

COLL

Division of Colloid and Surface Chemistry

R. Nagarajan, *Program Chair*

OTHER SYMPOSIA OF INTEREST:

2D Materials: Innovative Materials & Devices for Energy & Fuels (see *ENFL*, Sun, Mon)
Bioconjugate Chemistry Lectureship & Award: Symposium in honor of Wolfgang Parak
(see *PMSE*, Tue)

Functional Materials from Biopolymer Self-Assembly & Self-Organization (see *CELL*,
Wed, Thu)

Interfacial Chemistry under Nano-scale Confinement (see *GEOC*, Sun)

Molecular Interactions of Synthetic Nanoparticles with Membranes (see *ANYL*, Wed)

Nanotechnology & Single Cell Analysis in Biology & Medicine: Next Frontier (see *ANYL*,
Sun, Mon)

SOCIAL EVENTS:

COLL Social Hour with Poster Session, 6:00 PM: Sun

COLL Luncheon, 12:15 PM: Tue

BUSINESS MEETINGS:

COLL Program & Executive Committee Meeting, 4:00 PM: Sat

COLL Open Business Meeting, 5:30 PM: Sun

SUNDAY MORNING

Section A

Boston Convention & Exhibition Center
Room 152

**Advances in Colloid & Surface Chemistry Enabled by Cryogenic & *In Situ*
Liquid-cell Electron Microscopy**

N. D. Burrows, M. R. Jones, *Organizers, Presiding*

8:30 COLL 1. Improving quantification in liquid cell electron microscopy of materials reactions. **F.M. Ross**

9:00 COLL 2. Comparing contrast and electron irradiance limits for soft matter in cryogenic and in-situ liquid-cell electron microscopy. **J.E. Evans**

9:30 COLL 3. Advances in electron imaging and spectroscopy of nanomaterials at cryogenic temperatures. **L. Kourkoutis**

10:00 COLL 4. Using sub-sampled STEM and inpainting to control the kinetics and observation efficiency of dynamic processes in liquids. **N.D. Browning**

10:30 Intermission.

10:45 COLL 5. Efficient dispersion of oil by blends of food-grade surfactants: Role suggested by Cryo-EM of nanostructures forming at the interface. D. Riehm, L. Corcoran, R. Penn, G.D. Bothun, S.R. Raghavan, V.T. John, **A. McCormick**

11:15 COLL 6. Morphological study of microgel-based colloidal systems by cryogenic transmission electron microscopy (cryo-TEM). Z. Kochovski, H. Jia, **Y. Lu**

11:45 COLL 7. Cryo-SEM imaging and analysis of peptide-complexed microgels. **J. Liang**, X. Xiao, T. Chou, M. Libera

12:05 COLL 8. Observing phase transitions of amphiphilic block copolymers in solution by liquid cell TEM. **N.C. Gianneschi**

Section B

Boston Convention & Exhibition Center
Room 153A

Colloidal & Interfacial Science in Separation Processes

I. Chernyshova, *Organizer*

Q. Liu, S. Ponnurangam, P. Somasundaran, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 9. Using ionic liquids to take advantage of the many facets of chitin: Tailor-made high surface area nanofibrous sorbent mats for selective separations of metal ions. **R.D. Rogers**, G. Gurau

9:05 COLL 10. Tuning viscoelastic behavior of particle-stabilized emulsions for enhanced oil recovery applications. **B. Pilapil**, A. Pandey, M. Derakhshandeh, A. Meimanova, A. Govedarica, S. Bryant, M. Trifkovic

9:30 COLL 11. Statistics of dispersity of nanosheets by stabilizing oil and water interface. **H.V. Kumar**, Z. Zhang, W. Dickinson, S.R. Bapat, H.C. Schniepp, D.H. Adamson

9:50 COLL 12. Competition between the hydrolysis-phosphate precipitation reactions in wastewater coagulation. **H. Ratnaweera**

10:10 COLL 13. Practical approaches to modified “smart” fabrics for oil/water separation from stabilized emulsions. **M. Lehtinen**, Z. Wang, G. Liu

10:30 Intermission.

10:45 COLL 14. Micelle based separations: From small molecules to proteins to nanoparticles. **R. Nagarajan**

11:15 COLL 15. Enhancement of the solid-liquid separation in oil sands tailings treatment using silica nanoparticles. **A. Govedarica**, **S. Shamim**, M. Trifkovic, A. Abid

11:40 COLL 16. Nanoscale view of assisted ion transport across the liquid-liquid interface. **M.L. Schlossman**

12:00 COLL 17. Controlled architecture of amine ligands decorated glass fiber/poly(glycidyl methacrylate) composites via surface-initiated ICAR ATRP mediated by mussel-inspired polydopamine chemistry for uranium extraction from seawater. **W. Wang**, G. Ye, J. Chen

Section C

Boston Convention & Exhibition Center
Room 156C

Particle Sizing of Nanoparticles: From Regulatory & Metrology Aspects to Application & Analysis

J. D. Clogston, V. A. Hackley, P. Lim Soo, A. Prina-Mello, S. Puri, S. Svenson, X. Xu, *Organizers*

J. Clogston, P. Lim Soo, *Presiding*

8:30 Introductory Remarks.

8:35 COLL 18. Regulatory science and considerations for drug products containing nanomaterials: FDA perspective. **C. Cruz**

9:05 COLL 19. Engineering and development of novel antibody-directed nanotherapeutics for the treatment of cancer. **D.C. Drummond**

9:35 Intermission.

9:50 COLL 20. Metrological challenges and issues related to measurement of nanoparticle size. **D. Kaiser**

10:10 COLL 21. Orthogonal approaches to sizing of nanomaterials in the pharmaceutical environment. **S. Sonzini**, K. Treacher, Z. Nazir, S. Puri

10:30 COLL 22. At-line DLS for real-time monitoring of particle size in a nanoemulsion process. **M. Mahoney**

10:50 Intermission.

11:05 COLL 23. Resonant mass measurement technique for subvisible particle characterization: Applications in the nanomedicine arena. **B. Coyne**, J. Hadley

11:15 COLL 24. Innovations in single particle and single cell ICP-MS – Accurate measurements of particle number in cells. **C. Stephan**, R. Merrifield

11:25 COLL 25. Is that peak real? Separating truth from fiction in particle analysis. **J. Fraikin**, F. Monzon, L. Brown

11:35 Intermission.

11:50 Panel Discussion.

12:20 COLL 26. What does it take to accurately measure concentration of particles in colloids? **J.K. Tatarkiewicz**

Boston Convention & Exhibition Center
Room 157A

Heating with Colloidal Nanoparticles: Physical Mechanisms & Applications in Life Science

P. del Pino, L. Liz Marzan, W. Parak, *Organizers*
N. Feliu, *Presiding*

8:30 COLL 27. Photothermal effects of plasmonic nanoparticles: fundamentals and applications. **N.J. Halas**

9:00 COLL 28. Janus Fe₃O₄-Au magnetic-plasmonic nanoparticles for sensing, hyperthermia, and molecular imaging. **J. Reguera**, D. Jimenez de Aberasturi, J. Langer, M. Henriksen-Lacey, L. Liz Marzan

9:30 COLL 29. Photothermal response of gold nanorods prepared using A CTAB-aromatic additive system. **I.W. Guo**, M.C. Wang, I. Pekcevik, B.D. Gates

9:50 COLL 30. Photoacoustic alternative to MR thermometry during photothermal therapy. **D.M. Charron**, H.H. Buzzá, R. Weersink, G. Zheng

10:10 Intermission.

10:40 COLL 31. Conversion of light energy into heat and hot electrons using hybrid nanostructures with plasmonic hot spots. **A. Govorov**

11:10 COLL 32. Controlling the cellular uptake of plasmonic nanoparticles by host-guest interactions for optical hyperthermia. **J. Mosquera Mosquera**, I. García, M. Henriksen-Lacey, L. Liz Marzan

11:40 COLL 33. Hybrid nanoscale architectures: Plasmonic and magnetic induced heating applications. **S. Hunyadi Murph**

12:00 COLL 34. Thermogel nanocomposites designed for biofilm disruption. **A.S. Samia**

Boston Convention & Exhibition Center
Room 157B

Nanomaterials

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

8:30 COLL 35. Fabrication of ZnO/CuO vertically-aligned tree-like nanostructure and its application in solar energy conversion. **Z. Li**, M. Jia, B. Abraham, J. Blake, D. Bodine, J.T. Newberg, L. Gundlach

8:50 COLL 36. Autoperforation of two-dimensional materials for generating colloidal electronic devices. **P. Liu**, A. Liu, D. Kozawa, J. Dong, V. Koman, S. Wang, M. Wong, M. Strano

9:10 COLL 37. Hierarchical porous SiC for efficient electromagnetic interference shielding at elevated temperatures. **Z. Wang**

9:30 COLL 38. Oxidative dissolution and antimicrobial activity of silver nanoparticles: The role of particle dimensions, surface coating and shape. **Q. Zhang**, Y. Hu, V.L. Colvin

9:50 COLL 39. Ultra-thin zirconium hydroxide films: Characterization of material properties and assessment of chemical activity for chemical warfare simulant decomposition. **S. Jeon**, R.B. Balow, **G.C. Daniels**, P.E. Pehrsson

10:10 COLL 40. Nanoparticles mediated chiral separation using SERS. **R. Stiufiuc**, V. Toma, A. Moldovan, G. Stiufiuc, V. Chis, M. Lucaciu

10:30 COLL 41. Enantiomeric separations of chiral propanolol using chiral tetrahedral Au nanoparticles. **N. Shukla**, D. Yang, A.J. Gellman

10:50 COLL 42. Substrate adhesion force scales non-monotonically with growth time in millimeter-scale carbon nanotube arrays. **A.L. Kaiser**, D.L. Rautenbach, S.C. Peterson, L. Acauan, S. Steiner, R. Guzman de Villoria, I.Y. Stein, B.L. Wardle

11:10 COLL 43. Simple bond-centric model for accelerated nanoalloy energetics. **M.G. Taylor**, Z. Yan, A. Mascareno, G. Mpourmpakis

11:30 COLL 44. Experimental validation of FM-AFM competition in $\text{Fe}_x\text{Zn}_{1-x}\text{Se}$ QDs by computational modelling. **J.k. Bindra**, L. Gutsev, G.F. Strouse, J. van Tol, N.S. Dalal, S. Stoian

Section F

Boston Convention & Exhibition Center
Room 157C

Understanding Nano-Bio Interactions: Implications for Bio-Imaging, Diagnosis & Treatment

B. Kim, S. Wilhelm, *Organizers, Presiding*

8:30 COLL 45. Gold nanoparticles and biology: A perspective. **R. Levy**

9:00 COLL 46. Engineering cellular interactions with nanolayered particles for controlled trafficking and delivery. **P.T. Hammond**

9:30 Intermission.

9:40 COLL 47. Nanomachines biointerfacing via cell membrane cloaking for active delivery and removal. **L. Zhang**

10:10 COLL 48. Improving intracellular RNA delivery through nanocarrier design. **E.S. Day**

10:40 Intermission.

10:50 COLL 49. Size-dependent delivery of nanoparticles to brain assisted by focused ultrasound-mediated BBB disruption. **S. Ohta**, E. Kikuchi, A. Ishijima, E. Kobayashi, T. Azuma, I. Sakuma, T. Ito

11:10 COLL 50. Site-selective and controlled immobilization of leptin on nanoparticles for improving cellular uptake. **V. Maggi**, V. Mangini, A. Trianni, F. Melle, R. Fiammengo

11:30 COLL 51. Heterocellular 3D platforms and *in vivo* dual-nanotracer molecular imaging provide clinically-relevant insights to facilitate the development of antibody-targeted, NIR-active nanotherapeutics. **G. Obaid**, S. Bano, K. Samkoe, S. Mallidi, J. Kuriakose, B. Pogue, T. Hasan

11:50 COLL 52. Investigating the *in vitro/in vivo* disconnect using gold nanoparticles. **J.M. Berlin**

12:10 COLL 53. Gold nanospikes enable capture and release of circulating tumor cells. **L. Scarabelli**, G.A. Vinnacombe, L.K. Heidenreich, N. Chiang, S.J. Jonas, P.S. Weiss

Section G

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

Clinical Translation

G. Han, Z. Wang, J. Xie, *Organizers*
Z. Gu, J. Zheng, *Organizers, Presiding*

8:30 COLL 54. Ultrasmall core-shell silica nanoparticles as targeted imaging probes for cancer nanomedicine: Design, evaluation and clinical translation. **M. Bradbury**

9:00 COLL 55. Promoting intratumoral delivery, active targeting and clearance with sub-5 nm ultrafine magnetic iron oxide nanoparticles. **H. Mao**

9:30 COLL 56. Noninvasive fluorescence kidney functional imaging enabled by renal clearable luminescent gold nanoparticles. **M. Yu**, X. Ning, J. Xu, B. Du, J. Zheng, J. Zhou, J. Hsieh, P. Kapur

9:50 COLL 57. Treatment of bacterial infections with peptide-targeted porous silicon nanoparticles. **M.J. Sailor**

10:20 COLL 58. Design considerations of contrast agents for bioimaging and nanomedicine. **H. Choi**, H. Kang

10:50 COLL 59. Glomerular barrier behaves as an atomically precise bandpass filter in a sub-nanometre regime. **B. Du**

11:10 COLL 60. Light, heat and sound to enhance nanoparticle delivery to the tumors. M. Overchuk, C. Pellow, D. Charron, K. Harmatys, M. Rajora, J. Chen, **G. Zheng**

11:40 COLL 61. *In vivo* transport of engineered nanoparticles in the kidneys. **J. Zheng**

12:10 COLL 62. Tumor-targeted and clearable protein-based MRI nanoprobes. **Y. Zhao, J. Peng, G. Han**

Section H

Boston Convention & Exhibition Center
Room 160A

Basic Research in Colloids, Surfactants & Nanomaterials

Emulsions, Drops & Dispersions

R. Nagarajan, *Organizer*
Y. Kondo, *Presiding*

8:30 COLL 63. Formulation and stabilization of concentrated edible oil-in-water emulsions based on electrostatic complexes of a food-grade cationic surfactant (ethyl lauroyl arginate) and cellulose nanocrystals. **L. Bai, W. Xiang, S. Huan, O.J. Rojas**

8:50 COLL 64. Rapid detection of foodborne pathogens using directional emission from dynamic double emulsion droplets. **L. Zeininger, T.M. Swager**

9:10 COLL 65. Continuous visualization of complex liquid emulsions using on-chip ring resonators. **S. Savagatrup, T.M. Swager**

9:30 COLL 66. Modeling of the effect of additives in demulsification of crude oils. **D. Yu, J. Mendenhall**

9:50 COLL 67. Active demulsification of stable emulsions prepared from mixtures of azobenzene surfactant/SDS using light. **Y. Kondo, N. Koizumi, Y. Takahashi**

10:10 COLL 68. Creating aqueous metastable amorphous dispersions of hydrophobic naphthalene compounds via the “Ouzo effect”. **J.M. Belanger, J. Cirilo, T.M. Reidy**

10:30 COLL 69. Influence of microfibrillated cellulose fractions on the rheology of water suspensions: Colloidal interactions and viscoelastic properties. **G. Cinar, P.A. Larsson, A. Riazanova, A. Karppinen, H. Øvrebø, L. Berglund, L. Wagberg**

10:50 COLL 70. Multiphase water-in-oil emulsion droplets produced via microfluidics as artificial cells. **C.D. Crowe**, C.D. Keating

11:10 COLL 71. Femtoliter droplet arrays: Formation, dissolution and applications. **L. Bao**, H. Yu, V. Spandan, D. Lohse, X. Zhang

11:30 COLL 72. Rheology and phase morphology of liquid crystal dispersed silica-core nanoparticles. M. Tukpah, S. Jadhav, **R. McKenzie**

11:50 COLL 73. Dynamic structural color in reconfigurable complex droplets. **A. Goodling**, S. Nagelberg, M. Kolle, L.D. Zarzar

Section I

Boston Convention & Exhibition Center
Room 160B

Surface Chemistry

Adsorption & Chirality

S. L. Tait, *Organizer*

D. L. Patrick, T. K. Wijethunga, *Presiding*

8:30 COLL 74. Templated growth of a chiral thin film oxide. **A. Schilling**, E.H. Sykes

8:50 COLL 75. Helical nanoparticle-induced enhancement of molecular optical activity. **L. Yang**

9:10 COLL 76. Chiral adsorbate assembly in 2D: Racemates or conglomerates. **A.J. Gellman**, S. Dutta

9:30 COLL 77. Towards understanding and controlling molecular self-assembly. **H.D. Castillo**, J.M. Espinosa Duran, S. Kim, D. Lee, P. Ortoleva, S.L. Tait

9:50 COLL 78. Quantitatively predicting nanoscale domain morphology in solution-processed organic thin films. **D.L. Patrick**, G. Reed, L. Bavik, C. Schaaf, B. Johnson

10:10 Intermission.

