9:40 COLL 316. Mechanistic studies for the water-gas shift reaction on Cu-ceria catalysts. **J. Rodriguez**

10:10 Intermission.

10:30 COLL 317. Recent advances in methods for finding the mechanism and rate of surface processes. **H. Jonsson**

11:00 COLL 318. Ion imaging measurements of velocity resolved reaction rates: New insights into CO oxidation on Pt. J. Neugebohren, D. Borodin, H.W. Hahn, J. Altschäffel, A. Kandratsenka, **D. Auerbach**, C.T. Campbell, D. Schwarzer, D.J. Harding, A.M. Wodtke, T. Kitsopoulos

11:30 COLL 319. Kinetics studies of the direct conversion of methane to methanol by Cu/mordenite zeolites: What can they tell us about fundamental and process related aspects of the "Holy Grail" of catalysis? **M. Newton**, A.J. Knorpp, D. Stoian, H. Emerich, J.A. van Bokhoven

Section B

San Diego Convention Center
Room 6F

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian

Catalysis, Surfaces & Minerals

Cosponsored by ENVR‡ and WCC
A. P. Ault, J. Baltrusaitis, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 320. Surface chemistry of transition metal doped MgO nanoparticles and their reaction products *in situ*. **J. Baltrusaitis**, M. Silva, D. Kiani

9:00 COLL 321. Metal nodes in metal-organic frameworks as active sites for gas-phase catalytic hydrogenation. D.M. Shakya, O.A. Ejegbavwo, R. Thayalan, S. Farzandh, A.J. Brandt, S.D. Senanayake, A. Ebrahim, A. Frenkel, J.R. Monnier, K.D. Vogiatzis, N.B. Shustova, **D.A. Chen**

9:30 COLL 322. Nanostructured adsorbents and catalysts for environmental applications. **W. Song**

9:50 COLL 323. Kinetics study of heterogeneous reactions of n-butylamine with succinic acid using an ATR-IR flow reactor. **Y. Liu**, X. Gao

10:10 COLL 324. Coupling molecular catalysts with light-harvesting surfaces for solar CO_2 reduction. P. Huang, S. Pantovich, J. Rondeau, S. Xu, **G. Li**

10:30 Intermission.

10:40 COLL 325. SFG spectro-microscopy for self-assembled materials. **W. Xiong**

11:00 COLL 326. Heterogeneous molecular interactions at the silica/water interface. D. Lesnicki, Y. Fang, K. Wall, S. Parashar, M. Gaigeot, V. Vaida, V.H. Grassian, **M. Sulpizi**

11:20 COLL 327. From calcite to nanospheres: Closing the surface gap between cloud condensation nuclei activity and water adsorption. **C.D. Hatch**, P.R. Tumminello, M. Cassingham, R. Parham, K. Morris, H. Hayes, H. Dana, C. Botner, O. Eddings

11:40 COLL 328. Surface chemistry of airborne mineral dust aerosols: Environmental and health implications. **G. Rubasinghege**

Section C

San Diego Convention Center
Room 31B

Confined Dynamics of Molecules & Particles at Interfaces, in Pores & under Crowded Conditions

Dynamics in Crowded Conditions

J. Conrad, D. K. Schwartz, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 329. Colloidal glass transition in confined spaces. **E.R. Weeks**, C. Cao, X. Huang, C.B. Roth

9:10 COLL 330. Appearance of a slow mode of polymer surface diffusion on polymer brush-patterned surfaces in aqueous solution. C.G. Clarkson, A. Johnson, G.J. Leggett, **M. Geoghegan**

9:35 COLL 331. Advancements in fluorescence correlation spectroscopy super resolution optical fluctuation imaging (fcsSOFI) to quantify anomalous diffusion in crowded environments. **L. Kisley**

10:00 COLL 332. Complex salt dependence of polymer diffusion in polyelectrolyte multilayers. **D.F. Kienle**, D.K. Schwartz

10:20 Intermission.

10:30 COLL 333. Modeling the Brownian hydrodynamics of intracellular motion. **R. Zia**, A. Maheshwari, D. Endy, E. Gonzalez, A.M. Sunol

11:05 COLL 334. Brownian motion within lipid bilayers is correlated over large distances. **R.L. Schoch**, I. Barel, F.L. Brown, G. Haran

11:25 COLL 335. Controlling the location of membrane components in planar supported bilayers. S. Sun, C. Liu, **P.S. Cremer**

Section D

San Diego Convention Center
Room 31A

Colloid & Surface Chemistry in Industry: Applications & Career Opportunities

Financially supported by Natural Immunogenics Corporation
N. A. Falk, R. I. Maccuspie, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 336. Career using colloidal and surface science in government, academia, and industry. **R.I. Maccuspie**

9:05 COLL 337. R&D careers at the Clorox Company: Making a difference every day. **N.A. Falk**

9:35 COLL 338. My experience from grad school to an industrial career at P&G. **D. Hosseinpour**

10:05 COLL 339. Careers at the industry-academia interface: Insights from sustainable nanotechnology and entrepreneurship. **M. Hull**

10:35 Intermission.

10:50 COLL 340. Not what I had thought: Surprising commercial applications of colloidal nanoparticles. **S. Oldenburg**

11:20 COLL 341. Contact lenses, insulation, memory foam, and composite lumber: Surface science is in everything! **S. Diamanti**

11:50 COLL 342. One research chemist's career path in the public sector. **J.M. Gorham**

Section E

San Diego Convention Center
Room 30E

Nanomaterials

Metal Nanocrystals

J. A. Hollingsworth, J. R. McBride, R. Nagarajan, *Organizers*
E. Chan, *Presiding*

9:00 COLL 343. Assembly of anisotropic quantum dots from periodic superlattices to aperiodic quasicrystals. **O. Chen**

9:30 COLL 344. Growth mechanism of five-fold twinned nanowires from multi-scale theory and simulations. **K.A. Fichthorn**

10:00 COLL 345. Citrate-coated, size-tunable octahedral platinum nanocrystals: Novel route for advanced electrocatalysts. **M. Moglianetti**, J. Solla-Gullón, P. Pompa

10:20 COLL 346. Maneuvering the surface chemistry of plasmonic Mg nanoparticles. J. Asselin, C. Boukouvala, J.S. Biggins, **E. Ringe**

10:40 COLL 347. Integration of sequential reactions in a continuous flow droplet reactor: Route to architecturally defined bimetallic nanostructures. **J.S. Santana**, S.E. Skrabalak

11:00 COLL 348. General synthetic strategy toward metal stannides, materials for next generation batteries. A. McGrath, S. Ganapathi, F. Ronning, **S. Ivanov**

11:20 COLL 349. Liquid cell electron microscopy reveals origin of heterogeneity of individual nanocrystals and their 3D atomic structures. **B. Kim**, J. Heo, J. Kim, S. Kim, J. Park

Section F

San Diego Convention Center
Room 30D

Formulation Strategies to Control the Physicochemical Parameters of Drug & Nucleic Acid Delivery Systems

M. A. Ilies, *Organizer*
K. Sakurai, *Organizer, Presiding*

8:30 COLL 350. Tuning long-acting HIV drug release from a nanogel-based *in situ* forming implant. A.R. Town, J. Taylor, K. Dawson, E. Niezabitowska, N. Elbaz, A. Corker, E. Garcia-Tuñón, **T.O. McDonald**

9:00 COLL 351. Fabricating Janus particles using seeded emulsion polymerization: Loading and simultaneous release of two drugs. E. Dehghani, M. Salami-Kalajahi, H. Roghani-Mamaqani, **V. Karimkhani**

9:30 COLL 352. Solubilization of binary mixture of hydrophobic solutes in multicompartment polymer nanoparticle. **R. Nagarajan**

10:00 Intermission.

10:30 COLL 353. Designed FN3 domains for extrahepatic delivery of oligonucleotides. **S. Goldberg**

11:00 COLL 354. Polypeptide-based polyplexes to boost effective gene silencing in CNS disorders. I. Conejos-Sánchez, E. Gallon, A. Niño-Pariente, J. Smith, A. Guzman, L. DiCanio, S. Pluchino, R. Franklin, **M.J. Vicent**

Section G

San Diego Convention Center
Room 30C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Nanocatalysts for Energy Applications

H. Fan, J. He, Y. Sun, *Organizers*
O. Chen, *Organizer*, *Presiding*
H. Wang, *Presiding*

8:30 Introductory Remarks.

8:35 COLL 355. Single-site catalysts on nanostructured semiconductor surfaces for solar CO_2 reduction. E. Shaaban, N. Okolie, P. Huang, **G. Li**

9:05 COLL 356. Single surface charges on aliovalently doped semiconductor nanocrystals determine their photoluminescence properties. A.R. Freyer, P. Sercel, Z. Hou, B. Savitzky, L. Kourkoutis, A.L. Efros, **T.D. Krauss**

9:35 COLL 357. Selective photochemistry with quantum dots. Y. Jiang, **E.A. Weiss**

10:05 COLL 358. Hot carriers in action: Plasmon-driven photocatalysis and photocorrosion. **H. Wang**

10:35 Intermission.

10:45 COLL 359. Plasmon-mediated charge transfer and energy transfer in photocatalysis. **N. Wu**

11:15 COLL 360. Photoinduced hot charge transfer at aluminum nanohole array/C_{60} interfaces. x. Liu, Y. Qian, g. deng, M. Mirotznik, B. Debbrecht, B.G. DeLacy, **Y. Rao**

11:45 COLL 361. Potential dependent plasmonic catalyzed cleavage of the C-Br bond of 8-bromoadenine on silver electrodes of nanostructures. **J. Liu**, W. Sun, M. Zhang, J. Zhou, D. Wu, Z. Tian

Section H

San Diego Convention Center
Room 29B

Water & Tribological Interfaces

Bioinspired Polymer Coatings

F. Mangolini, M. Ruths, *Organizers*
X. Banquy, A. Pitenis, *Presiding*

8:30 COLL 362. Stimuli-responsive and nanostructured polymer films for modulating adhesion and friction between surfaces: Fabrications, applications and limitations. **S. Giasson**, C. Drummond, L. Giraud, P. Vialar-Trarieux

9:00 COLL 363. Lubrication and wear protection of soft materials using bioinspired polymers. **X. Banquy**, J. Faivre, L. David, S. Benayoun, B. Ratna Shrestha, K. Matyjaszewski, G. Xie

9:30 COLL 364. Interaction forces and nanotribology of surfaces modified with bioinspired polymer coatings. **M. Ruths**

9:50 COLL 365. Tribological properties of polyelectroryte brushes in water. **A. Takahara**

10:10 Intermission.

10:20 COLL 366. Multi-responsive hierarchical coatings: Synthesis and characterization. **A. Guerron**, S. Giasson

10:40 COLL 367. Soft and slippery: Microgel-coated surfaces under shear. P. Vialar, S. Giasson, **C. Drummond**

11:00 COLL 368. Low-pressure contact experiments reveal multiple modes of relaxation in polyacrylamide hydrogels. C.L. Johnson, J. Kim, **A.C. Dunn**

11:20 COLL 369. Water content and lubricity in aqueous gels. G.D. Degen, **A. Pitenis**

11:40 COLL 370. Water content and adhesion in aqueous gels. **G. Degen**, A. Pitenis

12:00 COLL 371. Humidity-dependent and aqueous-immersion AFM: Nanotribological analysis of biomedical coatings. **G.D. Haugstad**, G. Yu, A. McCormick, K. Wormuth, M. Zeng

Section I

San Diego Convention Center
Room 30A

Hierarchical Assembly of Peptide & Protein: From Interaction & Structure to Application

M. Dong, S. Zhang, *Organizers, Presiding*

8:30 COLL 372. Nanostructured protein capsules. **T. Knowles**

9:00 COLL 373. Transmission mechanism of pathological alpha-synuclein. **X. Mao**

9:30 COLL 374. Phosphorylated amyloid protein forms different stains leading to neurodegenerative diseases. **Y. Li**

10:00 COLL 375. Peptide networking of beta 2 microglobulin over nano-gold colloidal particles' surfaces. **K. Yokoyama**

10:20 COLL 376. Peptide assembly nanostructures: Structure, modulation and clinical applications. **Y. Yang**, L. Zhu, C. Wang

10:50 COLL 377. Determination of polypeptides conformation in water with infrared nano-spectroscopy. **A. Centrone**

11:20 COLL 378. Characterizing the microscopic dynamics of biological macromolecules during folding reactions via direct observation of transition paths. **M. Woodside**

11:50 COLL 379. Bioinspired siRNA delivery system based on higher order architecture of designer peptides. **K. Slowinska**

12:10 COLL 380. NMR characterization of spider silk protein nanoparticle pre-assemblies. **D. Onofrei**, D. Stengel, S.J. Trescott, R.Z. Alabdali, A.Y. Soni, I.A. Villalba, B. Addison, G.P. Holland

Nanotechnology & Single Cell Analysis in Biology & Medicine

Nanoscience

Sponsored by ANYL, Cosponsored by BIOL, COLL, MPPG and PHYS

Ambient Pressure Spectroscopy in Complex Environments

Sponsored by CATL, Cosponsored by COLL

Structure at Solid-Liquid Interfaces: Effects of Confinement & Chemical Patterning

Sponsored by ANYL, Cosponsored by COLL

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology

Synthetic Cells

Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡

MONDAY AFTERNOON

Section A

San Diego Convention Center
Room 5B

Adsorption & Reaction at Surfaces: Symposium in Honor of Charles T. Campbell

Adsorption & Binding at Surfaces

Cosponsored by CATL
J. Rodriguez, D. Starr, *Organizers*
S. L. Tait, *Organizer, Presiding*
L. Gamble, *Presiding*

1:40 COLL 381. Interaction of atomic oxygen with the Ag(111) surface. S.B. Isbill, **S. Roy**

2:00 COLL 382. Oxygen dissociation on the Ag/Cu(111) near surface alloy. **L. Cramer**, E.H. Sykes

2:20 COLL 383. On-surface topochemistry of helicenes. **K. Ernst**

2:50 Intermission.

3:10 COLL 384. Lithium-doped TiO_2(110): Electronic structure and reactivity. **R.S. Somaratne**, J.E. Whitten

3:30 COLL 385. Synthetic surface chemistry: Versatile route to low-dimensional nanostructures. **J. Gottfried**

4:00 COLL 386. Designing nanostructures for plasmon-enhanced spectroscopies to probe chemistry at surfaces. C. Coplan, W. Scholl, M.A. Ticknor, M.M. Swartz, C.A. Lancaster, **J.S. Shumaker-Parry**

4:30 COLL 387. Neutron scattering investigations of molecular interactions with surfaces of nanomaterials. **J.Z. Larese**

Section B

San Diego Convention Center
Room 6F

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian

Aqueous Surfaces to Ocean & Organic-Surface Interactions

Cosponsored by ENVR‡ and WCC
A. P. Ault, J. Baltrusaitis, *Organizers, Presiding*

2:00 COLL 388. Heterogeneous reactions on atmospherically relevant sea spray aerosols. **K.A. Prather**

2:20 COLL 389. Environmental marine interfaces: Inherent electric fields from dipole and electrolyte organization. **H.C. Allen**

2:40 COLL 390. Catching the freshwater wave: Lakes, aerosols, and algal blooms. **A.P. Ault**, N.E. Olson, N. May, J. Axson, K.A. Pratt

3:00 COLL 391. Integrated computational and experimental strategies to explore air-water interfaces in sea spray aerosols and related model systems. **R.E. Amaro**

3:20 Intermission.

3:30 COLL 392. Physical chemistry of environmentally relevant multicomponent interfaces. **H.A. Al-Abadleh**

3:50 COLL 393. Surface-mediated photochemical pathways for the formation of HONO and NO_x. **J.G. Navea**

4:10 COLL 394. Surface chemistry at a primarily undergraduate institution. **J.D. Schuttlefield Christus**

4:30 COLL 395. Thermodynamics and phase of sea spray aerosol droplets using microfluidics. L. Nandy, S. Liu, **C. Dutcher**

Section C

San Diego Convention Center
Room 31B

Confined Dynamics of Molecules & Particles at Interfaces, in Pores & under Crowded Conditions

Interfaces & Pores

J. Conrad, D. K. Schwartz, *Organizers, Presiding*

2:00 COLL 396. Nanoparticle diffusion at liquid-solid interfaces and its implications on *in situ* liquid phase TEM studies. **U. Mirsaidov**

2:35 COLL 397. Dynamics of fluorescein embedded to amyloid beta peptide 1-40 at nano-scale gold surface. **K. Yokoyama**

3:00 COLL 398. Characterization of carfentanil and remifentanil in solution and on surfaces. **M.L. McEntee**, M. Winemiller, A. Walz, F. Hsu, A. Schenning, M.L. Sheahy, I. Iordanov, J. Landers, G.W. Peterson

3:25 Intermission.

3:35 COLL 399. Interfacial, confined, and concentrated colloidal diffusion. **M.A. Bevan**

4:10 COLL 400. Electrostatic barriers to nanoparticle escape from cavities in a porous matrix. **H. Wu**, R. Sarfati, D. Wang, D.K. Schwartz

Section D

San Diego Convention Center
Room 31A

Colloid & Surface Chemistry in Industry: Applications & Career Opportunities

Financially supported by Natural Immunogenics Corporation
N. A. Falk, R. I. Maccuspie, *Organizers, Presiding*

2:00 COLL 401. From Ph.D. lab bench researcher to multi-national startup cofounder. **T.A. Dankovich**

2:30 COLL 402. How does your academia experience support successful industrial career in colloidal science and nanotechnology? **N. Qin**

3:00 COLL 403. Colloidal science: Advancing human health. **D. Gorka**

3:30 Panel Discussion.

Section E

San Diego Convention Center
Room 30E

Nanomaterials

Modulating the Photophysics of Colloidal Nanocrystals

J. A. Hollingsworth, J. R. McBride, R. Nagarajan, *Organizers*
A. Smith, *Presiding*

1:30 COLL 404. Photophysical properties of mixed-dimensional heterojunctions. S. Padgaonkar, S. Amsterdam, H. Bergeron, T.J. Marks, M. Hersam, **E.A. Weiss**

2:00 COLL 405. Investigating the role of aliovalent doping of quantum dots: From magnetic frustration in Fe:ZnSe (CdSe) to plasmonic behavior in Sn:In_2O_3. **G.F. Strouse**

2:30 COLL 406. Discovery and controlled assembly of lanthanide-doped nanoparticles for ultra-low-threshold upconversion microlasers. **E. Chan**

3:00 COLL 407. *In situ* elucidation of oxidation pathways to high quality magnetic nanoparticles. **J. Watt**, D. Huber, A. Begay

3:20 COLL 408. Evaluating the effect of dopants on the oxygen storage behavior of bixbyite vanadium sesquioxide (V_2O_3) nanocrystals. **L. Reimnitz**, D.J. Milliron

3:40 COLL 409. One-pot construction of Au-FeO_x@SiO_2 core-shell nanostructure with both high catalytic activity and good thermal stability. **H. Yin**, Z. Guo

4:00 COLL 410. Stabilization and functionalization of iron oxide colloidal nanoparticles for applications at harsh environment. **W. Wang**

4:20 COLL 411. Microwave synthesis of tailored lanthanide oxide nanoparticles and their surface modification to generate homogeneous nanocomposites. **L.J. Treadwell**, J.P. Lassa, C. Wheeler-Davis

4:40 COLL 412. Ultrafast charge carrier dynamics of indium-alloyed thick-shell InP/ZnSe quantum dots. **N. Freymeyer**, S. Click, K.R. Reid, J.R. McBride, S.J. Rosenthal

Section F

San Diego Convention Center
Room 30D

Formulation Strategies to Control the Physicochemical Parameters of Drug & Nucleic Acid Delivery Systems

K. Sakurai, *Organizer*
M. A. Ilies, *Organizer, Presiding*

2:00 COLL 413. Re-engineering immuno-exosome as theranostics. **S. Aryal**, S. Rayamajhi, T. Nguyen, R. Marasini

2:30 COLL 414. Transglutaminase-mediated lipid bilayer decoration with proteins using lipid-fused peptide amphiphile substrates. **M. Takahara**, R. Wakabayashi, K. Minamihata, M. Goto, N. Kamiya

3:00 COLL 415. Vesicle-to-sheet morphological control of lipid bilayers using polycation-chaperoned peptide system. T. Ochiai, T. Takenaka, W. Sakamoto, T. Masuda, N. Shimada, **A. Maruyama**

3:30 COLL 416. Impact of thermal annealing on physicochemical properties, serum stability, and transfection efficiency of pyridinium based lipoplexes. U. Satyal, H. Nguyen, V.D. Sharma, **M.A. Ilies**

4:00 COLL 417. New synthetic lipid chains incorporated in the structure of cationic amphiphiles for nucleic acid delivery. **A. BOURAOUI**, M. Berchel, R. Ghanem, V. Vie, L. Deschamps, O. Lozach, T.L. Gall, T. Montier, P. Jaffres

4:30 COLL 418. Novel formulation strategies to overcome endosomal barriers for enhanced nucleic acid delivery. S. Patel, **G. Sahay**

Section G

San Diego Convention Center
Room 30C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

O. Chen, H. Fan, J. He, Y. Sun, *Organizers*
G. Li, *Presiding*

1:15 Introductory Remarks.

1:20 COLL 419. Withdrawn.

1:50 COLL 420. Effect of surfactant on nanosynthesis of noble metal nanocrystals: Case of dioctadecyldimethylammonium chloride (DODAC). H. Lv, D. Xu, **B. Liu**

2:20 COLL 421. Organochalcogenide reagents for the phase control of transition metal sulfides and selenides. **J. Macdonald**, E.A. Hernandez-Pagan, E.H. Robinson, J.M. Rhodes, Y. Zhao, J. Veglak

2:50 Intermission.

3:00 COLL 422. Polymer-guided synthesis of asymmetric multicomponent nanoparticles with enhanced catalytical activity. **Z. Nie**

3:30 COLL 423. Engineering metal-oxide interface at atomic scale in well-defined nanoparticles for catalytic conversion of small molecules. **H. Zhu**

4:00 COLL 424. Heterogeneous nanostructure integration for energy conversion and production. **P. Gao**

4:30 COLL 425. Metal-organic framework coated nanoparticles. **C. Tsung**

Section H

San Diego Convention Center
Room 29B

Water & Tribological Interfaces

Specialty Lubricants & Ionic Liquids

F. Mangolini, M. Ruths, *Organizers*
C. Drummond, W. T. Tysoe, *Presiding*

2:00 COLL 426. Biobased lubricant additives from vegetable oils and other renewable feedstocks. **G. Biresaw**, G. Bantchev, R.E. Harry-O'kuru

2:30 COLL 427. Influence of surface coverage on friction performance of stearic acid on iron oxide. **A.M. Schilowitz**, A. Jaishankar, A. Jusufi, J. Vreeland, S. Deighton, J. Pellettiere

2:50 COLL 428. Tricresyl phosphate reactions with ferrous surfaces: Effect of surface composition, molecular isomer, and atmospheric content. **J. Mogonye**, R. Pesce-Rodriguez, A. Kajeh, A. Martini, S. Berkebile

3:10 COLL 429. Using ionic liquids as lubricant additives together with friction modifiers. W. Li, C.K. Kumara, H.M. Meyer III, H. Luo, **J. Qu**

3:30 Intermission.