10:30 COLL 79. Investigating adsorbed films of linear alkanes on solid surfaces: A thermodynamic, modeling, and scattering study. **N.A. Strange**, T. Arnold, J.Z. Larese

10:50 COLL 80. Adsorption of cycloalkanes on MgO (100), graphite and hexagonal boron nitride: A thermodynamic, modeling and neutron scattering study. **F. Wahida**, J.Z. Larese

11:10 COLL 81. Application of crystalline substrates for nucleation control and polymorphic selection of Indomethacin. **T.K. Wijethunga**, X. Chen, A.S. Myerson, B. Trout

11:30 COLL 82. High-throughput study of the role of spatial organization on the activity of surface-bound enzymes. **N. Alsharif**, T. Lawton, J.R. Uzarski, K.A. Brown

11:50 COLL 83. Immunoassay investigation of vaccine carrier stability within ZIF-8 encapsulation. **R.P. Welch**, M.A. Luzuriaga, S. Li, J.J. Gassensmith

Interfacial Chemistry under Nano-scale Confinement

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Technical Developments & Applications of Optical Chemical Imaging

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SUNDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 152

Advances in Colloid & Surface Chemistry Enabled by Cryogenic & In Situ Liquid-cell Electron Microscopy

N. D. Burrows, M. R. Jones, *Organizers, Presiding*

2:00 COLL 84. Physical chemistry of nanocrystals with the graphene liquid cell. **P. Alivisatos**

2:30 COLL 85. Understanding the growth and dissolution of metal nanoparticles using *in situ* liquid transmission electron microscopy. **H. Yang**

3:00 COLL 86. Characterizing formation, growth, dissolution, and transformation of nanocrystals in suspensions. J.A. Soltis, N.D. Burrows, V. Yuwono, S. Kumar, A.M. Vindedahl, K. Sabyrov, **R. Penn**

3:30 COLL 87. Investigating crystal nucleation, transformation and assembly via liquid and cryogenic TEM. **J.J. De Yoreo**

4:00 Intermission.

4:15 COLL 88. Visualizing nanoscale assembly and elastocapillary effects in solution using *in situ* TEM. **U. Mirsaidov**

4:45 COLL 89. Atomistic modeling of nanoparticle self-assembly in liquid cells and at liquid interfaces. **P. Kral**

5:05 COLL 90. Cryo-electron microscopy: 2D and 3D visualization of nanobubbles, nanoparticles, and supramolecular assemblies. **P.L. Stewart**

5:35 COLL 91. Seeing is believing - from crystallizing of nanoparticles to crumpling of polymer films. **Q. Chen**

Section B

Boston Convention & Exhibition Center
Room 153A

Colloidal & Interfacial Science in Separation Processes

Q. Liu, P. Somasundaran, *Organizers*

I. Chernyshova, S. Ponnurangam, *Organizers, Presiding*

2:00 COLL 92. Membranes with controlled 2D MXene lateral flake sizes. **Y. Gogotsi**

2:30 COLL 93. Gas permeation through Pickering membranes. **M.M. Krejca**, W. Goedel

2:50 COLL 94. Oxidant-triggered rapid deposition of plant-derived phenols on PVDF membrane with ultrahigh water permeability for effective oil/water separation. **Y. Chen**, Q. Liu

3:10 COLL 95. Enrichment and recovery of mammalian cells from contaminated cultures using aqueous two-phase systems. **C.J. Luby**, B.P. Coughlin, C. Mace

3:30 COLL 96. Development of nanolignin complexes from lignocellulosic biomass for applications in nanobiotechnology. **J. Bhaumik**, S. Chandna, R. Kaur, Y. Reddy

3:50 COLL 97. Ranking binding affinity for ssDNA-wrapped single-walled carbon nanotube (SWCNTs) using free energy perturbation (FEP). K. Hinkle, **F.R. Phelan**

4:20 Intermission.

4:35 COLL 98. Impact of operating conditions in membrane-based separation processes on the characteristics of inorganic scales on membrane surface. O. Lokare, S. Wadekar, **R.D. Vidic**

5:00 COLL 99. Mesoscale simulations of nanoparticle separation on polymer-grafted porous media. **A. Vishnyakov**, S. Kolattukudy Poulouse, A.V. Neimark, Y. Brun

5:20 COLL 100. Fouling behavior of chemically modified mixed liquor from submerged ceramic biofilm-membrane bioreactor. **Z. Maletskyi**, O. Kulesha

5:40 COLL 101. Effect of inorganic salt as porogen on the structure and properties of polyvinylidene fluoride(PVDF) membranes. **M. Zhang**, Y. Song

Section C

Boston Convention & Exhibition Center
Room 156C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Metallic Nanocatalysts

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

2:00 Introductory Remarks.

2:05 COLL 102. Synthesis and catalytic applications of Ru nanocrystals with well-controlled facets and an fcc structure. **Y. Xia**

2:35 COLL 103. Crystal phase-engineering of novel nanomaterials. **H. Zhang**

3:05 COLL 104. Coordination assemblies of nanoparticles. **N. Kotov**, Z. Qu, W. Feng, Y. Wang, K. Hirai

3:35 Intermission.

3:50 COLL 105. Atomically precise metal nanoparticles and their assembly. **R. Jin**

4:20 COLL 106. Probing the atomic arrangement of palladium on silver nanocrystals with an isocyanide-based reporter by surface-enhanced Raman scattering. **D. Qin**, Y. Wu

4:50 COLL 107. Towards precision catalysts through the control of bimetallic nanostructures. **H. Yang**

Section D

Boston Convention & Exhibition Center
Room 157A

Heating with Colloidal Nanoparticles: Physical Mechanisms & Applications in Life Science

P. del Pino, L. Liz Marzan, W. Parak, *Organizers*
C. Carrillo-Carrión, *Presiding*

2:00 COLL 108. LeChatelier on the nanoscale. **C.J. Murphy**

2:30 COLL 109. Controlling biomolecular corona by plasmonic metal nanoparticles.
E. Polo

3:00 COLL 110. Low-dose exposure of graphene oxide significantly increases metal toxicity to macrophages by altering their cellular priming state. **J. Zhu**, S. Liu

3:20 COLL 111. Magnetite nano-clusters for biomedical magnetic nanoparticles fluid hyperthermia for cancer treatment. **D. Quesada**, L.C. Fernandez, A. Tapanes-Castillo, M. Barreat

3:40 Intermission.

4:10 COLL 112. Vortex state in magnetite nanodiscs: A foundation for multimodal mechanothermal neuronal stimulation. **G. Danijela**, A.W. Senko, A. Chuvilin, P. Reddy, A. Sankararaman, D. Rosenfeld, F. Garcia, J. Moon, P. Chiang, P. Anikeeva

4:40 COLL 113. Biotransformation of graphene oxide in lung fluids significantly alters its inherent properties and bioactivities towards immune cells. **S. Liu**

5:10 COLL 114. Radio frequency heating of carbon nanotube loaded materials. **M.J. Green**, C. Sweeney, M. Saed

Section E

Boston Convention & Exhibition Center
Room 157B

Nanomaterials

J. A. Hollingsworth, R. Nagarajan, *Organizers*
N. Pradhan, *Presiding*

2:00 COLL 115. Molecular printing: Combining organic chemistry and nanolithography to recreate biointerfaces. **A.B. Braunschweig**

2:30 COLL 116. Directed assembly for three-dimensional nanoprinting. **G. Liu**, S. Wang, J. Ventrici de Souza, Y. Liu, T. Kuhl, **P. Doerig**, J. Frommer

3:20 COLL 117. Integration of colloidal giant quantum dots and 3D nanoantennas by dip-pen nanolithography. **J. Wang**, F. Dawood, P. Schulze, C. Sheehan, I. Staude, I. Brener, N.A. Amro, J.A. Hollingsworth

3:40 COLL 118. Direct assembly of hydrophobic quantum dots with colloidal silica via van der Waals interaction. **K. Woo**, H. Yoo

4:00 COLL 119. Ligand-mediated structural transformations in PbS nanocrystal superlattices. **S.W. Winslow**, D. Smilgies, J. Swan, W.A. Tisdale

4:20 COLL 120. Long range hierarchical assembly of Pt nanocrystals – Insights from measurements and molecular simulations of nanoparticle docking. **S. Wang**, E. Zhu, X. Yan, M. Sobani, L. Ruan, C. Wang, Y. Liu, X. Duan, H. Heinz, Y. Huang

4:40 COLL 121. Fabrication of hierarchically ordered optically active nanocrystal solids by surface passivation using atomic layer deposition of metal oxides. **R. Bose**, A. Dangerfield, S. Rupich, Y.J. Chabal, A. Malko

5:00 COLL 122. Directed assembly and nano-soldering of multi-segment metallic nanowires. **J. Wang**, F. Gao, C. Su, J. Su, H. Sun, Z. Gu

5:20 COLL 123. Self-assembly of spatially-decorated metallic nanowires on a fluid interface. **G. Staelens**, A.M. Jonas, B. Nysten, S. Demoustier-Champagne

Section F

Boston Convention & Exhibition Center
Room 157C

Understanding Nano-Bio Interactions: Implications for Bio-Imaging, Diagnosis & Treatment

B. Kim, S. Wilhelm, *Organizers, Presiding*

2:00 COLL 124. Correlating the interaction of colloidal nanoparticles with biological matter with their physicochemical properties. **W. Parak**

2:30 COLL 125. Structure-function relationships in the development of immunotherapeutic agents. **C.A. Mirkin**

3:00 Intermission.

3:10 COLL 126. Designer nanoparticles for intracellular targeting and delivery. **T.W. Odom**

3:40 COLL 127. Improving antitumor immunity through immuno-engineering. **M. Goldberg**

4:10 Intermission.

4:20 COLL 128. Interactions of amphiphilic ligand-coated gold nanoparticles with cells and tissues from the nano- to macro-scale. **D.J. Irvine**

4:50 COLL 129. CRISPRed macrophages for cell-based cancer immunotherapy. **Y. Lee, M. Ray, J. Hardie, M.E. Farkas, V.M. Rotello**

5:10 COLL 130. Multivalent bi-specific nanobioconjugate engager for targeted cancer immunotherapy. **C. von Roemeling, H. Yuan, W. Jiang, Y. Qie, X. Liu, Y. Chen, Y. Wang, R. Wharen, K. Yun, G. Bu, K. Knutson, B. Kim**

5:30 COLL 131. Engaging nanoparticle-cell interactions through “smart” design. **M.R. Mackiewicz**

Section G

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

Clinical Translation

G. Han, Z. Wang, J. Xie, *Organizers*
Z. Gu, J. Zheng, *Organizers, Presiding*

2:00 COLL 132. Nanoparticulate delivery systems for RNA therapy and genome editing. **D.G. Anderson**

2:30 COLL 133. Discovery and translation of the cell membrane-coated nanoparticle technology. **L. Zhang**

3:00 COLL 134. Modified macrophages as cell-based delivery tools and therapeutic entities for cancer. **M.E. Farkas**

3:20 COLL 135. Overcoming biological barriers for circulation and targeting of nanoparticles. **S. Mitragotri**

3:50 COLL 136. Tolerogenic nanoparticles for the prevention of anti-drug antibodies - from concept to the clinic. **L. Johnston**

4:20 COLL 137. Universal and ultrastable mineralization coating bioinspired from biofilms. **Y. Xiao**

4:40 COLL 138. Adaptive treatment tolerance attenuated by nanotechnology-assisted drug delivery. **X. Liang**

5:10 COLL 139. Leverage physiology for bioresponsive drug delivery. **Z. Gu**

5:40 COLL 140. Insulin – containing silica nanoparticles with a high loading capacity and demonstration of bioactivity: Potential for oral delivery. **D. Hristov**, F. McCartney, J. Beirne, S. Reid, E.A. Mahon, S. Bhattacharjee, G. Redmond, D. Brougham, D.J. Brayden

Section H

Boston Convention & Exhibition Center
Room 160A

Synthetic Self-Assembled Systems for Drug & Nucleic Acid Delivery: New Materials, Formulation Strategies, Targeting, Toxicity & Regulatory Issues

M. A. Ilies, *Organizer*

K. Sakurai, *Organizer, Presiding*

2:00 COLL 141. Helical polymer structure provides platinum-loaded polymeric micelles with favorable size and stability for effective tumor-targeting. **Y. Mochida**, H. Cabral, Y. Miura, K. Osada, N. Nishiyama, K. Kataoka

2:30 COLL 142. Photo-targeted nanoparticles for intravenous treatment of choroidal neovascularization. **Y. Wang**, D.S. Kohane

3:00 COLL 143. Oxidation-responsive nanolayered coatings for the on-demand delivery of therapeutic growth factors. **J.R. Martin**, M.T. Funkenbusch, S. Wang, P.T. Hammond

3:30 Intermission.

3:45 COLL 144. Increasing nanoparticle drug loading efficiency via self-assembly. **M.W. Grinstaff**

4:15 COLL 145. Block copolymer nanocarriers with peptide units for drug delivery. **M. Klapper**, F. Karagoez, N. Wutke

4:45 COLL 146. NIH/NIBIB funding for novel drug delivery technologies. **D. Rampulla**

Section I

Boston Convention & Exhibition Center
Room 160B

Surface Chemistry

Reactivity at Solid Surfaces & Ions at Liquid-Vapor Interfaces

S. L. Tait, *Organizer*

D. R. Killelea, T. Thuening, *Presiding*

2:00 COLL 147. Single-atom alloy catalysts: From theory to working catalysts through surface science characterization. **T. Thuening**, M. Darby, R. Reocreux, A. Michaelides, M. Stamatakis, E.H. Sykes

2:20 COLL 148. Selective oxidation of ethanol to acetaldehyde over TiO₂/Au(111).
A. Baber, D.T. Boyle, J. Wilke, V.H. Lam

2:40 COLL 149. Influence of structure and composition on the surface chemistry of bimetallic Cu/Au model catalysts. **C. Baddeley**, F. Grillo, R. Megginson, S. Francis

3:00 COLL 150. Comparison of oxygen adsorption and absorption on rhodium, silver, and stepped platinum surfaces. **D.R. Killelea**, R. Farber, M. Turano, L. Juurlink, E.V. Iski

3:20 COLL 151. Syntheses, plasmonic properties, and catalytic applications of Ag-Rh core-frame nanocubes and Rh nanoboxes with highly porous walls. **D. Qin**, Y. Zhang

3:40 COLL 152. Surface chemistry of gold islands deposited on TiO₂(110). **R. Somaratne**, J.E. Whitten

4:00 Intermission.

4:20 COLL 153. Hydration mediated interfacial transitions on mixed hydrophobic/hydrophilic nanodroplet interfaces. F. Kovacik, H. Okur, **S. Roke**

4:40 COLL 154. Molecular insight into the carboxylic acid – alkali metal cations interactions: Reversed affinity and ion pair formation. **A.P. Sthoer**, J. Hladilková, M. Lund, E. Tyrode

5:00 COLL 155. Surface properties of hypobromite at the liquid-vapor interface studied by liquid jet XPS. **S. Chen**, L. Artiglia, F. Orlando, X. Kong, P. Arroyo, M. Ammann

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SUNDAY EVENING

Section A

Boston Convention & Exhibition Center
Exhibit Hall A

Biomaterials & Biointerfaces

Posters

A. P. Goodwin, V. Gordon, *Organizers*

5:30 - 7:30

COLL 156. Using assembly of a chromonic mesogen to enable isolation and ligand-receptor binding studies of bacterial pilin protein. **A. Ibanez**, Y.Y. Luk

COLL 157. Trapping of antibacterial agents within hydrophobic films of polyphosphazene polyelectrolytes. **V. Albright**, H. Hlushko, H. Nelson, C. Co, S. Armbrister, S. Hernandez, M. Andreo, A. Jayaraman, A. Marin, A.K. Andrianov, S.A. Sukhishvili

COLL 158. Engineered functional amyloids as bionanomaterials: A synthetic biology approach. **E. Sahin Kehribar**, M.E. Isilak, E. Kalyoncu, U. Seker

COLL 159. Fluorescent single protein nanoparticles with dimensions controlled at angstrom resolution and improved thermal stability. **J. Ding**, J. He, C.V. Kumar

Section A

Boston Convention & Exhibition Center
Exhibit Hall A

Colloid & Surface Chemistry in Industry: Applications & Career Opportunities

Posters

H. Fairbrother, N. A. Falk, L. Tribe, *Organizers*

5:30 - 7:30

COLL 160. pH mediated cell uptake of alkyl carboxylate functionalized Q β VLPs. **H. Lee**, J.J. Gassensmith

COLL 161. Modeling of magnetization in self-assembled magnetic nanocubes. **F. Sanoj**

COLL 162. Crystallite-size dependent bond length, elastic and thermal properties of nano-oxides. **S. Chan**

COLL 163. Synthesis and characterization of self-assembled peptide nanotubes: Scaffolds for neural cell differentiation. **P. Macha**, L. Perreault, M. Vasudev, M. Mayes

COLL 164. Peptide-based carriers for natural therapeutic molecules delivery. **Y. Hamedani**, M. Vasudev

Section A

Boston Convention & Exhibition Center
Exhibit Hall A

Fundamental Research in Colloids, Surfaces & Nanomaterials

R. Nagarajan, *Organizer*

5:30 - 7:30

COLL 165. 3D chiral microbuckles fabricated by asymmetric biaxial stretching. **M. Hwang**, C. Kim, A. Jung, B. Kim, B. Yeom

COLL 166. ^{64}Cu chelation-enabled multimodal imaging of porphyrin-lipid micro and nanobubble shell fate: Applications in therapeutic ultrasound. **M. Rajora**, J. Chen, G. Zheng

COLL 167. Study on changing rule of colloidal system properties in thermal cracking reactions. **J. Li**

COLL 168. Structure and dynamics of aqueous solutions containing poly-(acrylic acid) and non-ionic surfactant: A comparative study between pentaethylene glycol n-octyl ether (C_8E_5) and octaethylene glycol n-decyl ether (C_{10}E_8). L. Kunche, **U. Natarajan**

COLL 169. Evolution of bioinspired self-assembled materials in nucleic acid therapeutics and vaccines. **M. Gindy**, A. Bett, G. Swaminathan, J. Smith, S. Secore, A. Latham, M. Patel

COLL 170. High resolution nanoparticle sizing with Maximum A posteriori nanoparticle tracking analysis (MANTA). **K. Silmore**, X. Gong, M. Strano, J. Swan

COLL 171. Particle size distribution of food additives: Silicon dioxide study. **S.A. Khan**, T.R. Croley

COLL 172. Particle sizing of a food supplement in response to an EFSA request for characterization of potential nanomaterials. **R.I. Maccuspie**

COLL 173. General way to synthesize Sm-based nanomagnet. **B. Shen**, S. Sun

COLL 174. Cation distribution in composite quantum dots prepared by partial cation exchange. C. Lin, S.E. Benjamin, H.D. Hall, M.L. Ary, X.A. Aguilar, J.W. Campbell, **P.G. Van Patten**

COLL 175. New method of comparing photocatalysts by identifying reaction intermediates. **M. Croxall**, M. Goh

COLL 176. Acceleration of photoisomerization reaction of lophine dimers with inner environment of the micelles. **M. Akamatsu**, K. Kobayashi, T. Suzuki, K. Sakai, H. Sakai

COLL 177. Adsorption of amino acids onto TiO₂ nanoparticles: Towards understanding nano–bio interactions. **N.I. Gonzalez Pech**, I. Ustunol, H. Wu, B. Kenney, V.H. Grassian

COLL 178. Affinity chromatography measurements of metal ion binding to lipid membranes. **E.E. Ross**

COLL 179. Aggregation process of amyloidogenic peptides coated nano-gold colloidal particles. **I. Deshmukh**, J. Lippa, K. Yokoyama

COLL 180. Amino acid homology of peptide sequence as a determining factor in single pot reduction of Au nanoparticles. **C.J. Munro**, M.R. Knecht

COLL 181. Efficient route to amine functionalized siloxy gels. **B.P. Chauhan**, **G. Longia**

COLL 182. Analyzing the roles of surfactant mixtures containing aromatic additives and hexadecyltrimethylammonium chloride in the synthesis of gold nanorods. **I.W. Guo**, B.D. Gates

COLL 183. Antimicrobial carbohydrate-passivated gold nanoclusters. **W. Ndugire**, M. Yan

COLL 184. Application of gold-silica core-shell nanostructures to treat glioblastoma associated with NHE9 overexpression. **L. Juratli**, S. Nasser, **A. Pall**, K.C. Kondapalli, K. Bandyopadhyay

COLL 185. Atomic resolution 3D reconstruction of single colloidal nanoparticle. **J. Heo**, B. Kim, S. Kim, J. Park

COLL 186. Biodegradable tetra-block copolymeric nanoparticles for MS1 anti-cancer peptide delivery. **N. Mehrotra**, D. Gupta, S. Kharbanda, H. Singh

COLL 187. Bio-functionalization of graphene oxide for antimicrobial and drug delivery applications. I.A. Banerjee, **M. Hugo**, K.R. Fath

COLL 188. Biopolymer functionalized liposomes for enhanced dispersion stability of nanovesicles. **L. Hyppolite**, C. Winstead Casson

COLL 189. Blood protein interaction with nanostructured glycocalyx mimetic surfaces. **M. Hedayati**, M.M. Reynolds, D. Krapf, M. Kipper

COLL 190. Characterization of surface chemical processes during the leaching of silver from a polymetallic sulfide by x-ray photoelectron spectroscopy and polarization microscopy. **D. Silva Quiñones**, J.C. Rodriguez-Reyes, A.V. Teplyakov, R. He

COLL 191. Characterization of the antibacterial efficiency of metal nanoparticle-infused composite materials using epi-fluorescent optical trapping. **T.J. Beckmann, D.M. Danhausen**, J.J. Keleher

COLL 192. Characterizing solid electrolyte interphase-layer formation using x-ray photoelectron spectroscopy in solid-state Mg-ion batteries. **H.K. Henry**, S. Lee

COLL 193. Charge switchable nanozymes for imaging of biofilm-associated infections. **A. Gupta**, R. Das, G. Yesilbag Tonga, T. Mizuhara, V.M. Rotello

COLL 194. Chemical and structural analysis on the surface of quantum rods. **Y. Chen**, E.G. Ripka, M.M. Maye

COLL 195. Chemical environment of iron and nickel atoms in thin film magnets. **K. Kaur**, S. Dehipawala, P. Samarasekara

COLL 196. Click chemistry for loading a synthetic peptide (VIHGW-(alkyne)-G-NH₂) onto functionalized silver nanoparticles and its antimicrobial activity against *Escherichia coli*. **M.R. Gakiya**, L. Palomino, S. Pierce, A.M. Angeles Boza, J.C. Rodriguez-Reyes

COLL 197. Coarse grained molecular dynamics simulations of rosette nanotubes using the MARTINI forcefield. **V. Karra**, F.R. Hung, H. Fenniri

COLL 198. CsPbX₃ ligand binding dynamics: A 2D diffusion and relaxation NMR study. **E.G. Ripka**, C.R. Deschene, M.M. Maye

COLL 199. Cytosolic siRNA delivery using nanoparticle-stabilized nanocapsules for *in vivo* anti-inflammatory therapy. **Y. Liu**, Y. Jiang, J. Hardie, R. Das, R. Landis, V.M. Rotello

COLL 200. Dense suspension rheology studies of attractive nanoemulsions for characterization of polymer chain conformation-driven dipolar interdrop association. **J. Lee**, M. Sung, K. Shin, J. Kim, S. Hong, J. Kim

COLL 201. Dermal-epidermal junction-targeted transdermal delivery using squashy, skin-adhesive polymeric nanovehicles. **S. Hong**, J. Park, J. Kim, J. Lee, H. Lee, J. Kim

COLL 202. Design of nickel nanoparticles for X-ray fluorescence microscopy to visualize cellular metal ion concentrations. **H. Sawab, M.R. Mackiewicz**

COLL 203. Determination of permethrin level on military uniform fabrics using desorption-gas chromatography–mass spectrometry. **J.B. Sennett**, R.A. Pesce-Rodriguez, A.A. Bujanda, L.B. Blaudeau

COLL 204. Developing the sapphire (0001) surface as a transparent substitute for mica for DNA nanostructure imaging. **M.L. Norton**, M. Rahman, D. Neff, Z.T. Boggs

COLL 205. Development of nucleic acid delivery system targeting Ras gene by β -glucan. **S. Sasaki**, N. Fujiwara, H. Izumi, K. Sakurai, S. Mochizuki

COLL 206. Development of tumor-specific double-stranded RNA delivery system using hyaluronic acid. **M. Umeda**, S. Mochizuki

COLL 207. Diatom-inspired silica nanoparticle coatings using an engineered mussel glue to accelerate bone growth on titanium-based implants. Y. Jo, B. Choi, **C. Kim**, H.J. Cha

COLL 208. Direct cytosolic co-delivery of siRNA and tamoxifen for enhanced breast cancer therapy. **J. Hardie**, Y. Jiang, E. Tetrault, P. Ghazi, G. Yesilbag Tonga, M.E. Farkas, V.M. Rotello

COLL 209. Direct, *in situ* visualization of graphene reaction dynamics via optical microscopy. **W. Li**, M. Wojcik, Y. Li, K. Xu

COLL 210. Dynamic double emulsions generated via *in situ* surfactant synthesis. **C.A. Zentner**, T.M. Swager

COLL 211. Effective removal of surface-bound cetyltrimethylammonium ions from PEG-protected Au nanorods by treatment with dimethyl sulfoxide/citric acid. **H. Kawasaki**, R. Arakawa

COLL 212. Effects of ALD layers on magnesium anode interface chemistry. **E. Sahadeo**, C. Lin, G. Rubloff, S. Lee

COLL 213. Effects of antifreeze proteins and their hyperactive mutants on calcite crystallization. **A. Kishishita, J.J. Lugo, F. Rojas, J.O. Castellon, X. Wen**

COLL 214. Encapsulation of plasmid DNA by cationic nanocarriers for cellular uptake by microspores. J. Cho, P. Bhowmik, S. Dodard, P. Polowick, G. Nowak, H. Fenniri, **U. Hemraz**

COLL 215. Engineered antibacterial nanosurfaces for field hospitals. **J.W. Moxley,** T. Webster

COLL 216. Engineering immune cell-derived hybrid exosomes for tumor-targeted drug delivery. **S. Rayamajhi,** T. Nguyen, A. Eliyapura, R. Marasni, S. Aryal

COLL 217. Engineering the magnetic permeability in magnetic nanoparticles using dendritic ligands. **J.D. Lee,** D. Jishkariani, H. Yun, T. Paik, J.M. Kikkawa, C.R. Kagan, B. Donnio, C.B. Murray

COLL 218. Engineering the titania nanostructure to optimize visible light-driven antimicrobial properties. **S. Wickramasinghe,** Z. Jiang, X. Yu, A.C. Samia

COLL 219. Enhanced charge separation in nitrogen-doped graphene quantum dots/graphitic C₃N₄ lateral heterostructures for photocatalytic H₂ evolution. **K. Yu,** M. Goh

COLL 220. Enzyme-polymer-cellulose colloids: Enzymes interlocked in the fibrous matrix of cellulose with enhanced stability while preserving activities. **C. Riccardi,** C.V. Kumar, R. Kasi

COLL 221. Fabrication of 1D photoreflective multilayered films by layer-by-layer assembly and transfer method. **A. Jung,** N. Ha, M. Hwang, B. Kim, B. Yeom

COLL 222. Fabrication of drug-eluting coatings by harnessing electrostatic interactions with native protein films. **S. Gopalakrishnan,** L. Wang, Y. Lee, V.M. Rotello