3:40 COLL 430. Laboratory studies of spacecraft fluid lubricants. **J.M. Helt**, P.P. Frantz, S.V. Didziulis

4:00 COLL 431. Ionic liquids as environmentally friendly additives for hydraulic fluids. **X. He**, H. Luo, T.J. Mathews, J. Qu

4:20 COLL 432. Synergistic interactions between thiolate-protected silver and palladium nanoparticles and their tribological properties. **C. Kumara**, H.M. Meyer III, J. Qu

Section I

San Diego Convention Center
Room 6E

Biomaterials & Biointerfaces

S. Romero-Vargas Castrillon, *Organizer*
J. Groll, *Presiding*

2:00 COLL 433. Sputtering-enabled intracellular X-ray photoelectron spectroscopy (SEI-XPS): New lab-based technique to investigate the biological fate of metal nanoparticles. **M. Moglianetti**, A. Turco, C. Malitesta, P. Pompa

2:20 COLL 434. Design near infrared absorbing triplet-triplet annihilation nanoparticles and application in tumor immunotherapy. **L. Huang**

2:40 COLL 435. Orchestrating cellular organization and phenotype in small diameter bi-layered vascular grafts by heterotypic scaffold design. T. Jüngst, I. Pennings, T. Rosenberg, D. Gawlitta, **J. Groll**

3:10 COLL 436. Silica nanofibers-based extracellular matrix scaffolds with tunable nanostructure. **Y. Nie**, N. Hao, J. Zhang

3:30 COLL 437. New synthesis methodology for making FITC labeled PMMA nanoparticles: Understanding effect of crosslinked vs. surfactant-stabilized nanoparticles on conjugation. **N. Mirza Nasiri**, B. Kamras, S.B. Marpu, D.P. Simmons, R.A. Petros, M.A. Omary

3:50 COLL 438. Role of core stiffness in regulating the intracellular fate of GM3-functionalized polymer nanoparticles. **B. Eshaghi**, N. Alsharif, K.A. Brown, S. Gummuluru, B.M. Reinhard

4:10 COLL 439. Reactive oxygen species sensitive dendrimers for chronic wound healing. **S. Wijetunge**, Y. Sun

4:30 COLL 440. Preparation and properties of POSS/HA composite film layer. **Y. Xiao**, W. Liu, **x. zhang**

Nanotechnology & Single Cell Analysis in Biology & Medicine

Nanoscience

Sponsored by ANYL, Cosponsored by BIOL, COLL, MPPG and PHYS

Water, Ice, & Clathrate Hydrate Geochemistry: Molecular Structures, Microscopic Properties, & Energetics

Sponsored by GEOC, Cosponsored by COLL and PHYS

Ambient Pressure Spectroscopy in Complex Environments

Sponsored by CATL, Cosponsored by COLL

Structure at Solid-Liquid Interfaces: Effects of Confinement & Chemical Patterning

Sponsored by ANYL, Cosponsored by COLL

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology

Tissue Engineering

Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡

MONDAY EVENING

Section A

San Diego Convention Center
TBD

Sci-Mix

R. Nagarajan, *Organizer*

8:00 - 10:00

139, **143**, **146**, **148**, **152**, **168**, **171-177**, **181**, **186-188**, **197**, **200**, **204-206**, **224**, **228-230**, **233-234**, **238**, **239**, **247-248**, **251-254**, **261-263**, **269**, **270**, **273-274**, **277**, **279-281**, **285-288**, **290**, **293-294**, **299-300**, **302**, **307-311**. See Previous Listings.

594-595, **626**, **637**, **673**, **694-696**, **698-699**, **714**, **719**. See Subsequent Listings.

TUESDAY MORNING

Section A

San Diego Convention Center
Room 5B

Adsorption & Reaction at Surfaces: Symposium in Honor of Charles T. Campbell

Electrocatalytic & Liquid Interfaces

Cosponsored by CATL
D. Starr, S. L. Tait, *Organizers*
J. Rodriguez, *Organizer*, *Presiding*
K. Ernst, *Presiding*

8:30 COLL 441. Can surface science help explain biology? **L. Gamble**

9:00 COLL 442. Aqueous-phase adsorption energies of model bio-oil compounds on Pt and Rh: Comparison between experiment and theory. **N. Singh**, B.R. Goldsmith, J. Akinola, I. Barth

9:20 COLL 443. Active structures and species of modified transition metal oxide electrocatalysts for the oxygen evolution reaction. **B.E. Koel**

9:50 Intermission.

10:10 COLL 444. Role of open circuit and external potentials to control electrocatalytic reductions. **J.A. Lercher**, O.Y. Gutierrez Tinoco, Y. Liu

10:40 COLL 445. Electrocatalytic alcohol oxidation by size-selected Pt clusters. **A.C. Cass**, H.F. McKnight, S.L. Anderson

11:00 COLL 446. Ambient pressure X-ray photoelectron spectroscopy with application to solar water splitting materials. **D.E. Starr**

11:30 COLL 447. Greatest hits album: Campbell group. **C.T. Campbell**

Section B

San Diego Convention Center
Room 6F

Basic Research in Colloids, Surfactants & Interfaces

Colloidal Assembly

R. Nagarajan, *Organizer*
S. Fujii, *Presiding*

8:30 COLL 448. Self-assembly of soft colloids into quasicrystals. M. Dulle, T. Jurczyk, T. Gruhn, **S. Förster**

9:00 COLL 449. Switchable regioselective assemble of triblock microparticles based on surface material recognition. **M. Liu**, X. Zheng, D. Pine, M. Weck

9:20 COLL 450. Magnetic assembly of anisotropic nanostructures into responsive photonic crystals. **Z. Li**, Y. Yin

9:40 COLL 451. Investigation of the aggregates formation mechanism of Amyloid beta 1-40 coated nano-gold particles. **K. Yokoyama**

10:00 COLL 452. Polyhedral liquid marbles. **S. Fujii**, F. Geyer, Y. Asaumi, D. Vollmer, H. Butt, J. Fujiwara, Y. Nakamura

10:30 COLL 453. Block copolymer assembly of ligand stripped nanocrystals. **G. Ong**, D.J. Milliron

10:50 COLL 454. All-organic crystalline colloidal array for full color electrophoretic reflective display. **W. Lee**, H. Lee, E. Park

11:10 COLL 455. Templated capillary assembly of liquid colloidal particles. **C. Shillingford**, M. Weck

Section C

San Diego Convention Center
Room 31B

Confined Dynamics of Molecules & Particles at Interfaces, in Pores & under Crowded Conditions

Reactions & Structure in Confinement

J. Conrad, D. K. Schwartz, *Organizers, Presiding*

8:30 COLL 456. Catalytic activity in nanoporous materials with inhibited transport: Pore diameter dependence of PNB conversion to aldol in MSN. **J.W. Evans**, A. Garcia, I.I. Slowing

8:55 COLL 457. Enhanced selectivity in air separation by tumbling movement through a bilayer nanoporous graphene membrane. **S. Wang**, D. Jiang

9:15 COLL 458. Transforming the potential energy landscape to suppress deactivation pathways in surface supported catalysts. **S.C. Hayden**, H. Li, A. France-Lanord, E. Converse, T. Pilyugina, B.S. Hanna, J.C. Grossman

9:40 COLL 459. Self-assembly of deformable soft hydrogel microspheres at the air/water interface. **H. Minato**, Y. Sazuka, M. Takizawa, K. Honda, D. Suzuki

10:05 COLL 460. Surface segregation of binary particles in photonic colloidal assemblies. **Z. Hu**, N.C. Gianneschi

10:25 COLL 461. Structure and dynamics of a confined ionic liquid studied by an x-ray surface force apparatus. **M. Mezger**, M. Valtiner, V. Honkimäki

10:50 COLL 462. Investigation of water adlayers confined between 2D interface. **Q. Li**

11:15 COLL 463. Ionic liquid confined between metallic surfaces: What is the role of image charges? S. Ntim, **M. Sulpizi**

11:40 COLL 464. Effect of confinement on phase transitions of hydrocarbons in nanoporous materials. **H. Cho**, T. Jordan, M.D. Deo

Section D

San Diego Convention Center
Room 31A

Targeted Delivery of Nanomedicines In Vivo

P. del Pino, *Organizer*
N. Feliu Torres, W. J. Parak, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 465. Design and synthesis of inorganic nanomaterials for medical applications. **T. Hyeon**

9:05 COLL 466. Aqueous stable gold nanostar/ZIF-8 nanocomposites for light triggered release of active cargo inside living cells. **P. del Pino**

9:35 COLL 467. Engineering metal-organic-framework nanoparticles for enhanced chemoradiation of breast cancer. M. Neufeld, A. DuRoss, M. Landry, **C.G. Sun**

10:05 Intermission.

10:35 COLL 468. Fluorinated nanomaterials for efficient nucleic acids delivery with medium serum. T. Zhang, Y. Huang, X. Ma, W. Guo, **X. Liang**

11:05 COLL 469. Design and implementation of gold-nanoparticle formulations as MUC1-directed cancer vaccines. **R. Fiammengo**, V. Mangini, I. Compañón, A. Guerreiro, G. Bernardes, F. Corzana

Section E

San Diego Convention Center
Room 29B

Nanomaterials

2D Nanoparticles

J. A. Hollingsworth, J. R. McBride, R. Nagarajan, *Organizers*
B. Sadtler, *Presiding*

8:30 COLL 470. Modulation of precursor reactivity in colloidal syntheses of WSe_2-based nanostructures. **A.M. Schimpf**, J.Q. Geisenhoff

9:00 COLL 471. Colloidal Pb-free halide perovskite and group IV nanomaterials. **M. Panthani**

9:30 COLL 472. Tuning the band gap of semiconducting two-dimensional materials by changing the structure of polymer assembled on their surface. **M.A. Mahmoud**

9:50 COLL 473. Effect of the heterostructure on charge transfer processes in Pbse/Cdse Janus quantum dots functionalized by Ru(II) dyes. **S. Kilina**, J. Mohammed

10:20 COLL 474. Spanning the atomic to the agglomerate dimensions in colloidal dispersions of 2D lead halide perovskites. **C.J. Dahlman**, N.R. Venkatesan, P.B. Corona, R.M. Kennard, N. Smith, M.E. Helgeson, M.L. Chabinyc

10:40 COLL 475. Synthesis and characterization of modified hydroxyapatites. **S. Alexandratos**, H. Benhaim, A. Ashfaq, E. Amin

11:00 COLL 476. Air-stable $CuInSe_2$ nanocrystal transistors and circuits *via* post-deposition cation exchange. **H. Wang**, D.J. Butler, D.B. Straus, N. Oh, F. Wu, J. Guo, K. Xue, J. Lee, C.B. Murray, C.R. Kagan

11:20 COLL 477. Fundamental study of graphene oxide-metal nanoparticle material hybrids for electromagnetic energy interference mitigation: Systematic structure/function analysis. **J.R. Uzarski**, W. Gary, S. Karna

Section F

San Diego Convention Center
Room 30E

Formulation Strategies to Control the Physicochemical Parameters of Drug & Nucleic Acid Delivery Systems

M. A. Ilies, *Organizer*
K. Sakurai, *Organizer, Presiding*

8:30 COLL 478. Understanding the excipient's effects on functionality of glass and polymer pre-filled syringes. **L. Fang**

9:00 COLL 479. Protein-excipient interactions via diffusion NMR: Case study of zwitterions. **A. Erfani**, N. Pickering, J.L. White, J.D. Ramsey, C. Aichele

9:30 COLL 480. Furry nanoballs bearing D_4^H/D_4^V silicone: Synthesis, structural characterization, and their robust stability *in vivo*. **J. Matsuno**, S. Fujii, J. Lee, R. Takahashi, K. Sakurai

10:00 COLL 481. Versatile single chain polymer nanoparticles in controlled drug delivery. J. Paats, N. Hamelmann, P. Kröger, **J.M. Paulusse**

10:30 COLL 482. Chaperone effect of cationic comb-type copolymers for an amphiphilic peptide disturbing lipid membranes. **W. Sakamoto**, N. Shimada, A. Maruyama

11:00 COLL 483. Macromolecular HPMA-based nanoparticles with cholesterol for solid tumor targeting: Synthesis, internal structure, and interaction with blood plasma proteins. **S. Filippov**

11:30 COLL 484. Quantifying drug adsorption to lipid membranes using second harmonic generation. **G.Y. Stokes**

Section G

San Diego Convention Center
Room 30D

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Hybrid Nanomaterials & Applications

O. Chen, H. Fan, J. He, Y. Sun, *Organizers*
B. Liu, *Presiding*

8:30 Introductory Remarks.