COLL 223. Facile synthesis of iron oxide nanoparticles using atmospheric-pressure microplasmas. **L. Ching Yu**

COLL 224. Fast dopant migration in Mn:CdS/CdZnS/ZnS core/shell/shell quantum dots. **E. Hofman,** Z. Li, A.H. Davis, W. Zheng

COLL 225. Functionalized nanodiamonds in the investigation of aggregation phenomena. **L. Lott**, C. Winstead Casson

COLL 226. Generation of anisotropic gold and Au-Pd bimetallic nanoparticles on functionalized surfaces. **V. Gerios**, A. Peer, K. Bandyopadhyay

COLL 227. Highly anisotropic PtCu alloy nanoframes used as efficient electrocatalysts for oxygen reduction and methanol oxidation. **X. Cui**, Z. Zhang, H. Zhang

COLL 228. High-performance shear thickening behavior of a colloidal suspension of core-shell structure particles originated by inter-particle hydrogen bonding. **H. Son**, K. Kim, J. Kim, K. Yoon, Y. Lee, H. Paik

COLL 229. Hollow particles templated from Pickering emulsion and its application in coating shrinkage reduction. **X. Wang**, G. Sun, R. Liu

COLL 230. Impact of interfacial and bulk interactions between novel amphiphilic hydroxypropyl cellulose derivatives and bile salts on lipid digestion. J. Zornjak, D. Novo, K.J. Edgar, **C. Fernandez Fraguas**

COLL 231. *In vivo* antitumor effect of anti-Mammaglobin-A antibody conjugated to (-)-epicatechin loaded chitosan nanoparticles in a murine model of breast cancer. **A. Perez Ruiz**, I. Olivares Corichi, F. Ganem Rondero, J. García Sánchez

COLL 232. *In vivo* gene editing in mice through systemic delivery of CRISPR/Cas9-ribonucleoprotein. **Y. Lee**, D. Luther, Y. Liu, L. Castellanos, J. Hardie, R.W. Vachet, V.M. Rotello

COLL 233. Infiltration and crystallization behavior of calcium carbonate precursor formulations in porous materials. **A.M. Hoyt**, H. Cölfen

COLL 234. *In-situ* electron diffraction tracking fast oxidation of nickel nanoparticles at ambient pressure. **Y. Jian**, X. Zhang, Y. Wang, Y. Wang

COLL 235. Interaction of silver nanoparticles with epidermal growth factor (EGF) in physiological media: Evaluation for their potential use in systems that improve the regeneration of epithelial tissues. **L. Palomino**, S. Carney, M.R. Gakiya, A. Camardo, A. Ramamurthi, J.C. Rodriguez-Reyes

COLL 236. Investigating the impact of nanoparticle shape on single nanocrystal photophysics. **J.J. Peterson**, B. Mehlenbacher

COLL 237. Investigation of selective growth of ALD alumina on functionalized HOPG surfaces. **M. Trought**, I. Wentworth, T.R. Leftwich, K.A. Perrine

COLL 238. Kinetic study of the adsorption of methylene blue onto chitosan: Evidence for non-Arrhenius behavior. **A.H. Pinto**, J. Kellner-Rogers

COLL 239. Kinetics of amino acid induced aggregation of silver nanoparticles. **K.I. Peterson**, J. Smith, D.P. Pullman

COLL 240. Kitchen Chemistry 102: Exfoliation of alpha-zirconium phosphate with proteins in a blender as an alternative to exfoliation by tetrabutyl ammonium hydroxide. **M. Malhotra**, C.L. Baveghems, C.V. Kumar

COLL 241. Laundering study of current and future FRACU (Flame-Resistant Army Combat Uniform) candidates. **P. Yip**

COLL 242. Long range interaction between corannulene molecules on (111) surface of noble metals. **X. Wen**, K. Wu

COLL 243. Magneto/plasmonic nanoliposomes for drug delivery applications: Synthesis and characterization. **G. Stiufiuc**, S. Nitica, V. Toma, A. Moldovan, C. Iacovita, M. Lucaciu, R. Stiufiuc

COLL 244. Management of gold nanorod synthesis with poly(vinylpyrrolidone) of different molecular weights in minor concentration. **K.I. Requejo Roque**, A. Liopo, E. Zubarev

COLL 245. Manganese doped two-dimensional CdS/ZnS core/shell nanoplatelets. **A.H. Davis**, W. Zheng, E. Hofman, K. Chen

COLL 246. Detection of the onset of aggregation as a function of pH of iron oxide nanopowder by dynamic light scattering. **L. Szwast**

COLL 247. Measurement of carbon black particle size using a disc centrifuge photosedimentometer. **L. Szwast**

COLL 248. Measurement of graphene particle size using laser obscuration time technique. **L. Szwast**

COLL 249. Measurement of water partial molar volume in Aerosol-OT reverse micelles via microscopic imaging of the liquid surface. C. Gallis, Z. Rickard, **J.C. Deak**

- COLL 250.** Mesoporous graphene oxide-zeolite composites for efficient dye removals. **Y. Chang**, Y. Chou, Z. Dai, Y. Yeh, Y. Liu
- COLL 251.** Micellar water characterization: A laser light scattering application. **D. Castro**
- COLL 252.** Modeling of nanoparticle immersion and self-assembly at liquid-air interfaces. **T.T. Nitka**, L. Vukovic
- COLL 253.** Multicolored protein colloidal particles: Rational methods to enhance their photostabilities. **M. Limbacher**, B.S. Stromer, J. Waldman, C.V. Kumar
- COLL 254.** Multigram synthesis of Cu-Ag nanowires and its application in 3D printing. **M.A. Cruz**, B.J. Wiley
- COLL 255.** Multimicrometer noncovalent monolayer domains on layered materials through thermally controlled Langmuir–Schaefer conversion for noncovalent 2D functionalization. **T.R. Hayes**, J. Bang, T.C. Davis, C.F. Peterson, D.G. McMillan, S.A. Claridge
- COLL 256.** Multi-stimuli responsive Pickering emulsion based on coumarin surfactants and silica nanoparticles. **Y. Shijie**, J. Jiang, Z. Cui
- COLL 257.** Multi-stimuli responsive wormlike micelles based on conventional surfactants. **Q. Xu**, J. Jiang, Z. Cui
- COLL 258.** Nanofibrous scaffolds produced by electrospinning, rotary-jet spinning and airbrush for orthopedic tissue regeneration. **P. Ghannadian**, J.W. Moxley, M. De Paula, T.J. Webster
- COLL 259.** Nanogels of hyaluronic acid bi-modified with epigallocatechin-3-gallate and curcumin: Potent nano-inhibitor on amyloid β -protein aggregation and cytotoxicity. Z. Jiang, **X. Dong**, Y. Sun
- COLL 260.** Nanozymes for controlling localization and kinetics of bio-orthogonal reactions. **R. Das**, G.Y. Tonga, R.F. Landis, P. Puangploy, M. Knapp, V.M. Rotello
- COLL 261.** New approach of synthesizing anisotropic iron oxide nanoparticles with enhanced T₂ relaxation for MRI applications. **S. Wickramasinghe**, S.F. Situ, E.C. Abenojar, B.O. Erokwu, C.A. Flask, Z. Lee, A.C. Samia

COLL 262. New nanocomposites of silicon polymers and noble metal nanoparticles for applications in 3D printing. **B.P. Chauhan**, N. Ampomah, K. Moran, Q. Johnson

COLL 263. Nitrogen-doped graphene quantum dots / TiO₂ composite for photocatalysis. **R. Lawrence**, M. Goh

COLL 264. Novel synthetic method of chitosan functionalized liposomes as an innovative nanocarrier for chemotherapeutic drugs. **L. Hyppolite**

COLL 265. On the shuttling mechanism of a chlorine atom in a chloroaluminum phthalocyanine based molecular switch. H. Song, **H. Zhu**, K. Wu

COLL 266. Organic solvent dispersion of two-dimensional titanium carbide by the surface functionalization. D. Kim, C. Koo, **S. Cho**

COLL 267. Outstanding radical scavenging of transition metal dichalcogenide nanosheets via defect-mediated one-step hydrogen atom transfer in aqueous media. **J. Kim**, J. Lee, S. Hong, J. Kim

COLL 268. Pegylation of β -cyclodextrin for increased water solubility and biocompatibility in drug delivery applications. K.T. Nguyen, **R. Manasi**, **L. Rodriguez**, Y. Ba

COLL 269. Photoinduced metallic particle growth on single crystal relaxor ferroelectric strontium barium niobate. **E. Barnes**, E. Alberts, L.C. Mimun, J. Brame, C. Warner, A.R. Harmon, A.R. Poda

COLL 270. Polymeric nanoassemblies for direct delivery of active therapeutic proteins. **D.C. Luther**, Y. Lee, F. Scaletti, R. Landis, V.D. Chaplin, M. Mingroni, L. Wang, M. Ray, R. Mout, V.M. Rotello

COLL 271. Polymeric pH-activated nanoparticles for lipo-toxic cell application. **K. Lopes**, J. Zeng, M.W. Grinstaff

COLL 272. Predominated thermodynamically controlled reactions for suppressing cross nucleations in formation of multinary substituted tetrahedrite nanocrystals. **S. Bera**

COLL 273. Preparation of flexible silver-colored organic crystals. **K. Yamada**, Y. Takahashi, Y. Kondo

COLL 274. Probe aggregation into the interfaces between mimicking raft and non-raft domains, induced by peptide nucleic acid (PNA) duplexes. **Y. Oka**

COLL 275. Production of bimetallic nanoparticles in vapor phase. **N. Sakono**, K. Omori, K. Yamamoto

COLL 276. Production of golden luster by mixing an azobenzene derivative with liquid crystals. **K. Fukushima**, Y. Takahashi, Y. Kondo

COLL 277. Programmable DNA nanoparticle: Self-assembly of pH-triggered nucleic acid ion complex. **N. Miyamoto**, Y. Kitade

COLL 278. Protein-polymer colloids: 17-fold enhanced activities of cytochrome *c* conjugated with poly(acrylic acid). **K.R. Benson**, J. Gorecki, A. Nikiforov, R. Kasi, Y. Lin, C.V. Kumar

COLL 279. QCM-D and spectroscopic study of cholesteric liquid crystals for temperature-responsive materials. **K. Swana**, P. D'Angelo, S. Levit, R. Stwodah, M. Gillard, C. Tang

COLL 280. Rapid and scalable synthesis of sub-10 nm metal nanoparticles in on-the-fly aerosols. **Y. Yang**, P. Ghildiyal, M.R. Zachariah

COLL 281. Role of slurry chemistry on the nanoparticle redox behavior relevant to the shallow trench isolation chemical mechanical planarization process. **T. Zubi**, **C. Saucedo**, K. Wortman-Otto, C. Graverson, J.J. Keleher

COLL 282. Seedless, one-pot synthesis of infrared-absorbing silver nanoparticles. **N. Yamamoto**, D.P. Pullman

COLL 283. Self-healing, antibacterial host-guest coating doped nanoparticles. **L. Ge**

COLL 284. Self-propelled water based organo-silanes on glass. M. Vasei, **S. Poirier**

COLL 285. Silica modified candle soot layer-based SERS substrates for the ultrasensitive detection of biological molecules. **W. Qian**

COLL 286. Single-particle tracking for the routine characterization of polydisperse nanoparticle solutions. **X. Gong**, M. Park, K. Silmore, D. Parviz, T. Lew, M. Strano

COLL 287. Solution synthesis of rectangular copper nanotubes and gold nanohelices. **Y. Chang**, Y. Chang

COLL 288. Solution-based crystal phase engineering of noble metal nanostructures. **Y. Chen**, Z. Fan, H. Zhang

COLL 289. Steering DBPET porous networks by the co-play σ -hole interactions of Br^{δ-}S & Br^{δ-}Br. **L. Xing**, Z. Huang, K. Wu

COLL 290. Study of the influence of pH and ionic strength on the stability of melamine formaldehyde (MF) resin by field flow fractionation technique. **L. Farmakis**, **J. Kapos**, **A. Koliadima**

COLL 291. Successive ultraviolet irradiation of mixed monolayers removes molecules and re-orders self-assembled domains. **C. Gerber**, R. Quardokus

COLL 292. Supramolecular assembly onto polymer-supported Au monolayers fabricated *via* chemical lift-off lithography. **G.A. Vinnacombe**, K.M. Cheung, G.E. Kunkel, A.E. Trojniak, A. VanZanten, M.E. Anderson, P.S. Weiss

COLL 293. Surface chemistry and spectroscopy study of α -synuclein and the NAC part. O. Olaluwoye, S. Alrashdi, R. Castillo, **C. Wang**

COLL 294. Surface engineering of graphene materials for advancing antimicrobial performance. **W. Kim**, J. Son, H. Cho, S. Kim, J.S. Jeon, E. Cho

COLL 295. Surface functionalization of catanionic SDBS/CTAT vesicles. **M. Hurley**, P. Zayka, E. Holt, N. Soto, E. Robinson, P.R. DeShong

COLL 296. Sustainable glucose oxidation with enzymatic magnetically recoverable catalysts. **B. Lawson**, E. Golikova, A. Sulman, B.D. Stein, N. Lakina, A. Karpenkov, E. Sulman, V. Matveeva, L. Bronstein

COLL 297. Synergistic nanosponge-antibiotic therapy for the treatment of biofilm associated infections. **C. Li**, X. Chen, R. Landis, A. Gupta, J.M. Makabenta, V.M. Rotello

COLL 298. Synthesis and characterization of composition-controllable platinum-copper-cobalt nanoalloy catalysts. **D. Caracciolo**, D.M. Adrion, S. Shan, R. Robinson, J. Luo, C. Zhong

COLL 299. Synthesis and evaluation of polyglycerol carbonate/polyester blend nanocarriers for paclitaxel delivery. **R. Sabatelle**, I. Ekladius, N. Varongchayakul, C. Bordeianu, Y.L. Colson, M.W. Grinstaff

COLL 300. Synthesis and properties of surface functional hyperbranched polymer nanoparticles. **Y. Lee, B. An**

COLL 301. Synthesis and self-assembly of magnetoplasmonic nanoparticles. **D. Lu**

COLL 302. Synthesis of alkanethiolate-capped palladium nanoparticles through reversed alkyl thiosulfate addition to control core size & tune surface ligand density. **K.M. Vargas, K. San, Y. Shon**

COLL 303. Synthesis of composition tunable platinum-based ternary nanoalloy catalysts for fuel cell applications. **Z. Wu, E. Hopkins, K. Park, S. Yan, J. Wang, J. Wen, J. Luo, L. Wang, C. Zhong**

COLL 304. Synthesis of eco-friendly biosurfactants from vegetable oils and characterization of interfacial properties for cosmetics and household products. **D. Yea, S. Jo, J. Lim**

COLL 305. Synthesis of high quality bio-graphene suspensions in water for use in a nictinastic radiator for outer space solar arrays. **M.K. Puglia, M. O'Neill, C.V. Kumar**