8:35 COLL 485. Modulation of surface states on bimetallic nanoicosahedra toward catalytic energy conversion. **C. Kuo**, M. Lu, Y. Chuang, D.A. Cullen

9:05 COLL 486. Highly tunable platform for biomimetic catalysis from nanocrystal-polymer composites. **M. Cargnello**, A. Riscoe, C. Wrasman, A. Herzing, S. Bare

9:35 COLL 487. Nanoscale metal–organic supercontainers as biomimetic catalysts. **Z. Wang**

10:05 Intermission.

10:15 COLL 488. Hierarchical nanocrystal assembly driven by structural transformation of biomolecules. **E. Zhu**, S. Wang, Y. Huang, H. Heinz

10:35 COLL 489. Mechanically initiated free radical polymerization. **Z. Wang**, J.L. Ayarza, A. Esser-Kahn

10:55 COLL 490. Coupling magnetic and plasmonic anisotropy in hybrid nanorods for mechanochromic films. **Z. Li**, Y. Yin

11:15 COLL 491. 3D-porous plate-like Ag nanostructures for efficient CO_2 electroreduction. **S.C. Abeyweera**, Y. Sun

11:35 COLL 492. Remotely operable and highly functional plasmonic nanoreactors for NIR-light-induced bioorthogonal catalysis in living cells. **A. Kumar**, I. Lee

Section H

San Diego Convention Center
Room 5A

Colloids & Nanomaterials for Water Purification

C. Drew, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 COLL 493. Enhanced virus removal in a practical sand filter. **L. Samineni**, B. Xiong, R. Chowdhury, T.H. Nguyen, C. Maranas, D. Velegol, M. Kumar, S.B. Velegol

8:55 COLL 494. Use of rotifers as self-propelling biohybrid microcleaners. **F. Soto**, M.A. Lopez-Ramirez, I. Jeerapan, A. Nourhani, J. Wang

9:15 COLL 495. Determining the properties of flocs made of aluminum oxide particles and lignin-acrylic acid polymers. **P. Fatehi**

9:35 COLL 496. Bioinspired nanomaterials for water remediation. **S.V. Patwardhan**, E. Routoula, H. Patel

9:55 COLL 497. Space-confined seeded growth of black silver nanostructures for solar steam generation. **J. Chen**, Y. Yin

10:15 COLL 498. Remediating aqueous waste with supramolecular gels to create smart materials with high-tech applications. **D.K. Smith**

10:35 COLL 499. Imprinted copolymer/SiO_2 hybrid for selective adsorption of bisphenol A. **K. Chin**, S. Chang

10:55 COLL 500. Electrospun nanofibrous poly-cyclodextrin membrane for efficient removal of polycyclic aromatic hydrocarbons (PAHs) and heavy metals from water. **A. Celebioglu**, F. Topuz, Z.I. Yildiz, T. Uyar

11:15 COLL 501. Core-shell Fe-SiO_2-polyamine magnetic nanoparticles for metal recovery using a continuous flow pipeline reactor. **E. Rosenberg**, R. Latterman, E. Deluca

11:35 COLL 502. Hydrophobic-force-driven removal of organic compounds from water by reduced graphene oxides generated in agarose hydrogels. **C. Cheng**

11:55 COLL 503. Surface modified magnetic nanoparticles as efficient adsorbents for heavy metals removal from wastewater: Progress and prospects. **M.O. Ojemaye**, O.O. Okoh, A. Okoh

12:15 Concluding Remarks.

San Diego Convention Center
Room 6E

Biomaterials & Biointerfaces

S. Romero-Vargas Castrillon, *Organizer*
K. Burke, *Presiding*

8:30 COLL 504. Visualizing the inner architecture of poly(e-caprolactone)–based biomaterials and its impact on performance optimization. **B. Li**, Y. Wu, A.J. Bauer

8:50 COLL 505. Substrate-independent micropatterning of polymer brushes using chemical vapor deposition-based polymerization initiator films. **R. Kumar**, A. Welle, I. Kopyeva, F. Becker, J. Lahann

9:10 COLL 506. Is hydroxyl functionality a prerequisite for inducing stasis in human pluripotent stem cell colonies immersed within block copolymer worm gels? **N.J. Penfold**, M. Sponchioni, I. Canton, S.P. Armes

9:30 COLL 507. Upper critical solution temperature (UCST) behavior of core cross-linked polymer micelle in water. **S. Yusa**, M. Ohshio, K. Ishihara, A. Maruyama, N. Shimada

9:50 COLL 508. Tailoring surfaces of silk fibroin films to control protein adhesion. D. Heichel, S.P. Ward, D.H. Adamson, **K. Burke**

10:20 COLL 509. Mechanochemical phenomena in free and constrained polyacrylamide hydrogels induced by osmotic swelling. **A. Parameswar**, K. Fitch, D. Bull, V. Duke, A.P. Goodwin

10:40 COLL 510. Catechol-modified poly(oxazoline)s with tunable degradability facilitate cell invasion and lateral cartilage integration. J. Blöhbaum, O. Berberich, J. Tessmar, T. Blunk, **J. Groll**

11:00 COLL 511. Scalable synthesis of on-demand degradable hydrogel particles. **P. Shieh**, J.A. Johnson

11:20 COLL 512. Effect of the shape on phagocytosis: Phagocyte type matters! **H. Safari**, E. Saito, W. Kelley, L. Carethers, L. Shea, O. Eniola-Adefeso

Water, Ice, & Clathrate Hydrate Geochemistry: Molecular Structures, Microscopic Properties, & Energetics

Sponsored by GEOC, Cosponsored by COLL and PHYS

Surfactant & Colloid Science Applied to Formulations

Sponsored by AGRO, Cosponsored by COLL

TUESDAY AFTERNOON

Section A

San Diego Convention Center
Room 5B

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

R. Nagarajan, *Organizer*
L. Tribe, *Presiding*

2:00 Introduction of Langmuir Lecturer, **A. Sen**.

2:10 COLL 513. Fantastic voyage: Designing self-powered nano/microbots. **A. Sen**

3:00 Introduction of of Langmuir Lecturer, **K. Ariga**.

3:10 COLL 514. Langmuir science teaches everything: Molecular machine operation, nanocarbon synthesis, and life regulation at liquid interfaces. **K. Ariga**

4:00 Introduction of ACS AMI Lecturer, **J. Schiffman**.

4:10 COLL 515. Interfacing polymer materials with microbiology. **J.D. Schiffman**

Section B

San Diego Convention Center
Room 6F

Basic Research in Colloids, Surfactants & Interfaces

Molecular Self-Assembly

R. Nagarajan, *Organizer*
Z. Niroobakhsh, *Presiding*

2:00 COLL 516. End-group ionisation enables the use of poly(N-(2-methacryloyloxy)ethyl pyrrolidone) as an electrosteric stabiliser block for polymerisation-induced self-assembly in aqueous media. **R. Gibson**, S.P. Armes

2:20 COLL 517. Hydrodynamic instabilities in fatty acid/surfactant self-assembling systems. **Z. Niroobakhsh**, J. LaNasa, A. Belmonte, R. Hickey

2:50 COLL 518. Rediscovering micelle-like behavior of resorcinarene capsules and their unique aggregation number corresponding to Platonic structures. **S. Fujii**, K. Sakurai, J. Lee, R. Takahashi

3:10 COLL 519. Dynamic self-assembly and rheological behaviour of light-responsive surfactants. E. Kelly, J. Houston, **R.C. Evans**

3:40 COLL 520. Kinetic-control effects towards persistent micelle templating. **A. Sarkar**, M. Stefik

4:00 COLL 521. Tuning of the aggregation number of platonic micelles with binary mixture of calix[4]arene surfactants. **J. Lee**, S. Fujii, R. Takahashi, K. Sakurai

4:20 COLL 522. Magnetite-loaded biocompatible diblock copolymer vesicles. **D.L. Beattie**, A. Sahota, C.J. Legge, O. Mykhaylyk, S.S. Staniland, S.P. Armes

4:40 COLL 523. Construction of artificial cells from galactopyranose-derived single-chain amphiphiles. **R.J. Brea Fernández**, A. Bhattacharya, N.K. Devaraj

Section C

San Diego Convention Center
Room 31B

Surface Chemistry

S. L. Tait, *Organizer*
O. Guseva, E. Tyrode, *Presiding*

2:00 COLL 524. Model predictions of phase transformation sequence in Al-oxide-hydroxide system in pure water by bulk and interface thermodynamics. **O. Guseva**, P. Schmutz, L.P. Jeurgens

2:20 COLL 525. Measuring the surface potential at water and pure liquid surfaces. **T. Adel**, S.M. Baumler, H.C. Allen

2:40 COLL 526. Probing mixed octadecanol/stearic acid monolayers at the air/water interface. **K. Judd**, P.S. Cremer

3:00 COLL 527. Do monovalent anions preferentially adsorb to extended hydrophobic surfaces exposing methyl groups? **E. Tyrode**

3:20 COLL 528. Tracking the molecular organisation of water and alcohol mixtures at hydrophobic solid interfaces. **J.W. Foster**, H. Kusumaatmaja, K. Voitchovsky

3:40 Intermission.

4:00 COLL 529. Dilution effects on the behavior of thin ionic liquid films probed with electrochemistry and vibrational spectroscopy. **A. Horvath**, R.S. Anaredy, S.K. Shaw

4:20 COLL 530. Dual-responsive fluorinated ionic liquid infused slippery surfaces. **Q. Rao**, **Q. Zhang**, X. Zhan, F. Chen

4:40 COLL 531. Functional solid surface with liquid-like slippery feature for bubble/drop transport and self-assembly of nanoparticles. **X. Mao**, J. Tan, H. Zeng

5:00 COLL 532. Highly thermally stable hybrid coatings by fluoride rearrangement of phenylsilsesquioxanes and methyltrimethoxysilane. **W. Liu**, Y. Xiao, **x. zhang**

Section D

San Diego Convention Center
Room 31A

Targeted Delivery of Nanomedicines In Vivo

N. Feliu Torres, W. J. Parak, *Organizers*
P. del Pino, *Organizer, Presiding*

2:00 COLL 533. Understanding the fate and behaviour of nanoparticle in biological system. **C. Chen**, L. Wang, Y. Zhao

2:30 COLL 534. Silver nanoparticles toxicity and nanomedicine. **S. Liu**

3:00 COLL 535. Use of polymeric nanoparticle platform targeting the liver to induce Treg-mediated antigen-specific immune tolerance in a pulmonary allergen sensitization model. **T. Xia**

3:30 Intermission.