COLL 306. Synthesis of mesoporous silica decorated with titania nanoparticles and their photocatalytic activities. **B. Kim, A. Jung, M. Hwang, B. Yeom**

COLL 307. Synthesis, characterization and potential applications of nanoparticles based on naturally-occurring polymers. **O. Kvak, M. Goh**

COLL 308. Synthesis, self-assembly and gelation studies of ninhydrin based unnatural α -amino acids as low molecular mass gelators. **F. Zerín, J. Sloop, A.V. Mallia**

COLL 309. Targeted gene regulation by an enzyme degradable nucleic acid nanocapsule. **A. Hartmann, D. Cairns-Gibson, H. Barber, J.L. Rouge**

COLL 310. Assessment of bacterial interactions with surfaces through the estimation of the adsorption free energy. **N. Kotoulas, M. Goh**

COLL 311. Highly reproducible and eco-friendly synthesis and characterization of silver nanocrystals and their potential anticancer therapeutic properties. **D. Lomeli-Marroquin, R. Rangel-López, A. Nieto Arguello, D. Zárate-Triviño, J. Cholula-Díaz**

COLL 312. Thermodynamics of DNA looping for origami folding. **J.M. Majikes, D. Schiffels, M. Zwolak, S.P. Forry, J.A. Liddle**

COLL 313. Tuning properties of a family of azo-cholesterol liquid crystals for application as photo-controllable reaction media. **V. Chang, C. Li, C.J. Barrett**

COLL 314. Tuning the surface architecture of silver nanoparticles for use as anti-viral agents. **H. Wu, D. Demchenko, K.M. Stedman, M.R. Mackiewicz**

COLL 315. Ullmann-like surface reactions and self-assembly of dibromobenzenes and dibromo-bithiophenes. **M. Wolf, R. Quardokus**

COLL 316. Ultrathin PdCu alloy nanosheets for highly efficient electrocatalytic formic acid oxidation. **H. Cheng, N. Yang, H. Zhang**

COLL 317. Understanding nanoparticle growth mechanism with liquid cell TEM and computational analysis. **J. Kim, B. Kim, J. Park**

COLL 318. Understanding surface-mediated, emergent plasmonic properties of degenerately doped Cu_{2-x}Se semiconductor nanoparticles. **X. Gan, L. Marbella, D. Kaseman, J. Millstone**

COLL 319. Viscosity and surface tension effects on metal sputtered onto low vapor pressure liquids. **M.M. De Luna, M. Gupta**

COLL 320. Water interaction with NiFe-based oxide films on Pt(111)/ $\text{Al}_2\text{O}_3(0001)$. **E. Carrasco, M.A. Niño, P. Perna, J. Camarero, D. Ecija, R. Miranda**

Section A

Boston Convention & Exhibition Center
Exhibit Hall A

Nanomaterials

Posters

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

5:30 - 7:30

COLL 321. Measurement of *Escherichia coli* using hemoglobin-capped fluorescent gold nanoclusters. **S. Tan**, X. Pan, J. Kuo, T. Chang, K. Chen, T. Kuo

COLL 322. Geometric and optical transformation of a supramolecular host-guest amphiphile. **C. Lo**, J. Tian, W. Lindemann, J. Ortony

COLL 323. 2D materials confined water. **Q. Li**

COLL 324. Laser pulse induced growth of unaggregated Sub-5 nm metal nanoparticles in free-standing graphene films. **Y. Yang**, D.J. Kline, P. Ghildiyal, M.R. Zachariah

COLL 325. Mechanism of osteocalcin interactions with hydroxyapatite surfaces and hydrogen phosphate precursors for bone mineralization. M. Tavakol, **S. Hoff**, J. Liu, H. Heinz

COLL 326. Modulation of mechanical properties of organic cocrystals and crystal designing: Impacts of isostructural and polymorphic functional groups. **K.K. Ray**, S.M. Oburn, K.M. Hutchins, T.P. Rupasinghe, D.C. Swenson, L. MacGillivray, A.V. Tivanski

COLL 327. Fabrication of monodisperse polymer microparticles coated with silica through droplet based microfluidic system. **D. Kim**, S. Jin, S. Jeong, B. Lee, K. Kang, C. Lee

Section A

Boston Convention & Exhibition Center
Exhibit Hall A

Nanomedicines: From Fundamentals to Applications

Posters

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

5:30 - 7:30

COLL 328. Surface-ligand effect on radiosensitization of ultrasmall luminescent gold nanoparticles. **X. Jiang**

COLL 329. Using atomic force microscopy to evaluate ligand-mediated stabilization of EGaIn liquid metal nanoparticles. **S.S. Akhter**, K. Dinyaryan, M.C. Foster

COLL 330. Room-temperature ionic liquid based nanoemulsions: Synthesis and formulation for delivery of poorly water soluble active pharmaceutical agents. **M.M. Esson**, S. Mecozzi

COLL 331. Mechanically tunable inter-bonding, assembly and macrostructures of nanoparticles in biominerals. **Z.R. Tian**, L. Hua

COLL 332. Development of novel nanostructured pharmaceuticals to enhance solubility and overall biological performance. **R.V. Jones**, E. Manek, F. Darvas

Section A

Boston Convention & Exhibition Center
Exhibit Hall A

Surface Chemistry

Posters

S. L. Tait, *Organizer*

5:30 - 7:30

COLL 333. Comparing macrocycle assembly at surfaces and in solution: 2D stacking and 3D packing. **H.D. Castillo**, J.M. Espinosa Duran, J. Dobscha, S. Debnath, J. Yang, Y. Sereda, K. Raghavachari, A.H. Flood, P. Ortoleva, S.L. Tait

COLL 334. Preparation of fabrics with directional water-transport property. **L. Lao**, D. Shou, Y. Wu, J. Fan

COLL 335. Wax patterning on flexible plastics for biomedical, microfluidic and electrochemical applications. **A.Z. Qamar**, S. Chen, K. Amar, P. Kohli, F. Chowdhury, M. Shamsi

COLL 336. Transitioning to the field: *Operando* effects on chemical warfare agent decontamination with zirconium hydroxide. **R. Balow**, G.C. Daniels, M.L. McEntee, W.O. Gordon, G. Peterson, J.H. Wynne, P.E. Pehrsson

COLL 337. Quantum mechanical derived description of physical adsorption. **J.B. Condon**

COLL 338. Molecular detection and analysis of exosomes using surface-enhanced Raman scattering gold nanorods and a miniaturized device. **E. Kwizera**, X. Huang, R.T. O'Connor

MONDAY MORNING

Section A

Boston Convention & Exhibition Center
Room 152

Biomaterials & Biointerfaces

Engineering the Interface

A. P. Goodwin, V. Gordon, *Organizers*
W. Shields, *Presiding*

8:30 Introductory Remarks.

8:35 COLL 339. Interfacial structuring of chitosan hydrogel provide enhanced wear protection. **X. Banquy**, J. Faivre, G. Sudre, A. Montembault, S. Benayoun, T. Delair, L. David

8:55 COLL 340. Mussel-inspired cellulose nanocomposite tough hydrogels with synergistic self-healing, adhesive and strain sensitive properties. **C. Shao**

9:15 COLL 341. Glycocalyx mimetic surfaces reduce blood protein adsorption and fibrin polymerization. **M. Hedayati**, M.M. Reynolds, D. Krapf, M. Kipper

9:35 COLL 342. Synergistic action of hyaluronic acid and lubricin prevents surface adhesion in articular joints. **H. Ye**, R. Su, W. Greene, R. Huang, W. Qi, Z. He

9:55 COLL 343. Enhancing and tuning the lectin binding behavior by functionalization of gold nanoparticles with precision glycomacromolecules. **S. Boden**, K. Wagner, M. Karg, L. Hartmann

10:15 Intermission.

10:35 COLL 344. Interfacing electron transfer proficient cells with metal surfaces using DNA. **A.L. Furst**, M.B. Francis

10:55 COLL 345. Ladderane phospholipids form dense, low-polarity membranes with low proton/hydroxide permeability. **F.R. Moss**, S. Shuken, J. Mercer, C. Cohen, T. Weiss, N.Z. Burns, S.G. Boxer

11:15 COLL 346. Tetrazine ligation-mediated layer-by-layer deposition for the development of antifibrotic patches. **H. Zhang**, A. Ravikrishnan, X. Jia, J.M. Fox

11:35 COLL 347. Supramolecular surfaces for protein immobilisation. **G. Di Palma**, P. Mendes

Section B

Boston Convention & Exhibition Center
Room 153A

Colloidal & Interfacial Science in Separation Processes

S. Ponnurangam, P. Somasundaran, *Organizers*
I. Chernyshova, Q. Liu, *Organizers, Presiding*

8:30 COLL 348. Metal – modified hydroxyapatites and their affinities for ions and molecules in solution. **S. Alexandratos**, A. Ashfaq, H. Benhaim, M. Kotlyar, R. Yeahia

9:00 COLL 349. Design of batch, semi-batch, and continuous reactor through superhydrophobic filter. **H. Hu**, M. Lehtinen, G. Liu

9:25 COLL 350. Tunable and repeatable dye adsorption/desorption via organosilica nanoparticles with an intrinsic amine. **F. Chen**, E. Zhao, J.V. Jokerst

9:45 COLL 351. Effect of crystallite-size on the physical and chemical properties of nano-oxides. **S. Chan**

10:05 Intermission.

10:20 COLL 352. Encapsulation of nanoscale hybrid materials for innovative CO₂ capture. W. Yu, M. Gao, **A.A. Park**

10:50 COLL 353. Nanocomposite foam involving boron nitride nanoplatelets and polycaprolactone: Porous structures for oil spill cleanup. **L. Zhang**, X. Tantai

11:10 COLL 354. Chiral selectivity in heterogeneous catalysis. **R.C. Chapleski**, S. Roy

Section C

Boston Convention & Exhibition Center
Room 156C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Nanocatalysis for Renewable Energy

H. Fan, Y. Sun, *Organizers*

J. He, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 COLL 355. Nanoparticle electrocatalysts for chemical valorization of carbon dioxide. **P. Yang**, D. Kim

9:05 COLL 356. Tuning catalytic activity in bimetallic transition metal phosphides via composition control. S.I. Mutinda, D.M. Liyanage, D. Li, **S.L. Brock**

9:35 COLL 357. Interfacial engineering in two-dimensional nanomaterials for electrochemical/photoelectrochemical water splitting. **X. Feng**

10:05 Intermission.

10:20 COLL 358. Designing nanoparticle/electrolyte interfaces for dye-sensitized solar fuels. **Y. Wu**

10:50 COLL 359. Sequential partial cation exchange reactions as a pathway to complex heterostructured nanoparticle libraries. J.L. Fenton, B. Steimle, **R.E. Schaak**

11:20 COLL 360. Cesium lead halide perovskite nanocrystals for designing tandem architectures. V. Ravi, R. Scheidt, **P.V. Kamat**

11:50 COLL 361. Nanocatalysts for green fuel production. **H. Zeng**

Section D

Boston Convention & Exhibition Center
Room 157A

Heating with Colloidal Nanoparticles: Physical Mechanisms & Applications in Life Science

P. del Pino, L. Liz Marzan, W. Parak, *Organizers*
S. Carregal-Romero, *Presiding*

8:30 COLL 362. Thermoplasmonics: Fundamentals and application to targeted hyperthermia. **R. Quidant**

9:00 COLL 363. Photothermal-driven drug-delivery nanoplatfrom based on plasmonic zeolitic imidazolate frameworks. **C. Carrillo Carrion**, P. del Pino

9:30 COLL 364. Luminescent nanoparticles to optically monitor plasmonic heating within the biological windows. **M. Quintanilla**, I. García, I. de Lázaro del Rey, S. Vranic, A. Sánchez-Iglesias, K. Kostarelos, L. Liz Marzan

10:00 Intermission.

10:30 COLL 365. Nanomaterials for cell tracking applications - How to enhance the contrast. **N. Feliu**, W. Parak

11:00 COLL 366. Stem cells transporting gold nanorods. **J.M. Berlin**

11:30 COLL 367. Heparin and clotting time measurements via photoacoustic imaging and a silica-nanoparticle/hydrogel hybrid. **J. Wang**, F. Chen, S. Arconada, J.V. Jokerst

Section E

Boston Convention & Exhibition Center
Room 157B

Nanomaterials

R. Nagarajan, *Organizer*

J. A. Hollingsworth, *Organizer, Presiding*

8:30 COLL 368. N- and P-doping of colloidal nanocrystal and nanowire assemblies.
C.R. Kagan

9:00 COLL 369. To dope semiconductor nanocrystals: Chalcogenides to perovskites.
N. Pradhan

9:30 COLL 370. Hybrid materials based on colloidal nanocrystals: From synthesis to emerging properties for energy storage in chemical bonds. **R. Buonsanti**

10:00 COLL 371. Synthesis, characterization and light-induced spatial charge separation in Janus graphene oxide. **A. Holm**, J. Park, E.D. Goodman, J. Zhang, R. Sinclair, M. Cargnello, C.W. Frank

10:20 COLL 372. From inside out: How buried interface, defects and surface determines performance of two giant core-shell quantum dots. **A. Singh**, S. Majumder, N.J. Orfield, H. Htoon, J.A. Hollingsworth, K. Bustillo, J. Ciston

10:40 COLL 373. Aggregation-induced emission in lamellar solids of colloidal perovskite quantum wells. **C. Shih**

11:00 COLL 374. Spectroscopic evidence of conduction band fine structure in colloidal HgTe quantum dots with well-defined intraband transitions. **M.H. Hudson**, M. Chen, P. Guyot-Sionnest, D. Talapin

11:20 COLL 375. Blue perovskite nanocrystals for quantum dot light emitting diodes. **M. Gangishetty**, S. Hou, Q. Quan, D. Congreve

11:40 COLL 376. Controlled dopant migration in core/shell semiconductor nanocrystals. **W. Zheng**

Section F

Boston Convention & Exhibition Center
Room 157C

Understanding Nano-Bio Interactions: Implications for Bio-Imaging, Diagnosis & Treatment

B. Kim, S. Wilhelm, *Organizers, Presiding*

8:30 COLL 377. Initial surface chemistry of nanoparticles has cascading impacts on biological systems. **C.J. Murphy**

9:00 COLL 378. Engineering unusual properties on the nanoscale: Smart nanomicelles for targeting tumor microenvironments. **S. Nie, J. Du**

9:30 Intermission.

9:40 COLL 379. Gold nanoparticle radiosensitization – the road traveled, the road ahead. **S. Krishnan**

10:10 COLL 380. Porphysome nanotechnology: From discovery to translation. **G. Zheng**

10:40 Intermission.

10:50 COLL 381. Thermally triggered nano-assassins for pancreatic cancer therapy. **C. Hoskins**

11:20 COLL 382. Exploring nanoparticle architecture to design small, bright upconverting nanoparticles for bioimaging. **C. Siefe, R. Mehlenbacher, S. Fischer, A. Lay, J. Dionne**

11:40 COLL 383. Design and surface engineering of upconversion nanoparticles for bioassays. **M. Buchner, V. Muhr, S.F. Himmelstoss, L.M. Wiesholler, T. Hirsch**

12:00 COLL 384. Mechanosensitive upconverting nanoparticles for visualizing mechanical forces *in vivo*. **A. Lay, C. Siefe, S. Fischer, R. Mehlenbacher, A. Das, A. Nekimken, F. Ke, W.L. Mao, B. Pruitt, B.E. Cohen, P. Alivisatos, M. Goodman, J.A. Dionne**

Section G

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

Delivery & Transport

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

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

8:30 COLL 385. Therapeutic modification of the tumor microenvironment to overcome intratumoral transport barriers for nanomedicine. **J. Panyam**

9:00 COLL 386. Precision polymer architectures and molecular conjugates to enable therapeutics against undruggable targets. **C. Duvall**

9:30 COLL 387. Controlling *in-vivo* fate of liposomes using a photocleavable PEG corona. **A. Kros**

9:50 COLL 388. Multicompartmental nanoparticles for controlled release of combination therapies. **J. Lahann**

10:20 COLL 389. Engineered lipid-antibody based nano-assemblies for painting and surface modifications of red blood cells for therapy of blood borne cancers. W.J. Smith, L.G. Nilewski, N.C. Gianneschi, **D. Simberg**

10:50 COLL 390. Integrating synthetic protein chemistry and nanoparticles for intracellular delivery and targeted cancer therapy. **M. Wang, X. Yang**

11:20 COLL 391. Neutrophil-based drug delivery systems. **Z. Wang**

11:50 COLL 392. Tailoring renal clearance and tumor targeting of ultrasmall metal nanoparticles with particle density. **S. Tang, J. Zheng, C. Peng, J. Xu, B. Du, M. Yu**

Section H

Boston Convention & Exhibition Center
Room 160A

Synthetic Self-Assembled Systems for Drug & Nucleic Acid Delivery: New Materials, Formulation Strategies, Targeting, Toxicity & Regulatory Issues

K. Sakurai, *Organizer*

M. A. Ilies, *Organizer, Presiding*

8:30 COLL 393. Delivery of chemically modified siRNAs for human therapeutics: From principles to patients. **M. Manoharan**

9:00 COLL 394. Attenuation of maladaptive responses in aortic adventitial fibroblasts through stimuli-triggered siRNA release from lipid-polymer nanocomplexes. **M.O. Sullivan**

9:30 COLL 395. DyNAVectors: Dynamic constitutional vectors for adaptive DNA delivery. **M. Barboiu**

10:00 Intermission.

10:15 COLL 396. Induction of potent cytotoxic T-lymphocyte activity using two types of polysaccharides. **S. Mochizuki**, A. Moritaka, K. Sakurai

10:45 COLL 397. Lymph node targeting of potent TLR7/8 agonist via acid sensitive amphiphilic polymers with high serum stability. B. De Geest, **S. Van Herck**

11:15 COLL 398. Synthetic charge-invertible micelles for rapid and complete implantation of LbL drug films coated on microneedle patches for enhanced transdermal vaccination. **Y. He**, C. Hong, J. Li, M.T. Funkenbusch, Y. Li, D.J. Irvine, P.T. Hammond

Section I

Boston Convention & Exhibition Center
Room 160B

Colloid & Surface Chemistry in Industry: Applications & Career Opportunities

Cosponsored by PROF
H. Fairbrother, N. A. Falk, L. Tribe, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 399. R&D careers at Clorox: My experience from grad school to industrial career. **N.A. Falk**

8:55 COLL 400. Careers in the startup environment. **B. Smith**

9:15 COLL 401. Emulsions with sustainable surfactants for personal care applications. **K. Whitaker**, B. Beeson, B. Johnson, C.E. Mohler

9:35 COLL 402. Chemistry and industrial careers. **A. Morfesis**

9:55 COLL 403. Importance of surfaces and interfaces in government and industry R&D. **S.R. Carlo**, C.M. Soto, D.H. Mayo, B.T. Horlor, J.M. Considine, D. Allen

10:15 COLL 404. Yes, HP Inc. is also a chemical company! **S. Courtenay**

10:35 COLL 405. LINX: Linking industry to neutrons & X-rays. **G. Smith**, E. Brok, M. Schmiele, L. Arleth, K. Mortensen

10:55 COLL 406. Applications of surface chemistry in the cosmetic industry. **H.S. Bui**, G.S. Luengo

11:15 COLL 407. Colloid and surface science in Cabot R&D. **A.T. Nikova**

11:35 COLL 408. Functional polycarbonate materials: Synthesis, modification, and application. **N. Park**

Ion Transport at the Nanoscale: Research & Capabilities at the DOE's Nano Centers

Sponsored by PRES, Cosponsored by ANYL, COLL, COMSCI, ENFL, ENVR, GEOC and SCHB

Molecular Understanding of the Structure & Reactivity of Mineral-Water Interfaces

Sponsored by GEOC, Cosponsored by COLL and ENVR

Nanotechnology & Single Cell Analysis in Biology & Medicine: Next Frontier

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Growing with Project SEED: 50 years and 10,000+ Students

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Technical Developments & Applications of Optical Chemical Imaging

Sponsored by ANYL, Cosponsored by BIOL[‡], COLL and PHYS[‡]

Surface, Interface & Coating Materials

Synthesis & Fabrication

Sponsored by PMSE, Cosponsored by COLL and POLY

MONDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 152

Biomaterials & Biointerfaces

Engineering the Interface

A. P. Goodwin, V. Gordon, *Organizers*
A. L. Furst, *Presiding*

2:00 COLL 409. Mussel-inspired silicone oil swelling slippery surfaces with repeatable wettability recovering under extreme operating conditions. **B. Jin, Q. Zhang, X. Zhan, F. Chen**

2:20 COLL 410. Peptide adsorption on hydroxyapatite surfaces and implications on shape and mineralization: Impact of sequence and electrolyte pH. **J. Liu, S. Hoff, C. Pramanik, T. Jamil, S. VanOosten, K. Boone, C. Tamerler, H. Heinz**

2:40 COLL 411. Multifunctional macroporous biomaterial for drug delivery and efficient emulsion separations. **A. Ghimire, D. Ndaya, R. Kasi, C.V. Kumar**

3:00 COLL 412. Binding nanomaterials to living bacteria. **H. Dong, D.A. Sarkes, J. Terrell, J.P. Jahnke, M. Hurley, D. Stratis-Cullum**

3:20 COLL 413. Incorporating silica particles improves the adhesion, flexibility, and hemostatic efficacy of a polymer blend surgical sealant. **J.L. Daristotle, S.T. Zaki, L. Torres Jr, L.W. Lau, A. Zografos, O.B. Ayyub, A.D. Sandler, P. Kofinas**

3:40 Intermission.

4:00 COLL 414. Nanogels of zwitterionic polymer-curcumin conjugates function as a potent inhibitor of amyloid β -protein fibrillogenesis and cytotoxicity. **G. Zhao, X. Dong, Y. Sun**

4:20 COLL 415. Three ways of fine-tuning cell adhesion to synthetic surfaces. **J.B. Schlenoff, R. Surmaitis, D. Delgado, C. Arias**

4:40 COLL 416. kT-scale interactions between zwitterionic coated colloids and biomaterial surfaces. **M.A. Bevan**

5:00 COLL 417. Protein encapsulation using cationic copolymers in the presence of zwitterionic surfactants. **A. Erfani, N.H. Flynn, J.D. Ramsey, C. Aichele**

Section B

Boston Convention & Exhibition Center
Room 153A

Colloidal & Interfacial Science in Separation Processes

Q. Liu, S. Ponnuram, P. Somasundaran, *Organizers*
I. Chernyshova, *Organizer, Presiding*

E. Roberts, *Presiding*

2:00 COLL 418. Removal of silica from oil-sands produced water by electrocoagulation. **E. Roberts**, B. Fuladpanjeh-Hojaghan, T. Shu, N. Yasri, M. Trifkovic

2:25 COLL 419. Unconventional interfacial reactivity of metal sulfides: Relation to mineral separation. **H.R. Kota**

2:50 COLL 420. Silica supported sterically hindered amines for CO₂ capture. **J. Lee**, C. Yoo, C. Chen, S.E. Hayes, C. Sievers, C.W. Jones

3:15 COLL 421. Novel conducting composites for enhanced separation of salt from brackish water. **S. Ponnurangam**, C. Ai, V.I. Birss

3:35 COLL 422. Redox interfaces for electrochemically-mediated separations of heavy metal contaminants. **X. Su**, T. Hatton

Section C

Boston Convention & Exhibition Center
Room 156C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Ligand & Support Effects on Nanocatalysis

H. Fan, J. He, *Organizers*

Y. Sun, *Organizer, Presiding*

2:00 COLL 423. Controlling selectivity on metal nanoparticles with organic monolayers. **J.W. Medlin**

2:30 COLL 424. Plasmonic catalysis as a means for sustainable transformations. **A.H. Moores**, M. Landry, A. Gelle, C.J. Barrett

3:00 COLL 425. Synthesizing cooperative metal-support interfaces for catalysis. **S. Dai**

3:30 Intermission.

3:45 COLL 426. Chemical transformations in mesoporous transition metal oxides.
S.L. Suib

4:15 COLL 427. Single-facet dominant anatase TiO₂ (101) and (001) model catalysts to elucidate the active sites for alkanol dehydration. Y. Chen, L. Zhang, H. Wang, D. Mei, L. Kovarik, F. Gao, B. Sudduth, E. Iglesia, **Y. Wang**

4:45 COLL 428. Reactivity of a heterostructured plasmonic biomaterial: Gold nanoparticles on ferritin. **D.R. Strongin**, E.B. Cerkez, Y. Ghidey, A. Bruefach, F. Alimohammadi, A. Valentine

Section D

Boston Convention & Exhibition Center
Room 157A

Basic Research in Colloids, Surfactants & Nanomaterials

Nanomedicine

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

2:00 COLL 429. Engineering the nano-bio interface for nanomedicine applications.
K. Hamad-Schifferli

2:20 COLL 430. Assessment of nanoparticles disruption to quantify drug delivery *in vitro*. E. Nogueira, A. Loureiro, **A. Cavaco-Paulo**

2:40 COLL 431. Development of target-specific 2A3 antibody-conjugated gold nanoclusters for assessment of cancer progression and inhibition of cancer cell proliferation. **J. Kuo**, S. Tan, X. Pan, K. Chen, T. Chang, T. Kuo

3:00 COLL 432. Soysome: A new class of self-assembled colloid from soybean oil fatty acids for nanoscale drug delivery applications. **M.A. Quadir**, R. Chitemere, D.C. Webster

3:20 COLL 433. Structural remodeling of high-density lipoproteins in patients with diabetes mellitus. **C.L. Baveghems**, S. Jayaraman, O. Gursky

3:40 COLL 434. Silicon nanostructures for high-throughput intracellular gene delivery. **C. Zhao**, Q. Yang, S. Hou, X. Xu, N. Wattanatorn, W. Liu, H. Tseng, S.J. Jonas, P.S. Weiss

4:00 COLL 435. Coacervation-based model systems for intracellular compartmentalization. **A. Marianelli**, B. Miller, M. Sherman, C.D. Keating

4:20 COLL 436. Gold nanoparticles as radiosensitizers demonstrated in a chick chorioallantonic membrane model. **C.S. Filgueira**, F. Ferraro, V. Vighetto, N. DiMarzio, R. Pathak, H. Liu, A. Pandey, M. Villanueva, C. Chua, S. Mitra, A. Sikora, N.J. Halas, A. Grattoni

4:40 COLL 437. Non-cationic RNA-polymer complexes for RNA interference. **Z. Jiang**, W. Cui, J. Mager, S. Thayumanavan

5:00 COLL 438. Scalable fabrication of one- and two-dimensional gold nanostructures for plasmonic biosensing applications. **C. Zhao**, X. Xu, A.R. Ferhan, N. Chiang, J.A. Jackman, Q. Yang, W. Liu, A.M. Andrews, N. Cho, P.S. Weiss

5:20 COLL 439. Nano-scale interfacial reversible protein folding of amyloidogenic peptides. **K. Yokoyama**

Section E

Boston Convention & Exhibition Center
Room 157B

Nanomaterials

J. A. Hollingsworth, R. Nagarajan, *Organizers*
R. Buonsanti, *Presiding*

2:00 COLL 440. Colloidal nanocrystals of APbX₃ perovskites [A=Cs⁺, CH(NH₂)₂⁺, X=Cl⁻, Br⁻, I⁻]: Surface chemistry, self-assembly and potential applications. **M. Kovalenko**

2:30 COLL 441. Utility of PEGylated dithiolane ligands for controlled synthesis of water-soluble metal nanocrystals. **E. Oh**, K. Susumu, C. Klug, J. Delehanty, A. Huston, I. Medintz

3:00 COLL 442. Continuous flow synthesis of semiconductor nanoparticles using a modular millifluidic platform. **A. Vikram**, V. Kumar, U. Ramesh, K. Balakrishnan, N. Oh, K. Deshpande, T. Ewers, P. Trefonas, M. Shim, P.J. Kenis

3:40 COLL 443. Synthesis of alloy nanoparticles via sputtering onto a liquid polymer. **M.T. Nguyen**, T. Yonezawa, L. Deng

4:00 COLL 444. Graphene inks as versatile templates for printing tiled metal oxide crystalline films. **M. Liu**, R. Hurt

4:20 COLL 445. Highly functionalised water-soluble fullerene derivatives: Cage size affects hierarchical self-assembled structures. **I. Rasovic**, K. Porfyrakis

4:40 COLL 446. Noncovalently functionalized 2D materials template solution growth of ultranarrow gold nanorods along 1-nm-wide rows of functional headgroups. **A.G. Porter**, T. Ouyang, T.R. Hayes, S.R. Russell, S.A. Claridge

5:00 COLL 447. Azide-alkyne click conjugation on quantum dots by selective copper coordination. **V. Mann**, A. Powers, D. Tilley, J. Sack, B.E. Cohen

5:20 COLL 448. New insights regarding the local atomic structure and magnetic properties in sub-10 nm iron oxide nanocrystals produced by a living growth process. **S. Cooper**, J.E. Hutchison

Section F

Boston Convention & Exhibition Center
Room 157C

Understanding Nano-Bio Interactions: Implications for Bio-Imaging, Diagnosis & Treatment

B. Kim, S. Wilhelm, *Organizers, Presiding*

2:00 COLL 449. Mitigating the off-target toxicity of nanomedicines through controlled release. **Y. Xia**

2:30 COLL 450. Nanoparticle-based approaches to drug delivery to peripheral nerve for pain and other conditions. **D.S. Kohane**

3:00 Intermission.