4:00 COLL 536. Towards tracking stem cells and macrophages with gold and iron oxide nanoparticles: Choice of the best suited particles. **N. Feliu Torres**

4:30 COLL 537. Drug delivery via polymer-drug conjugates for pancreatic ductal adenocarcinoma. **R. Sanyal**

What does Nanotechnology Have to do with Agriculture?

Sponsored by AGRO, Cosponsored by COLL

Surfactant & Colloid Science Applied to Formulations

Sponsored by AGRO, Cosponsored by COLL

TUESDAY EVENING

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology

Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE

WEDNESDAY MORNING

Section A

San Diego Convention Center
Room 5B

Basic Research in Colloids, Surfactants & Interfaces

Molecular Behavior at Interfaces

R. Nagarajan, *Organizer*

U. Natarajan, *Presiding*

8:30 COLL 538. Surface pressure-induced crystallization behaviour of poly(caprolactone)-based mixed monolayers at the air/water interface. **B. Li**, A. Esker

8:50 COLL 539. It takes two to tangle: Nonionic polymer aggregation behavior at the oil/water interface as affected by varying surfactants. **R. Altman**, G.L. Richmond

9:10 COLL 540. Bicarbonate charging of hydrophobic/water interfaces. **F. Ganachaud**, J. Bernard, X. Yan, A. Stocco

9:30 COLL 541. Ion interactions with carboxylic acid monolayers: Surface charge, reversed affinities, and contact ion pairing as revealed by non-linear vibrational spectroscopy. **E. Tyrode**

9:50 COLL 542. Effect of polymer charge and interface concentration on structure of isotactic poly(acrylic acid) PAA and isotactic poly(methacrylic acid) PMA at oil-water interface. **U. Natarajan**

10:20 COLL 543. Dual actions of hydrotropes in bulk solution and at interface. **M.A. Anisimov**

10:40 COLL 544. Molecule dynamics simulations of the trisiloxane surfactant monolayers at air-water and heptane-water interfaces. **X. Zhuang**, R. Ananth

11:00 COLL 545. Surface dipoles give rise to the largest odd-even effects ever reported: Structure and wettability of CF_3-terminated *n*-alkyl xanthic acid self-assembled monolayers. **H. Tran**, H. Lee, S. Sakunkaewkasem, L.T. Han, T. Yu, M. Valverde, M.D. Marquez, L. Grabow, T. Lee

11:20 COLL 546. NSF's ChemMatCARS: National facility for liquid surface X-ray scattering. **W. Bu**

Section B

San Diego Convention Center
Room 6F

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian

Organic-Surface interactions & Organic Aerosols

Cosponsored by ENVR‡ and WCC
A. P. Ault, J. Baltrusaitis, *Organizers*, *Presiding*

8:30 Introductory Remarks.

8:35 COLL 547. Five-isotope approach to tracking the origin and evolution of life. **M.H. Thiemens**, R. Shaheen, L. Mang

9:00 COLL 548. Multiphase chemistry of reactive oxygen species in indoor environments and human surfaces. **M. Shiraiwa**

9:20 COLL 549. Interfacial dissolved O_2 consumption by photolyzed aqueous pyruvic acid. **M.I. Guzman**, A.J. Eugene

9:40 COLL 550. Aerosol spectroscopy and the dynamics of nanoparticle collisions. M.E. Miller, P. Kim, **R.E. Continetti**

10:00 COLL 551. Condensed-phase photochemical processes in atmospheric particulate matter. **S.A. Nizkorodov**

10:20 Intermission.

10:30 COLL 552. Molecular origin for cloud activation. **F. Geiger**

10:50 COLL 553. Study of 3D morphology, phase state and viscoelastic properties of individual substrate-deposited particles. **A.V. Tivanski**

11:10 COLL 554. Chemistry of atmospheric brown carbon. **A. Laskin**

11:40 COLL 555. Old and new insights of heterogeneous and multiphase oxidative processes affecting the lifetimes of toxic organic substances in biomass burning and sea spray aerosol. **J.H. Slade**, S. Kruse, M. Shiraiwa, D.A. Knopf, A. Cooper

Section C

San Diego Convention Center
Room 31B

Surface Chemistry

S. L. Tait, *Organizer*
D. L. Patrick, L. Wong, *Presiding*

8:30 COLL 556. Tuning surface properties in self-assembled monolayers of multi-functional boron clusters. **D.P. Goronzy**, K.M. Cheung, E. Avery, J. Staněk, J. Macháček, T. Base, P.S. Weiss

8:50 COLL 557. Probing the electrochemical reductive stability of decanethiol/triazole-ferrocene mixed self-assembled monolayers on Au. **B.E. Bonsall**, C.C. McCrory

9:10 COLL 558. Surface chemistry for modification and tuning of polymer CORALS. **A. Sidorenko**, P.B. Moore, C. McConnell

9:30 COLL 559. Exploration of variables involved in surface pKa shifts of carboxylated carboranethiol self-assembled monolayers. **E. Avery**, D.P. Goronzy, J. Staněk, J. Macháček, T. Base, P.S. Weiss

9:50 Intermission.

10:10 COLL 560. Biocatalytic parallelized scanning probe lithography for the additive fabrication of conjugated polymer structures. **L. Wong**, J. Hosford

10:30 COLL 561. Combined experimental and triple-mode sorption modeling approach for sorption and diffusion in polymeric materials. **H.N. Sharma**, Y. Sun, E. Glascoe

10:50 COLL 562. Bottom-up shape engineering of molecular single-crystals. **D.L. Patrick**, G.K. Reed, m. littleton, H.J. Doran

11:10 COLL 563. Controlling assembly of layer-by-layer films via a small hydrogen-bonding molecule. A. Aliakseyeu, V. Selin, **R. Hlushko**, J. Ankner, S.A. Sukhishvili

11:30 COLL 564. Multifunctional biocompatible nanocoatings of ionic fluorinated polyphosphazenes. **V. Albright**, A. Marin, A.K. Andrianov, S.A. Sukhishvili

Section D

San Diego Convention Center
Room 31A

Targeted Delivery of Nanomedicines In Vivo

P. del Pino, *Organizer*
N. Feliu Torres, W. J. Parak, *Organizers, Presiding*

8:30 COLL 565. Enzyme-responsive actively tumor-penetrating nanomedicine overcomes tumor diffusion barriers and produces potent anticancer efficacy. **Y. Shen**, Q. Zhou

9:00 COLL 566. Immunoreactions in the presence of nanostructures. **K. Riehemann**, H. Fuchs, K. Langer

9:30 COLL 567. Combination of cowpea mosaic virus and PD-1 blockade works synergistically to improve therapeutic efficacy. **C. Wang**, N.F. Steinmetz

10:00 Intermission.

10:30 COLL 568. Designed Au-TiO_2 nanoreactors for spatiotemporal controlled, NIR-promoted photocatalytic transformations inside living cells. **M. Correa-Duarte**

11:00 COLL 569. Withdrawn.

Section E

San Diego Convention Center
Room 30E

Nanomaterials

Optimizing Nanostructure for Practical Applications

J. A. Hollingsworth, R. Nagarajan, *Organizers*
J. R. McBride, *Organizer, Presiding*

8:30 COLL 570. Nanoscale colocalization of fluorogenic probes reveals the role of oxygen vacancies in the photocatalytic activity of tungsten oxide nanowires. **B. Sadtler**

9:00 COLL 571. Synthesis and electrical properties of photoactive, two-dimensional SnS nanosheets. **A. Mews**, M. Kobylinski, C. Rumlieb, T. Tsangas, A. Kolditz, T. Kipp

9:30 COLL 572. Metal nanoclusters: New light harvesting antenna for solar energy conversion. **J. Bang**

9:50 COLL 573. Space-confined seeded growth of Au nanostructures for highly efficient photo-induced cancer therapy. **J. Chen**, Y. Yin

10:10 COLL 574. Solid plasmonic substrates synthesized using TFF purified colloidal silver for cancer detection by means of SERS analysis of blood plasma. V. Toma, G.F. Stiufiuc, S. Nitica, R. Marginean, A.I. Moldovan, C.M. Lucaciu, **R.I. Stiufiuc**

10:30 COLL 575. Electromagnetic field confinement in self-assembled anisotropic plasmonic nanoparticle superlattice. **L. Tay**, J. Hulse, S. Poirier, J. Fraser

10:50 COLL 576. Hierarchical assembly of gold nanoparticles on graphene nano platelets: Synthesis and characterization. **Y. Ren**, S. Bhusal, G. Kedziora, V. Varshney, A. Roy, D. Nepal

Section F

San Diego Convention Center
Room 30D

Formulation Strategies to Control the Physicochemical Parameters of Drug & Nucleic Acid Delivery Systems

K. Sakurai, *Organizer*
M. A. Ilies, *Organizer, Presiding*

8:30 COLL 577. Physical stability and fibrillation kinetics of teriparatide: Influence of conformational structure, product formulation, and the Hoffmeister ions. **M. Korang-Yeboah**, S. Ketcham, B. Bandaranayake, C.N. Cruz, M. Ashraf

9:00 COLL 578. Development of ROS-triggered degradable nanoparticles using oligoproline peptides as biomolecule delivery platform for plant cells. **R. Kawasaki**, K. Tsuchiya, K. Numata

9:30 COLL 579. Quantifying hyaluronic acid and metal-organic framework for biomedical applications using gas-phase electrophoresis. **D. Tsai**, H. Wang

10:00 COLL 580. Controlled synthesis of calcium carbonate nanoparticles and stimuli-responsive multilayered nanocapsules for oral drug delivery. **N. Elbaz**, A. owen, S. Rannard, T. McDonald

10:30 COLL 581. Withdrawn.

11:00 COLL 582. Improving the therapeutic efficacy of nucleic acids and small molecule drugs using stimuli-responsive nanostructures. **J.L. Rouge**

11:30 COLL 583. Formulation of carbonic anhydrase IX: Targeted drug delivery systems against hypoxic tumors. A. Shabana, U.K. Mondal, S. Akocak, **M.A. Ilies**

Section G

San Diego Convention Center
Room 30C

Basic Research in Colloids, Surfactants & Interfaces

Emulsions, Drops & Dispersions

R. Nagarajan, *Organizer*
S. Choi, *Presiding*

8:30 COLL 584. Surfactant-induced reorganization of the hydrophobic phase at nanoemulsion interfaces. **A. Carpenter**, G.L. Richmond

8:50 COLL 585. Oil-in-oil Pickering emulsions stabilized solely by diblock copolymer nanoparticles. **M.J. Rymaruk**, S. Brown, C. Williams, S.P. Armes

9:10 COLL 586. Understanding uniform, fast, and scalable buoyancy-driven macro-sized drop generations. **S. Choi**

9:40 COLL 587. Phase stability and miscibility in alcohol microemulsions: Do reverse micelles form in ethanol/AOT/*n*-heptane systems? **R. Ridley**, E. Alvarado, V. Vasquez, O. Graeve

10:00 COLL 588. Two's company, three's a crowd: How ions tag along for the ride with SDS and PEI on a nanoemulsion surface. **E. Tran**, G.L. Richmond

10:20 COLL 589. Effects of low-temperature hydrothermal treatment on the properties and removal of fine solids from nonaqueous extraction (NAE) bitumen. **M. Ahmed**, Q. Chen, X. Tan, Q. Liu

10:40 COLL 590. How does end-group charge on the steric stabilizer block affect the formation and stability of Pickering nanoemulsions prepared using diblock copolymer nanoparticles? **S.J. Hunter**, N.J. Penfold, O. Mykhaylyk, S.P. Armes

11:00 COLL 591. Simple creams, complex structures. **D. Ahmadi**, D. Barlow, J. Lawrence

Section H

San Diego Convention Center
Room 33C

Theoretical & Experimental Investigations of Water Interactions with Materials

Cosponsored by ANYL‡
D. Donadio, *Organizer*
T. Guo, *Organizer, Presiding*
K. Bradford, *Presiding*

8:30 COLL 592. Desiccant-based food drying for reduced carbon generation and improved food security. **K. Bradford**, J. Van Asbrouck, I. Donis-Gonzalez, T. Guo, D. Donadio

9:10 COLL 593. NMR characterization of dehydration of zeolites by three heating methods. **T. Guo**

9:30 COLL 594. Discerning the fundamental interactions of water with porous catalysts by *in situ* MAS NMR. **N.R. Jaegers**, M. Hu, M. Wang, V. Lebarbier Dagle, H. Wang, A.B. Padmaperuma, Y. Wang, J. Hu

10:10 COLL 595. Drop manipulation on superhydrophobic surface with dielectrowetting. **J. yang**, X. Deng

10:30 COLL 596. Electrified membranes for water treatment: Toward new experimental and theoretical tools. **D.S. Bergsman**, B.A. Getachew, A.P. Straub, J.J. Patil, B.D. Smith, J.C. Grossman

11:10 COLL 597. Withdrawn.

Section I

San Diego Convention Center
Room 6C

Biomaterials & Biointerfaces

S. Romero-Vargas Castrillon, *Organizer*
M. Geoghegan, *Presiding*

8:30 COLL 598. Charge and structure quantification of peptides at aqueous interfaces. **F. Geiger**, Q. Cui, N. Dalchand

8:50 COLL 599. Dynamics of cellular membranes and their interactions with nanomaterials. P. Elvati, C. Lin, Y. Wang, **A. Violi**

9:10 COLL 600. Force spectroscopy measurement of the adhesion of galactose to the human pathogen *Leishmania mexicana*. A.R. Hall, J. Blakeman, A.M. Eissa, P.M. Chapman, A.L. Morales-García, D.H. Dockrell, N.R. Cameron, M. Wiese, M.E. Rogers, **M. Geoghegan**

9:40 COLL 601. Synthesis, characterization, and evaluation of a zwitterionic microgel for therapeutic protein delivery. **A. Erfani**, N.H. Flynn, C. Aichele, J.D. Ramsey

10:00 COLL 602. Photodegradable hydrogels for retrieval of bacteria cells from screening interfaces. **R.R. Hansen**, N. Fattahi, N. Barua, P. Nieves-Otero, A. van der Vlies, T.G. Platt

10:20 COLL 603. High throughput creation of water-in-water droplets in a microfluidic flow-focusing device. M. Jeyhani, V. Gnyawali, N. Abbasi, S.S. Tsai, **D. Hwang**

10:40 COLL 604. Thermophoretic manipulation of the mechanical properties of biomaterials in microfluidics. **A. Kosmidis**, D. Vigolo, L.M. Grover, Y. Shen

11:00 COLL 605. Tuning surface charge as a general approach to improving immobilized enzyme function on mixed lipid bilayers. **A.F. Chaparro Sosa**, K.J. Black, J. Kaar, D.K. Schwartz

11:20 COLL 606. Molecular interactions at the cellulose-lignin interface explored via molecular simulation. **J.V. Vermaas**, M.F. Crowley, G. Beckham

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology

Delivery Systems

Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡

Surfactant & Colloid Science Applied to Formulations

Sponsored by AGRO, Cosponsored by COLL

WEDNESDAY AFTERNOON

Section A

San Diego Convention Center
Room 5B

Basic Research in Colloids, Surfactants & Interfaces

Colloidal Materials

R. Nagarajan, *Organizer*
S. S. Datta, *Presiding*

2:00 COLL 607. Preparation and properties of fluoroalkyl end-capped vinyltrimethoxysilane oligomer/magnetite nanocomposites. **H. Sawada**, S. Okada, K. Yamashita

2:20 COLL 608. Synthesis of hybrid polystyrene-poly(organosiloxane) particles with complex architectures through use of organotrialkoxysilanes as surfmer. **P. Buskens**, D. Mann, M. Segers, H. Keul, M. Moller

2:40 COLL 609. Cracking and self-healing of shrinkable, granular materials. **H. Cho**, S.S. Datta

3:10 COLL 610. Preparation and application of fluoroalkyl end-capped vinyltrimethoxvsilane oligomer/hexagonal boron nitride nanocomposites. **J. Saengkaew**, K. Yamashita, H. Sawada

3:30 COLL 611. Synthesis of nanoparticles in dispersion: Flow cell coupled analytics as a way to follow particle growth. **N. Meulendijks**, P. Buskens, R. van Ee, G. van Groenestijn, A. Volker, A.C. Voelker, R. Armenta, G. Pierre

3:50 COLL 612. Measuring the accessible surface area within the nanoparticle corona using molecular probe adsorption. **M. Park**, D. Salem, D. Parviz, X. Gong, K. Silmore, T. Lew, D.T. Khong, M.C. Ang, S. Kwak, M. Chan-Park, M. Strano

4:10 COLL 613. Polymer-based energetic composites with improved thermal conductivity through bioinspired interfacial engineering strategy. **G. He**

4:30 COLL 614. New insight into the role of Ag in the seed-mediated gold nanorods synthesis. **J. Zhu**, R. Lennox

4:50 COLL 615. Protection of organic molecular microcrystals encapsulated under two-dimensional materials. **W. Li**, N. Tierce, E. Bekyarova, C.J. Bardeen

5:10 COLL 616. Understanding interfacial interactions to unlock the potential of bioinspired nanomaterials. **S.V. Patwardhan**, J. Manning, M. Jorge, A. Centi, B. Walkley, J. Provis

Section B

San Diego Convention Center
Room 6F

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian

Nano in the Environment & Plenary Lecture

Cosponsored by ENVR‡ and WCC
A. P. Ault, J. Baltrusaitis, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 COLL 617. Changes in the physiochemical properties of MoO_3 nanoparticles in aquatic systems. **D.F. Rodrigues**, S. Fanourakis, J.P. Bahamonde

2:25 COLL 618. Accelerating nano-EHS research: Applications in nano-chemistry and nano-toxicology. **C. Sayes**

2:45 COLL 619. Mineral growth, dissolution, and beyond: Iron oxide nanoparticles. J. Voelz, C. Johnston, M. Cruz Reyes, A. Soroush, J.A. Soltis, J.H. Strehlau, N.D. Burrows, A.M. Vindedahl, W. Arnold, **R. Penn**

3:05 COLL 620. Molecular level studies of carbon-based nanomaterials in aquatic environments. **H. Fairbrother**

3:25 COLL 621. Interfacial energy: Key to controlling calcium carbonate formation on environmentally-abundant surfaces. **Y. Jun**, Q. Li, Y. Zhu

3:45 Intermission.

3:55 COLL 622. Applications of nanotechnology for water treatment: Electrospun nanofibers as a platform for integrated treatment and monitoring. **D.M. Cwiertny**

4:15 COLL 623. Insight into the interactions of biomolecules and natural organic matter with mesoporous silica nanomaterials. **S.C. Larsen**

4:35 COLL 624. Physical chemistry of environmental interfaces. **V.H. Grassian**

5:25 Concluding Remarks.

Section C

San Diego Convention Center
Room 31B

Surface Chemistry

S. L. Tait, *Organizer*
Y. Cardona Quintero, F. Kunc, *Presiding*

2:00 COLL 625. Multimethod quantification of nanomaterial surface functional groups. **F. Kunc**, Y. Sun, A. Brinkmann, G. Lopinski, L. Johnston, V. Balhara

2:20 COLL 626. Convergence of ensemble and single-molecule techniques to understand protein liquid chromatography. **A. Misiura**, H. Shen, C. Dutta, N. Moringo, L.D. Bishop, C.F. Landes

2:40 COLL 627. Co-optimization of multifunctional surfaces using high-throughput surface patterning assays. **N. Alsharif**, T. Lawton, J.R. Uzarski, K.A. Brown

3:00 COLL 628. Using non-standard N-heterocyclic carbenes to functionalize gold surfaces and analysis of their binding via SERS. **S. Strausser**, L. Sherman, J.P. Camden, D.M. Jenkins

3:20 COLL 629. Surface energy determination comparison: Inverse gas chromatography and contact angle goniometry. **W. Skinner**, S. Manni

3:40 Intermission.

4:00 COLL 630. Computational study of mechanism of different amino acids binding to Graphene sheet in gas phase with DFT. **M. Malhotra**, C.V. Kumar, J. Gascon

4:20 COLL 631. Nerve-agent decomposition by polyoxometalates utilizing a correlated multimodal approach. **Y. Tian**, A. Plonka, A. Ebrahim, D.L. Collins-Wildman, C.L. Hill, A. Frenkel

4:40 COLL 632. Functionalized porous silicon for the capture and detection of organophosphates from air. **B.R. Pimentel**, C.E. Wahl, A. Chaix, J.S. Ha, D.E. Hunka, M.J. Sailor, S. Cohen

5:00 COLL 633. Adsorption of Sarin on dry, wet, and doped TiO_2(110) using density functional theory. **Y. Cardona Quintero**, R. Nagarajan

Section D

San Diego Convention Center
Room 31A

Targeted Delivery of Nanomedicines In Vivo

P. del Pino, *Organizer*
N. Feliu Torres, W. J. Parak, *Organizers*, *Presiding*

2:00 COLL 634. Transition metal oxide nanostructures for a magnetic goal in nanomedicine. **V. Salgueirino**

2:30 COLL 635. Fabrication of 3D plasmonic micro-structured super-crystals arrays. **N. Pazos-Perez**, R. Alvarez-Puebla

3:00 COLL 636. Theranostic carcoded nanoparticles personalize cancer medicine by predicting the drug response in the primary tumor microenvironment and in brain metastasis. **A. Schroeder**

3:30 Intermission.

4:00 COLL 637. Multimodal nanostructures as theragnostic agent in Alzheimer disease at early stages: PANA project. **M. Rodríguez-Pérez**, B. Pelaz, P. Aguiar, C. Correa, E. Polo, L. Vázquez-Vázquez, E. López-Arias, F. Campos, J. Castillo, P. del Pino, T. Sobrino

4:20 COLL 638. Targeted delivery of supra-assembled nanocargoes *in vivo* to overcome the chemoresistance in colon cancer. **N. Thorat**, J. Bauer

4:40 COLL 639. Investigating tantalum nanoparticles for X-ray CT and therapeutic use. **S. Chakravarty**, J.M. Hix, E.M. Shapiro

Section E

San Diego Convention Center
Room 30E

Nanomaterials

Synthesis of Metal & Metal Oxide Nanocrystals

J. R. McBride, R. Nagarajan, *Organizers*
J. A. Hollingsworth, *Organizer, Presiding*

2:00 COLL 640. Two-phase synthesis of gold-copper bimetallic nanoparticles of tunable composition. **D. Hofmann**, C.J. Murphy

2:20 COLL 641. Tuning the frequency of localized surface plasmon resonances. **C.R. Conti**, G.F. Strouse

2:40 COLL 642. Syntheses of colloidal F:In_2O_3 cubes: Fluorine-induced faceting and infrared plasmonic response. **S. Cho**, S. Ghosh, Z. Berkson, J.A. Hachtel, J. Shi, X. Zhao, L. Reimnitz, C.J. Dahlman, Y. Ho, A. Yang, Y. Liu, J. Idrobo, B.F. Chmelka, D.J. Milliron

3:00 COLL 643. Electrochromic niobium oxide nanorods. **C. Saez Cabezas**, G. Ong, S.L. Skjærvø, D.J. Milliron