3:10 COLL 451. Kidney-targeting peptide amphiphile micelles toward renal drug delivery. J. Wang, **E. Chung**

3:40 COLL 452. Multifunctional zero- and one-dimensional nanomaterials for imaging, sensing and multidrug delivery. **A. Naumov**, M. Hasan, E. Campbell, R. Gonzalez-Rodriguez, G. Akkaraju

4:10 Intermission.

4:20 COLL 453. Intrinsically radiolabeled nanomaterials. **W. Cai**

4:50 COLL 454. Enhancing nanoparticle delivery to the tumor with a targeted agent and light. **M. Overchuk**, K.M. Harmatys, S. Sindhvani, A.M. Syed, J. Chen, M.G. Pomper, W. Chan, G. Zheng

5:10 COLL 455. Novel catalytically active gold nanocrystals electrochemically grown in water by a continuous method. **M. Merzlyakov**, A. Dorfman, D.K. Pierce, D. Bryce, M. Mortenson

5:30 COLL 456. Electrochemically grown, clean surfaced gold nanocrystals exhibit a very favorable safety profile in rodents, canines, and humans. **A. Dorfman**, M. Hotchkin, M. Merzliakov, G. Frick, M. Mortenson

Section G

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

Imaging & Targeting

Z. Gu, Z. Wang, J. Xie, *Organizers*
G. Han, J. Zheng, *Organizers, Presiding*

2:00 COLL 457. SERS nanoparticles in medicine: New opportunities for spectroscopic cancer detection and image-guided surgery. **S. Nie**, L.A. Lane, R. Xue

2:30 COLL 458. Optically activated nanomedicines. **T. Hasan**

3:00 COLL 459. Patient-tailored immunotherapies enabled by multimodal ImmunoPET-Raman imaging. **R. Bardhan**, Y. Ou, A. Mahadevan-Jansen, T.E. Peterson, M. Nickels, H.C. Manning

3:20 COLL 460. Biomedical applications of porphyrin-phospholipid liposomes. **J.F. Lovell**

3:50 COLL 461. Molecular afterglow imaging of semiconducting polymer nanoparticles. **K. Pu**

4:20 COLL 462. Ultrasound-triggered micro-to-nano conversion: Extending porphyrin-bubble theranostic potential beyond the vasculature. **C. Pellow**, D. Goertz, G. Zheng

4:40 COLL 463. Remotely targeted and triggered nanomedicine. **D.S. Kohane**

5:10 COLL 464. From molecules to mammals: Inventing luminescent nanoparticles for biology. **G. Han**

5:40 COLL 465. Design and preparation of near infrared absorbing BODIPY nanoparticles: Applications in photodynamic therapy. **L. Huang**

Section H

Boston Convention & Exhibition Center
Room 160A

Synthetic Self-Assembled Systems for Drug & Nucleic Acid Delivery: New Materials, Formulation Strategies, Targeting, Toxicity & Regulatory Issues

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

2:00 COLL 466. Drug delivery for ovarian cancer: The role of surface chemistry and administration route for targeting therapeutics with layer-by-layer nanoparticles. **S. Correa**, N. Boehnke, A. Barberio, M.A. Quadir, E.C. Dreaden, P.T. Hammond

2:30 COLL 467. Biologically inspired design consideration for polymeric anticancer nanomedicine. **S. Aryal**, T. Nguyen, A. Pitchaimani, R. Marasni

3:00 COLL 468. Mutual prodrugs for treating aggressive neuroblastoma with biodegradable nanocarriers. I.S. Alferiev, D. Guerrero, F. Nguyen, P. Guan, V. Kolla, I. Fishbein, G.M. Brodeur, **M. Chorny**

3:30 Intermission.

3:45 COLL 469. Gd-DTPA-dialkylamine with *o*-NO₂-benzylalcohol group: Synthesis and self-assembled behaviors for T₁-enhanced magnetic resonance imaging and light-controlled drug carriers. **C. Liu**, K. Ewert, Y. Li, C.R. Safinya, **W. Qiao**

4:15 COLL 470. Multiple stimuli-responsive fluorescent micelles based on the self-assembly hyperbranched polymer for drug delivery and release. **M. Xu**, H. Hailong

4:45 COLL 471. Remotely controlled assembly and biocatalytic release of cargo molecules. **S. Minko**, A. Zakharchenko, E. Katz

Section I

Boston Convention & Exhibition Center
Room 160B

Colloid & Surface Chemistry in Industry: Applications & Career Opportunities

Cosponsored by PROF
H. Fairbrother, N. A. Falk, L. Tribe, *Organizers, Presiding*

2:00 COLL 472. Mixing up better products in microgravity. **M. Lynch**

2:20 COLL 473. Research experiences at E Ink Corporation. **J. Anseth**

2:40 COLL 474. Working for a rapidly growing small company. **R.I. Maccuspie**

3:00 COLL 475. Nanotechnology innovations and career opportunities at Savannah River National Laboratory. **S. Hunyadi Murph**

3:20 COLL 476. Wettability modification to enhance productivity in natural gas wells. **J.R. Baran**

3:40 COLL 477. How to train students to be independent scientists at Colgate. **L. Pan**

4:00 COLL 478. Research career at an army laboratory: Colloid and surface science research to support soldier performance optimization. **R. Nagarajan**

4:20 COLL 479. Development and integration of droplet-based microfluidic technologies into industrial research. **C. Nelson**, N. Loufakis, K. Whitaker, D. Miller, A. Schmitt, A. Grzesiak, C.E. Mohler

4:40 Panel Discussion.

Ion Transport at the Nanoscale: Research & Capabilities at the DOE's Nano Centers

Sponsored by PRES, Cosponsored by ANYL, COLL, COMSCI, ENFL, ENVR, GEOC and SCHB

Molecular Understanding of the Structure & Reactivity of Mineral-Water Interfaces

Sponsored by GEOC, Cosponsored by COLL and ENVR

Nanotechnology & Single Cell Analysis in Biology & Medicine: Next Frontier

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

Technical Developments & Applications of Optical Chemical Imaging

Sponsored by ANYL, Cosponsored by BIOL[‡], COLL and PHYS[‡]

Undergraduate Research Posters

Colloid & Surface Chemistry

Sponsored by CHED, Cosponsored by COLL and SOCED

Surface, Interface & Coating Materials

Theory, Simulation & Mechanism Study

Sponsored by PMSE, Cosponsored by COLL and POLY

MONDAY EVENING

Section A

Boston Convention & Exhibition Center
Exhibit Hall B2/C

Sci-Mix

R. Nagarajan, *Organizer*

8:00 - 10:00

35, 62, 82, 120, 122, 130, 166, 177, 180, 182-183, 185-186, 188-189, 193-194, 197-199, 209-210, 213, 215-216, 220, 222, 225, 231-234, 237-238, 240, 242, 244, 250, 254-255, 258, 260, 272, 278, 280, 282, 291-292, 297-299, 302, 305, 312-313, 317-318, 326, 334, 336, 338, 384, 444-445, 454, 462. See previous listings.

523, 542, 600, 602, 604, 611, 614, 631, 681-682, 704, 715, 758, 775. See subsequent listings.

TUESDAY MORNING

Section A

Boston Convention & Exhibition Center
Room 152

Biomaterials & Biointerfaces

V. Gordon, *Organizer*

A. P. Goodwin, *Organizer, Presiding*

8:30 COLL 480. Comprehensive screening of neuronal behavior on gradient micro-alignment topographies. **R. McNaughton**, Y. Huo, G. Li, H. Man, X. Zhang

8:50 COLL 481. Dampening immune responses with polyphenol multilayer coatings for islet transplantation. V.A. Kozlovskaya, J.M. Barra, H. Tse, **E.P. Kharlampieva**

9:10 COLL 482. Synthesis and design of a biomimetic conductive nanocomposite for responsive wound management technology. H.R. Lange, C.X. Loza, L.K. Werth, W.E. Chura, **J.J. Keleher**

9:30 COLL 483. Adaptation of charge and hydrophilicity of native protein on surfaces employing thermal treatment in fluoruous media. **S. Gopalakrishnan**, L. Wang, Y. Lee, J. Zhu, S. Nonnenmann, V.M. Rotello

9:50 COLL 484. Investigating the morphological and mechanical properties of amyloid fibril formation using atomic force microscopy (AFM) for biomaterial applications. **S. Gokalp**, M.C. Foster

10:10 COLL 485. Therapeutic luminal coating of the intestine. **Y. Lee**

10:30 Intermission.

10:50 COLL 486. Hyaluronan density influences adhesion, morphology and migration of cancer cells. A.M. Carvalho, D. Soares da Costa, R. Reis, **I. Pashkuleva**

11:10 COLL 487. Photodegradable polyacrylamide gels for dynamic modulus control of cell culture platforms. **S.C. Norris**, J. Soto, S. Li, A.M. Kasko

11:30 COLL 488. Elastomeric particles for cell and biomarker isolation in acoustofluidic devices. **W. Shields**, K.A. Ohiri, L.M. Johnson, A.L. Li, G.P. Lopez

11:50 COLL 489. Discoid silica nanoparticles for stem cells tracking by ultrasound imaging. **F. Chen**, M. Ma, J. Wang, S. Chen, E. Zhao, A. Jhunjhunwala, S. Darmadi, H. Chen, J.V. Jokerst

12:10 COLL 490. Phage colloids: Bacteriophages link enzymes to magnetic colloids for catalysis and micropumps. M. Alarcón-Correa, J. Günther, **S. Knoppe**, J. Troll, V.M. Kadiri, D. Rothenstein, J. Bill, P. Fischer

Section B

Boston Convention & Exhibition Center
Room 153A

Toward Atomic Precision in Controlling the Low Dimensional Materials

G. Chen, R. Jin, G. Wang, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 491. Single-atom tailoring of metal nanoparticles. **R. Jin**

9:15 COLL 492. Organic reaction catalysed by atomically precise metal nanoclusters. **M. Zhu**

9:55 Intermission.

10:25 COLL 493. Tailoring the structure of 58-electron gold nanoclusters: Au₁₀₃S₂(SNAp)₄₁ and its implications. **T. Higaki**, R. Jin

10:45 COLL 494. Molecular “surgery” and beyond: Understanding heterometal doping in atomically precise nanoclusters. **M.G. Taylor**, Q. Li, R. Jin, G. Mpourmpakis

11:05 COLL 495. Structural and electronic characterization of CoO nanoislands on Au(111) using LT-STM. A. Sanchez-Grande, J. Rodriguez-Fernandez, **E. Carrasco**, K. Lauwaet, J. Fester, R. Miranda, J. Lauritsen, D. Ecija

Section C

Boston Convention & Exhibition Center
Room 156C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Ligand & Support Effects on Nanocatalysis

H. Fan, J. He, *Organizers*

Y. Sun, *Organizer, Presiding*

8:30 COLL 496. Enhancing nanoparticle catalysis for chemical transformations. **S. Sun**

9:00 COLL 497. Metal and metal oxide nanoparticles encapsulated inside of zeolite crystals as highly efficient heterogeneous catalysts for chemical transformation. **F. Xiao**

9:30 COLL 498. Controlled encapsulation of nanoparticle catalysts into nanoporous materials. **C. Tsung**

10:00 Intermission.

10:15 COLL 499. Layer-by-layer assembly of colloidal nanosheets with individually differing properties to generate improved water oxidation catalysts. **M. Zdilla, R. Ding, I. McKendry, R. Remsing, H. Peng, J.P. Perdew, D.R. Strongin, Q. Kang, A. Thenuwara, E. Borguet, Y. Aulin**

10:45 COLL 500. Transformation pathways of bimetallic nanoparticles at atomic scale. **Y. Wang**

11:15 COLL 501. Multimetallic nanocrystals and their surface and interface electrocatalysis. **S. Guo**

11:45 COLL 502. Fabrication and application of inorganic nanoparticle superstructures. **Z. Tang**

Section D

Boston Convention & Exhibition Center
Room 157A

Basic Research in Colloids, Surfactants & Nanomaterials

Nanomaterials-Synthesis, Growth & Assembly

R. Nagarajan, *Organizer*
J. Reiner, *Presiding*

8:30 COLL 503. Solutions for catalysis: A surfactant-free synthesis of precious metal nanoparticle colloids in mono-alcohols for catalysts with enhanced performances. **J. Quinson**, S. Neumann, J. Bucher, M. Inaba, S. Simonsen, L. Theil Kuhn, M. Oezaslan, S. Kunz, M. Arenz

8:50 COLL 504. Cation exchange as a route to quantum dot synthesis: Are the daughter quantum dots inherently defective? C. Lin, S.E. Benjamin, H.D. Hall, M.L. Ary, X.A. Aguilar, J.W. Campbell, **P.G. Van Patten**

9:10 COLL 505. Photoinitiated growth of silver nanoparticles in solutions of organic acids. **D.P. Pullman**, N. Yamamoto, R. Leslie, M. Keogh

9:30 COLL 506. Controlled packing and phase transitions via templated evaporative colloidal assembly. **C. Shillingford**, V. Grebe, A. McMullen, M. Weck

9:50 COLL 507. Nanopore observations of pH dependent fluctuations in mercaptobenzoic-capped gold nanoclusters. B. Cox, P. Woodworth, M. Bertino, **J. Reiner**

10:10 COLL 508. Crystal face identification by Raman spectroscopy and application to the epitaxial growth of acetaminophen. **T.K. Wijethunga**, J. Stojaković, M. Bellucci, X. Chen, A.S. Myerson, B. Trout

10:30 COLL 509. Kinetics of self-assembly: Experimental probes of noble metal nanoparticle formation. **M. Watzky**, H. Sandoe, A. Ethridge

10:50 COLL 510. Engineering the assembly of semiconducting two-dimensional materials prepared by molecular tweezer chemical exfoliation technique. **M.A. Mahmoud**, **M. Abdul-moqueet**

11:10 COLL 511. Mechanically robust thin films coatings from functionalized silica nanoparticles. **M. Barak**, F.C. Cebeci, E.B. Sevinis Ozbulut

11:30 COLL 512. Multi-pronged biomimetic approach to create optically tunable nanoparticles. **K.M. Harmatys**, J. Chen, D.M. Charron, C.M. MacLaughlin, G. Zheng

11:50 COLL 513. InP-based alloy quantum dots and their compositional effects on thermal/chemical stability. **R.P. Brown**, Z. Rosenzweig

Section E

Boston Convention & Exhibition Center
Room 157B

Nanomaterials

J. A. Hollingsworth, R. Nagarajan, *Organizers*
A. Joshi, *Presiding*

8:30 COLL 514. Colloidal nanoparticles directly observed by multi-dimensional liquid phase TEM. B. Kim, J. Heo, S. Kim, J. Kim, D. Lee, **J. Park**

9:00 COLL 515. High-resolution single molecule force spectroscopy using carbon nanotubes in an optical tweezer. **D.J. Jackson**, M. Kamenetska

9:30 COLL 516. Architecting corrosion-resistant alloys through nanoscale morphology. **A. Smith**, Y. Balogun, X. Ye