3:20 COLL 644. Lipase-catalyzed enzymatic biodegradation of carbon dots follows sequential oxidation pathways. **D. Sar**, I. Srivastava, D. Pan

3:40 COLL 645. Green synthesis of palladium nanomaterials via biological templates using TMV and BSMV virus-like particles. **Y. Lee**, K. Lee, C.A. Scott, R. G Susler, S. Loesch-Fries, K. Solomon, M.T. Harris

4:00 COLL 646. Precision thermal and reaction control leads to selective formation of amphiphilic cationic gold clusters in the critical size range, n = 130-146 Au atoms [1.6-nm core diameter]. **M. Hoque**, A. Antonysamy, R. Whetten, K. Mayer

4:20 COLL 647. Reshaping and sintering of 3D fcc metal nanocrystals: Stochastic atomistic modeling with realistic surface diffusion kinetics. **K. Lai**, J.W. Evans

4:40 COLL 648. Site-selective carving and co-deposition: Transformation of Ag nanocubes into concave nanocrystals encased by Au-Ag alloy frames. **J. Ahn**, D. Wang, J. Zhang, Y. Ding, D. Qin

5:00 COLL 649. Synthesis of Au-Pt coaxial nanotubes with high photothermal stability for chemo-photothermal therapy. **Q. Zhang**, Z. Nie

Section F

San Diego Convention Center
Room 30D

Basic Research in Colloids, Surfactants & Interfaces

Nanomaterials

R. Nagarajan, *Organizer*
C. Drew, *Presiding*

2:00 COLL 650. Enzymatically activated aggregation and cell-adhesion of peptide-nanoparticle conjugates selectively target tumor tissue with enhanced delivery efficiency. **H. Huang**, S. O'Brien, R. Ulijn

2:20 COLL 651. Molecular layer deposition: Mechanisms of vapor-phase organic thin-film synthesis. **D.S. Bergsman**, R.G. Closser, C.J. Tassone, B.M. Clemens, D. Nordlund, S.F. Bent

2:40 COLL 652. Amphiphilic conjugated polymers for nanoparticle stabilization. **S. Saxena**, J. Subbiah, P. Meier, A. Colsmann, W. Wong, D. Jones

3:00 COLL 653. Multiscale analysis of the doping-driven wettability of two-dimensional materials. **T. Tian**, S. Lin, S. Li, L. Zhao, E. Santos, C. Shih

3:20 COLL 654. Investigating physico-chemical properties of dynamically crosslinked nanopatterned hydrogels. **S. Heedy**, J. Luo, A.F. Yee

3:40 COLL 655. Withdrawn.

4:00 COLL 656. Development of next-generation materials for hybrid electro-optic systems. **L.E. Johnson**, H. Xu, D.L. Elder, S.R. Hammond, Y. de Coene, K. Clays, L.R. Dalton, B.H. Robinson

4:20 COLL 657. Monodisperse magnetic silica hexapods. **J. Kim**, G. Yi

4:40 COLL 658. Additive-free processing of carbon nanotubes in cresols as dispersions, pastes, gels and dough. **K. Chiou**, J. Huang

5:00 COLL 659. Biocatalytic porous frameworks with reversible pH-gated speed regulation for smart micromotors. **S. Gao**, K. liang, V. Chen

Section G

San Diego Convention Center
Room 30C

Basic Research in Colloids, Surfactants & Interfaces

Polymer Particles & Gels

R. Nagarajan, *Organizer*
A. Mallia, *Presiding*

2:00 COLL 660. Characterization of core-shell latex particles by capillary electrophoresis. **M. Jing**, W. Gao, W. Young, L. Yin

2:20 COLL 661. CO_2-responsive polymer nanoparticles. **Y. Shieh**, F. Hu, P. Tai

2:40 COLL 662. Soft nanocomposite hydrogel microspheres with defined nanostructures. **D. Suzuki**, T. Watanabe, C. Song, K. Murata

3:00 COLL 663. Tuning composition and hydrophobicity of ionic statistical amphiphilic copolymers to control and predict copolymer particle size. **T.J. NEal**, O. Mykhaylyk, S. Spain

3:20 COLL 664. Structure property correlations, gelation, mechanical, and thermal properties of molecular gels derived from *N*-phenyloctadecanamides and *N*-(phenylalkyl)octadecanmides as molecular gelators. **A. Mallia**, K. Kanemitsu, J. Kim

3:50 COLL 665. Evaluation of thermoresponsive structural changes in hydrogel microspheres by high-speed atomic force microscopy. **Y. Nishizawa**, S. Matsui, K. Urayama, T. Kureha, M. Sibayama, T. Uchihashi, D. Suzuki

4:10 COLL 666. Formulation of new responsive and self-repairing magneto-capillary gels. **N.I. Morales Castellanos**, S. Roh, B. Bharti, S. Khan, O.D. Velev

4:30 COLL 667. New cationic sterically-stabilized diblock copolymer nanoparticles exhibit exceptionally high salt tolerance in aqueous media. **S. Byard**, A. Blanazs, S.P. Armes

4:50 COLL 668. Preparation of fluorescent microspheres with conjugated polymers. **L. Fan**

5:10 COLL 669. Synthesis of well-defined, pyrrolidone-based homopolymers and stimulus-responsive diblock copolymers via RAFT aqueous solution polymerization of 2-(*N*-acryloyloxy)ethylpyrrolidone. **O. Deane**, S.P. Armes

Section H

San Diego Convention Center
Room 33C

Theoretical & Experimental Investigations of Water Interactions with Materials

Cosponsored by ANYL‡
T. Guo, *Organizer*
D. Donadio, *Organizer, Presiding*
D. S. Bergsman, *Presiding*

2:00 COLL 670. Competitive interactions in confined environments. **A.E. Clark**

2:40 COLL 671. Modeling of the hydration of nanoporous materials by machine learning. **M. Bauchy**

3:00 COLL 672. Computer modeling of water adsorption and water-mediated proton conduction in metal-organic frameworks. **F. Paesani**

3:40 COLL 673. Out-of-the-box implicit solvation at dielectric interfaces. **J. Filser**, M. Sinstein, C. Scheurer, S. Matera, K.U. Reuter, H. Oberhofer

4:00 COLL 674. Polarizable molecular simulations reveal how silicon-containing functional groups govern the desalination mechanism in nanoporous graphene. **L. Wang**, Y. Qiu, B. Schwegler

4:40 COLL 675. Water at charged interfaces: Localized vs. delocalized charges. **M. Sulpizi**

Section I

San Diego Convention Center
Room 29B

Biomaterials & Biointerfaces

S. Romero-Vargas Castrillon, *Organizer*
N. Kornienko, *Presiding*

2:00 COLL 676. β-Diketonate-iron(III) complex: Versatile fluorine-19 MRI signal enhancement agent. **C. Wang**, H. Xu, S. Adams, W. Zhu, E. Ahrens

2:20 COLL 677. Inhibition of leukocyte adhesion in the presence of model particulate drug carriers. **W. Kelley**, P. Onyskiw, C. Fromen, O. Eniola-Adefeso

2:40 COLL 678. Interfacing enzymes with inorganic materials for semi-artificial photosynthesis. **N. Kornienko**

3:10 COLL 679. Photoconjugating affibodies to their receptor prevents their proteolytic degradation and preserves their activity: Strategy for gene-free cell modification. **S. Roy**, M. Brasino, A.H. Sanchez, J. Cha, A.P. Goodwin

3:30 COLL 680. Red/far-red light controlled bacteria-driven microrobots for cargo delivery and release. **I. Sentürk**, S.V. Wegner

3:50 COLL 681. Mining for peptides with affinity for a synthetic copolymer hydrogel nanoparticle: Compositional and structural contributions to affinity. **S. Lee**, I. Moody, Z. Zeng, E. Fleischer, G.A. Weiss, K.J. Shea

4:10 COLL 682. *In situ* surface modification of 3D printed emulsion inks. **E. Cosgriff-Hernandez**, D. Jenkins, P. Dhavalikar, M.S. Silverstein

4:30 COLL 683. Extracellular DNA provides structural integrity to a *Micrococcus luteus* biofilm. **J. Blakeman**, A. Morales-García, A. Hayward, J. Mukherjee, K. Gori, N. Lant, M. Geoghegan

4:50 COLL 684. Chirality engineering of supraparticles for controllable nanomedicine. **J. Yeom**, P. Guimaraes, H. Ahn, K. McHugh, M. Mitchell, C. Yun, A. Jaklenec, R. Langer

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology

Biomaterials

Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡

THURSDAY MORNING

Section A

San Diego Convention Center
Room 5B

Basic Research in Colloids, Surfactants & Interfaces

Applications of Novel Colloids

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

8:30 COLL 685. Preparation of fluorinated aliphatic diol/phosphonic acids/magnetite composites: Application to separation of mixture of oil and water. **K. Yamashita**, Y. Kaneumi, T. Kijima, K. Kokin, H. Sawada

8:50 COLL 686. Synthesis of thermoresponsive block copolymer vesicles via polymerisation-induced self-assembly for oil thickening applications. **I.R. Dorsman**, S.P. Armes

9:10 COLL 687. Fabrication of Janus nanocups and selective loading with cargo. **X. Qiang**, A. Steinhaus, C. Chen, R. Chakroun, A. Gröschel

9:30 COLL 688. Synthesis and performance of nanoreactors from mesoporous silica. **T. Guo**

10:00 COLL 689. One-pot hydrothermal synthesis of benzalkonium-templated mesostructured silica antibacterial agents. **V. Dubovoy**, A. Ganti, T. Zhang, H. Al-Tameemi, J.D. Cerezo, J.M. Boyd, T.G. Asefa

10:20 COLL 690. Kinetic modeling of simple organophosphates hydrolysis using mixed metal nanofibers. **M.M. Allard**, Y. Zhu, C.C. Perry

10:40 COLL 691. Photothermal killing of *Escherichia coli* using gold nanorods and gold nanobipyramids. **S. Yougbare**, T. Kuo

11:00 COLL 692. Structure-dependent optical modulation of propulsion and collective behavior of acoustic/light-driven hybrid microbowls. **S. Tang**, J. Wang

11:20 COLL 693. Photochemically patterned metal nanoparticle strontium barium niobate surfaces with tunable wettability, enhanced raman scattering and fluorescence emission. **E. Barnes**, L. Soblosky, E. Alberts, L. Johnson, J. Guy, A. Kumar

Section B

San Diego Convention Center
Room 6F

Basic Research in Colloids, Surfactants & Interfaces

Surfaces & Interfaces in the Environment

R. Nagarajan, *Organizer*
X. Yu, *Presiding*

8:30 COLL 694. Chemical, physical, and superstructural driving forces of aqueous interfacial phosphate recognition. **J.F. Neal**, W. Zhao, A.J. Grooms, M. Smeltzer, B. Shook, M. Zerkle, A.H. Flood, H.C. Allen

8:50 COLL 695. Heterogeneity in urban environmental films. **J. DeYoung**, J.S. Grant, S.K. Shaw

9:10 COLL 696. Viscosity increases in the core of phase separated particles after IEPOX uptake. **N.E. Olson**, Z. Lei, R.L. Craig, Y. Zhang, Y. Chen, J. Surratt, A.P. Ault

9:30 COLL 697. *In situ* molecular imaging of the air-liquid and liquid-liquid interface in the environment. **X. Yu**

10:00 COLL 698. Reflection-absorption infrared spectroscopy is not only a vibrational spectroscopy: Case of thin amorphous solid water (ASW) films. **J. Maurais**, P. Ayotte

10:20 COLL 699. Mineralogy dependent atmospheric processing of mineral dust aerosols and their impact on the growth of marine diatoms. **E. Hettiarachchi**, S. Ivanov, T. Kieft, R. Reynolds, H. Goldstein, B. Moskowitz, G. Rubasinghege

10:40 COLL 700. Phenol-water vapor deposition in long-term exposure: Different interfaces, similar sigmoid kinetics, and enhanced water retention. **M. Borisover**, N. Bukhanovsky, M. Lado

11:00 COLL 701. Photochemical reaction dynamics and absorption spectroscopy of environmentally important species. **D. Shemesh**, M. Luo, R. Gerber, V.H. Grassian

11:20 COLL 702. Design and formulation of an iodine-based antimicrobial coating for sporicidal and bactericidal activities. **O.V. Ezeh**, Y. Li, W. Han, K. Yeung

11:40 COLL 703. Surface chemistry of cerium oxide nanoparticles in an engineered UV/persulfate process with dissolved organic matter. **X. Wu**, Y. Rao, Y. Jun

Section C

San Diego Convention Center
Room 31B

Surface Chemistry

S. L. Tait, *Organizer*
J. M. Gorham, K. Tan, *Presiding*

8:30 COLL 704. NiAu single-atom alloys for selective C-C coupling. **P. Kress**, E.H. Sykes

8:50 COLL 705. Pair approximation of heterogeneous reaction networks. **C.A. Kim**, T.A. Van Voorhis

9:10 COLL 706. Atomic-scale characterization and reactivity of PtAg surface alloys. **D. Patel**, E.H. Sykes

9:30 COLL 707. Triaqua surface coordination complex on Co_3O_4(111). **G. Yan**, T. Waehler, R. Schuster, M. Schwarz, C. Hohner, K. Werner, J. Libuda, P. Sautet

9:50 Intermission.

10:10 COLL 708. Role of functional groups for the synthesis of nanomaterials within metal organic frameworks materials. **K. Tan**, J. Cure, S. Jensen, L. Feng, H. Wang, J. Li, T. Thonhauser, H. Zhou, Y.J. Chabal

10:30 COLL 709. Challenges in surface chemical analysis in nanomaterial systems. **J.M. Gorham**, D. Gorka

10:50 COLL 710. Hydrophobic CeO_2 nanoparticles coating using polymer binder for enhanced adhesion capability. **S. Yasmeen**, R. Khan, H.B. Lee

11:10 COLL 711. Formation of tough latex films of polymeric microspheres crosslinked with rotaxane. **S. Hiroshige**, J. Sawada, D. Aoki, T. Takata, D. Suzuki

11:30 COLL 712. Molecular insights into surface ligand-dynamics and their impact on functionality of self-assembled nanoparticle superlattices. T. Patra, H. Chan, P. Podsiadlo, E. Shevchenko, S. Sankaranarayanan, **B. Narayanan**

Section D

San Diego Convention Center
Room 31A

Targeted Delivery of Nanomedicines In Vivo

N. Feliu Torres, W. J. Parak, *Organizers*

P. del Pino, *Organizer, Presiding*

8:30 COLL 713. Applications of SERS encoded particles. **R. Alvarez-Puebla**

9:00 COLL 714. "Smart" DNA-based materials for controlled release. **M. Vazquez**, C. Wang, S. Lilienthal, A. Fischer, W. Chen, I. Willner

9:30 COLL 715. Triple-labelling of polymer-coated quantum dots and adsorbed proteins for tracing their fate. **W.J. Parak**

10:00 Intermission.

10:30 COLL 716. Accessing intracellular targets using designed nanoplatforms. **S. Dhar**

11:00 COLL 717. Assessing the effect of surface chemistry on targeted delivery and cellular uptake of silica nanoparticle. **J. Joo**

11:20 COLL 718. Micromotors as targeted payload delivery platforms. **E. Karshalev**, B. Esteban-Fernández de Ávila, J. Wang

11:40 COLL 719. Stable J-aggregation of an aza-BODIPY lipid in a liposome for multimodal cancer imaging. **M. Cheng**, K.M. Harmatys, D.M. Charron, J. Chen, G. Zheng

Section E

San Diego Convention Center
Room 30E

Nanomaterials

Morphological Control of Colloidal Nanostructures

J. A. Hollingsworth, R. Nagarajan, *Organizers*
J. R. McBride, *Organizer, Presiding*

8:30 COLL 720. Study on surface interfacial regulation and properties of nanocomposites based on grafting of nano-Al. **C. Zeng**, F. Gong, J. Zhang

8:50 COLL 721. Electrically tunable liquid photonic crystals with highly saturated structural colors for display unit. **Q. Fu**, Y. Yin

9:10 COLL 722. Withdrawn.

9:30 COLL 723. Monofacet-selective cavitation within solid-state silica-nanoconfinement towards Janus iron oxide nanocube. **N. Kumari**, I. Lee

9:50 COLL 724. Block copolymers in 3D confinement: Janus structures with complex topology. **A. Steinhaus**, X. Qiang, G. Quintieri, A. Gröschel

10:10 COLL 725. Fluorescent dye-encoded assemblies of amphiphilic Janus magnetoplasmonic nanoparticles: Cluster, lamellae, and vesicles. **D. Lu**, S. Hou, H. Duan

10:30 COLL 726. Assembly of rod-shaped hydrogel microspheres at the air/water interface. **K. Honda**, Y. Sazuka, K. Iizuka, S. Matsui, T. Uchihashi, T. Kureha, M. Shibayama, T. Watanabe, D. Suzuki

10:50 COLL 727. Complex inorganic nanomaterials by block terpolymer templating. **S. Tjaberings**, M. Heidelmann, A. Gröschel

11:10 COLL 728. Regioselective self-assembly of gold nanospheres and silver nanodiscs modulated by block copolymers with steric hindrance. **X. Lin**, Z. Nie

11:30 COLL 729. Controlled self-assembly of water-soluble, "hairy," inorganic nanoparticles (HINPs) into supracolloids with defined valence. **K. Webb**, Z. Nie

Section F

San Diego Convention Center
Room 30D

Basic Research in Colloids, Surfactants & Interfaces

Interface Science

R. Nagarajan, *Organizer*
J. Samaniuk, *Presiding*

8:30 COLL 730. Complex behavior of metal surface corrosion and passivity in cellular automata-based simulations. J. Stepien, **J. Stafiej**

9:00 COLL 731. *Xylopia aethiopica* extract as green and eco-friendly corrosion inhibitor and it's quantum chemical analysis. **N.E. Ibisi**

9:20 COLL 732. Dynamics of 2D materials with nanometer-scale thickness at fluid-fluid interfaces. **J. Samaniuk**, D. Goggin

9:50 COLL 733. On the temperature dependence of interfacial structure in liquid-liquid interface. **Z. Liu**, A.E. Clark

10:10 COLL 734. Water condensation on ionic liquid infused nanostructured surfaces. **Q. Ge**, S. Sett, N. Miljkovic, T. Zhang

10:30 COLL 735. Withdrawn.

10:50 COLL 736. Effect of rigid red blood cells on platelet adhesion in flow. **A.L. Banka**, M. Gutierrez, T. Tanski, M. Shamoun, O. Eniola-Adefeso

11:10 COLL 737. Photoinduced changes in polymer-glass adhesion. **S. Mostafavi**, K.D. Clark, M. Sroda, J. Read De Alaniz, C.J. Bardeen

11:30 COLL 738. Quantifying the exposure time-dependent wetting properties of plasma-treated polymer surfaces. **A.R. White**, G. Whitlock, R. Henderson, G. Wills

Section G

San Diego Convention Center
Room 30C

Basic Research in Colloids, Surfactants & Interfaces

Colloidal Interactions

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

8:30 COLL 739. Lipid and complex coacervates interactions. **F. Pir-Cakmak**, A. Grigas, C.D. Keating

8:50 COLL 740. Probing interactions between surfactants and hydrophobically modified starch nanoparticles by fluorescence. Q. Zhang, D. Kim, **J. Duhamel**

9:20 COLL 741. Small molecule segregation from poly(vinyl alcohol) films. **R. Fong**

9:40 COLL 742. Morphology, texture and stability of spin dewetted 5CB nematic liquid crystal droplets. **P. Dhara**, R. Mukherjee

10:00 COLL 743. Characterization of particle charge from aerosol generation process: Impact on infrared signatures and material reactivity. **E.M. Durke**, M. McEntee, M. He, S. Dhaniyala

10:20 COLL 744. Interfacial behavior of amino acid residues on gold surfaces studied with electrical spectroscopy and atomistic reaxFF simulations. M. Sajib, W. Jean-Baptiste, K. Chin, **T. Wei**

10:50 COLL 745. Tuning the interaction energies between lipid head groups and planar substrates. **C. Liu**, S. Sun, D.R. Melendez, P.S. Cremer

11:10 COLL 746. Revisiting the colloidal fundamentals and exploring nanofilm formation of water-dispersible polyesters. **S. Islam**, O.D. Velev

Section H

San Diego Convention Center
Room 33C

Theoretical & Experimental Investigations of Water Interactions with Materials

Cosponsored by ANYL‡
D. Donadio, T. Guo, *Organizers*
M. Sulpizi, L. Wang, *Presiding*

8:30 COLL 747. Water interactions with striped phases of amphiphiles on 2D materials. **S.A. Claridge**

9:10 COLL 748. Understanding an active role for water in zeolite-hydrocarbon reactions. **J.L. White**, K. Chen, M. Abdolrahmani, S. Crossley, D.E. Resasco, S. Horstmeier, B. Wang

9:50 COLL 749. Water adsorption in zeolites: Insight from multiscale modeling. **D. Donadio**, S. Chen, T. Guo

10:10 COLL 750. Understanding material and component level properties on the performance of MOF-based atmospheric water harvesting systems. **S.R. Rao**, A. LaPotin, H. Hyunho Kim, E.N. Wang

10:50 COLL 751. Interplay between specific-ion effects and confinement in the aqueous electric double layer. **C. Zhan**, T. Pham, M. Ceron, S. Hawks, B. Wood, M. Stadermann, P. Campbell

Section I

San Diego Convention Center
Room 31C

Biomaterials & Biointerfaces

S. Romero-Vargas Castrillon, *Organizer*
H. Sakai, *Presiding*

8:30 COLL 752. Design of synthetic polymer nanopraticles for metalloproteinase inhibition. **M. Nakamoto**, D. Zhao, K.J. Shea

8:50 COLL 753. New polymer formulations for cryostorage of biologics. **A.E. Fayter**, M.I. Gibson, M. Hasan

9:10 COLL 754. Electron mediators shuttling between erythrocytes and liposomes encapsulating hemoglobin (artificial red cells) to reduce methemoglobin by using abundant glycolitic electron energies. **H. Sakai**

9:40 COLL 755. pH-Response tunable mixed-charged polymers for reversible adsorption and desorption of proteins. **Y. Hiruta**, K. Sawada, T. Kaku, Y. Tokura, S. Shiratori, D. Citterio

10:00 COLL 756. Determination of the adsorption orientation of amyloid beta 1-40 monomer over nano-gold colloidal particles' surfaces. **K. Yokoyama**

10:20 COLL 757. Discovery of anti-mycobacterial copolymers using a photo-chemical combinatorial platform. **S. Richards**, M.I. Gibson

10:40 COLL 758. Probing the nano-bio interface of hydroxyapatite with solid-state MAS NMR. **Y. Li**, B. Addison, G.P. Holland

11:00 COLL 759. Collagen thin film adhesion mediated by mussel-inspired catecholamine surface primers. **G. Degen**, E. Valois, G. Lindsey, R. Andresen Eguiluz

11:20 COLL 760. Targeting *S. aureus* in osteoblast infection employing antibody linked metallic nanoparticles. **T. Abdulrehman**, S.M. Qadri, Y. Haik