9:50 COLL 517. Informing nanocrystal synthesis *via* correlated atomic structure and single nanocrystal photophysics. **J.R. McBride**, K. Reid, S.J. Rosenthal

10:10 COLL 518. Single-crystal electrochemistry reveals why nanowires grow. **B.J. Wiley**

10:30 COLL 519. *In-situ* measuring the electronic structure of nanocrystal thin films using energy-resolved electrochemical impedance spectroscopy. **S. Volk**, N. Yazdani, O. Yarema, M. Yarema, V. Wood

10:50 COLL 520. Submolecular resolution spectroscopic imaging for photoactive molecules and assemblies. **S. Wang**, N. Chiang, N. Wattanatorn, P.S. Weiss

11:10 COLL 521. Field effect transparency of 2D materials: A multiscale analysis. **T. Tian**, P. Rice, E.J. Santos, C. Shih

11:30 COLL 522. Contact resistance of carbon nanotubes in vertically aligned carbon nanotube forest. **M. Li**, N. Yang, V. Wood, H. Park

Boston Convention & Exhibition Center
Room 157C

Basic Research in Colloids, Surfactants & Nanomaterials

Nano-Bio Interactions

R. Nagarajan, *Organizer*
K. Hamad-Schifferli, *Presiding*

8:30 COLL 523. Semiconductor nanoplatelets: A new class of ultrabright and biocompatible probes for biological applications. **D. Kechkeche**

8:50 COLL 524. Fluorescent nanoparticle sensor for hormones based on a native microbial transcription factor. **C. Grazon**, T. Nguyen, R.C. Baer, U. Kuzmanovic, M. Chern, M. Chen, M. Zamani, A. Fan, X. Zhang, S. Lecommandoux, C. Klapperich, A.M. Dennis, M.W. Grinstaff, J. Galagan

9:10 COLL 525. Integrated multifunctional nanoplatform based on superparamagnetism and near-infrared to near-infrared photoluminescence for deep-tissue dual-mode imaging. **F. Yang**, A. Skripka, A. Benayas, X. Dong, S. Hong, F. Ren, J. Oh, X. Liu, F. Vetrone, D. Ma

9:30 COLL 526. Antifouling zwitterionic quantum dot surface chemistry: Impact on intracellular diffusion. **N. Lequeux**, T. Pons, M. Dahan, E. Balloul, M. Debayle

9:50 COLL 527. Probing bio-nano interactions with colloidal poly(ethylene glycol) particles. **J. Cui**

10:10 COLL 528. Life and death in a bacterial biofilm under antibiotic attack characterized by fluorescence and atomic force microscopy. **C.B. Volle**, H. Greer, K. Overton, M. Nunez, M.A. Ferguson, E.M. Spain

10:30 COLL 529. Developing gold nanoparticles for inhibiting cancer metastasis. **Y. Wu**, M.R. Ali, M.A. El-Sayed

10:50 COLL 530. Biofragment responsive diffraction grid sensor: Using specific binding molecule conjugated hydrogel. **W.S. Jinn**, B. Kang, M. Shin, S. Oh, B. Mun, S. Haam

11:10 COLL 531. Investigation of nanoscale interfacial interaction of amyloid beta peptide. **K. Yokoyama**

11:30 COLL 532. Temperature-controlled adhesion of bacteria and lectins to carbohydrate presenting microgel films. **T.J. Paul**, C. Spormann, P. Watermann, S. Rübel, T.K. Lindhorst, S. Schmidt

11:50 COLL 533. Ethylenediamine-based betaine structure switches the neutral net charge of polyzwitterion into cationic at tumorous pH toward effective tumor accumulation of the coated nanomaterials. **H. Takemoto**, A. Ranneh, T. Nomoto, M. Matsui, K. Tomoda, N. Nishiyama

Section G

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

Immunotherapy & Transport

Z. Gu, G. Han, Z. Wang, *Organizers*
J. Xie, J. Zheng, *Organizers, Presiding*

8:30 COLL 534. Peptide nucleic acid-lipid nanodiscs for delivery of STING agonists in the tumor microenvironment. **D.J. Irvine**

9:00 COLL 535. Nanomedicine approaches to improve cancer immunotherapy. **A.Z. Wang**

9:30 COLL 536. Immunomodulation *in vivo* through direct cytosolic delivery of siRNA to macrophages. **J. Hardie**, Y. Jiang, Y. Liu, M. Ray, X. Luo, R. Das, R. Landis, M.E. Farkas, V.M. Rotello

9:50 COLL 537. Immunostimulatory dual-functional nanocarriers that improve cancer immunochemotherapy. **S. Li**

10:20 COLL 538. Polymers and polymer assemblies with inherent pharmacologic activity to target chemokine networks in the treatment of metastatic cancer. **D. Oupicky**

10:50 COLL 539. Protein engineering to modulate the immunostasis mediated by the PD-1 immune checkpoint. **M. Chen**, P. Zhao, S. Dong, P. Wang

11:10 COLL 540. Bio-responsive materials for improving iron chelation therapy. **M. Xiong**

11:40 COLL 541. Surface modified nanoparticles for photoimmunotherapy and X-ray induced photodynamic therapy. **J. Xie**, Z. Zhen, S. Zhou, H. Chen, W. Zhang

12:10 COLL 542. Dose dependencies and biocompatibility of renal clearable gold nanoparticles: From mice to non-human primates. **J. Xu**, M. Yu, C. Peng, J. Zheng

Section H

Boston Convention & Exhibition Center
Room 160A

Synthetic Self-Assembled Systems for Drug & Nucleic Acid Delivery: New Materials, Formulation Strategies, Targeting, Toxicity & Regulatory Issues

K. Sakurai, *Organizer*

M. A. Ilies, *Organizer, Presiding*

8:30 COLL 543. Design of lipid-protein conjugate with a self-assembling ability on a cell membrane by using microbial transglutaminase reaction. **M. Takahara**, R. Wakabayashi, K. Minamihata, M. Goto, N. Kamiya

9:00 COLL 544. Synthetic phospholipids: A versatile molecular platform to design cationic amphiphiles used for nucleic acid delivery. **P. Jaffres**, M. Berchel, A. Bouraoui, O. Lozach, T.L. Gall, T. Montier

9:30 COLL 545. Chain length and headgroup dependence of phase separation in mixed vesicles of DiA and phosphatidyl choline. S. Bandegi, M.A. Ilies, **S.L. Wunder**

10:00 Intermission.

10:15 COLL 546. Advances in peptide delivery: Hydrophobic ion pairing in SEDDS for solubilization, protection, and enhanced delivery of oral peptides. **V. Jannin**, A. Bernkop-Schnürch

10:45 COLL 547. Highly stable, ultrasmall liposomes with stimuli-responsive drug-release capability for cancer therapy. **B. Hong**, A. Iscen, G.C. Schatz, S.T. Nguyen

11:15 COLL 548. Use of atomistic molecular dynamics simulations for *in silico* self-assembly of nanoparticles: Opportunities and limitations. **B.I. Iorga**, E. Selwa

Section I

Boston Convention & Exhibition Center
Room 160B

Basic Research in Colloids, Surfactants & Nanomaterials

Surfaces & Interfaces

R. Nagarajan, *Organizer*
J. Frechette, *Presiding*

8:30 COLL 549. Molecular dynamics simulations of hydrophobins near gas, oil and water interfaces. **A. Vodopivec**, Y. Chen, P.S. Russo, F.R. Hung

8:50 COLL 550. High-throughput wettability screening of formulations and surfaces. **T. Kuo**, A.A. Lucio, H. Wiles, B. Orvosh, D. Hayes

9:10 COLL 551. Competitive adsorption between nanoparticles and surfactants at the oil-water interface. **J. Frechette**

9:30 COLL 552. Elasticity and failure of liquid marbles: Influence of particle coating and marble volume. **A. Rendos**, N. Alsharif, B.L. Kim, K. Brown

9:50 COLL 553. Isobaric vapor–liquid phase diagrams of multicomponent systems with nanoscale interfacial curvature. N. Shardt, **J.A. Elliott**

10:10 COLL 554. Photoresponsive systems based on molecular motors. **J. Cheng**, B. Feringa

10:30 COLL 555. Spirals from drops. **S. McBride**, R. Skye, S. Khan, S. Dash, K. Varanasi

10:50 COLL 556. Molecular dynamic simulation of molecules diffusion on tracks and nanoparticles. **Y. Han**, P. Kral

11:10 COLL 557. Surface tension measurements of model and nascent sea spray aerosol particles using atomic force microscopy. **H. Lee**, K.K. Ray, V.H. Grassian, A.V. Tivanski

11:30 COLL 558. Experimental framework for understanding intermolecular interactions in carbon dioxide-water mixtures for EOR and storage. **R. Sharma**, Q.K. Elias, T.S. Ramakrishnan

11:50 COLL 559. Exploring new avenues of particle charging in apolar media. **B. Ponto**, J.C. Berg

Technical Developments & Applications of Optical Chemical Imaging

Sponsored by ANYL, Cosponsored by BIOL[‡], COLL and PHYS[‡]

Structure & Function of 2D Materials

Sponsored by ANYL, Cosponsored by COLL and PHYS

Surface, Interface & Coating Materials

Emerging Surface & Coating Materials

Sponsored by PMSE, Cosponsored by COLL and POLY

TUESDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 152

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

Cosponsored by PROF
R. Nagarajan, *Organizer*
E. Borguet, *Presiding*

2:00 Introduction of Langmuir Lecturer.

2:05 COLL 560. Directing colloid motion in nematic liquid crystals near wavy boundaries. **K.J. Stebe**

2:50 Introduction of Langmuir Lecturer.

2:55 COLL 561. Field-driven assembly, manipulation, and propulsion of dynamic structures made of particles. **O.D. Velev**

3:40 Introduction of NanoLetters Lecturer.

3:45 COLL 562. Nanostructured functional hydrogels as an emerging platform for renewable energy and environmental technologies. **G. Yu**

4:30 Introduction of AMI Lecturer.

4:35 COLL 563. Probing and understanding interfaces and interphases in electrochemical energy storage systems. **S. Meng**

Structure & Function of 2D Materials

Sponsored by ANYL, Cosponsored by COLL and PHYS

Surface, Interface & Coating Materials

Smart & Responsive Coatings

Sponsored by PMSE, Cosponsored by COLL and POLY

WEDNESDAY MORNING

Boston Convention & Exhibition Center
Room 152

Biomaterials & Biointerfaces

V. Gordon, *Organizer*

A. P. Goodwin, *Organizer, Presiding*

8:30 COLL 564. On demand release of bacteria from microwell arrays. **A. van der Vlies**, N. Barua, P. Guzman, T.G. Platt, R.R. Hansen

8:50 COLL 565. Degradation of protein coronas when exposed to the proteolytic environment of the pancreatic ductal adenocarcinoma cell line PANC1. **C. Rodriguez-Quijada**, H. de Puig, M. Sánchez-Purrà, C. Yelleswarapu, J. Celli, K. Hamad-Schifferli

9:10 COLL 566. Biological identity and receptors recognition of graphene nanoflakes dispersions. **V. Castagnola**, L. Boselli, M. Lo Giudice, F. Alnasser, k. dawson

9:30 COLL 567. Supported lipid bilayer microfluidics for gene delivery. **J.N. Belling**, J.A. Jackman, L.K. Heidenreich, L.M. Kawakami, T.D. Young, L. Scarabelli, C. Zhao, N. Cho, S.J. Jonas, P.S. Weiss

9:50 COLL 568. Layer-by-layer nanoparticles for cytokine delivery against cancer. **A. Barberio**, S. Correa, E.C. Dreaden, T. Tokatlian, M. Melo, D.J. Irvine, P.T. Hammond

10:10 Intermission.

10:30 COLL 569. Tuning non-covalent interactions for multiple cargo encapsulation inside P22 VLPs. **H. Waghvani**, C. Fu, J. Johnson, T. Douglas, M. Uchida

10:50 COLL 570. OBP fused with cell-penetrating and anchor peptides promotes liposomal transduction of 1-aminoanthracene. **F. Gonçalves**, T.G. Castro, E. Nogueira, R. Pires, R. Reis, C. Silva, A. Ribeiro, A. Cavaco-Paulo

11:10 COLL 571. Enhancement of Cas9 RNP delivery using a small molecule caged surfactant. **J. Roese**, J. Li, A. Taing, L. Chan, K. Thakker, N. Murthy

11:30 COLL 572. Sugar-grafted cyclodextrin as drug carrier for intravesical therapy for bladder cancer. M. Li, E. Kang, E. Chiong, **K. Neoh**

Section B

Boston Convention & Exhibition Center
Room 153A

Toward Atomic Precision in Controlling the Low Dimensional Materials

G. Chen, R. Jin, G. Wang, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 573. Photochemical synthesis and photocatalysis with atomically precise metal clusters. **K. Stamplecoskie**

9:15 COLL 574. Catalytic hydrogenation of nitriles over atomically precise nickel clusters with a double-crown anatomy. **Y. Zhu**

9:55 COLL 575. Defect-associated adsorption of monoethanolamine on TiO₂(110) surface: From single molecules to a monolayer. **S. Sohn**, S. Kim, S. Kwak, H. Shin

10:15 Intermission.

10:45 COLL 576. Aggregation/self-assembled approach for efficient AuAg bimetallic nanocluster-based photosensitizers. **H. Kawasaki**, D. Hikosou, S. Saita

11:25 COLL 577. Addressing the isomer cataloging problem for nanopores in two-dimensional lattices. **A. Govind Rajan**, K. Silmore, J. Swett, D. Blankschtein, M. Strano

11:45 COLL 578. Towards the understanding and engineering of the asymmetric electric field screening in van der Waals heterostructures. L. Li, **T. Tian**, Q. Cai, C. Shih, E.J. Santos

Section C

Boston Convention & Exhibition Center
Room 156C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Photo- & Electro-Nanocatalysis

H. Fan, J. He, Y. Sun, *Organizers*
J. Zhao, *Presiding*

8:30 COLL 579. Self-assembly of anisotropic nanocrystals and their transformations under high pressure. **O. Chen**

9:00 COLL 580. Silicon nanowires as an effective photoelectrode for solar-driven CO₂ reduction applications. **D. Wang**, W. Li, D. He, G. Li

9:30 COLL 581. Promoting effect of Ni(OH)₂ on Pt/Pd for electrocatalytic alcohol oxidation reaction. **Y. Li**

10:00 Intermission.

10:15 COLL 582. Synthesis of hollow multimetallic nanoparticles as photo and electrochemical catalysts. **J. Zhao**, S. Chen, S. Thota, Y. Wang

10:45 COLL 583. Increasing the productivity of electrosynthesis with flow-through nanowire electrodes. **B.J. Wiley**

11:15 COLL 584. Multi-shelled metal oxides hollow materials: Synthetic chemistry and applications. **D. Wang**

11:45 COLL 585. Cu-based hybrid nanocrystals for electrochemical CO₂ conversion. **R. Buonsanti**

Section D

Boston Convention & Exhibition Center
Room 157A

Basic Research in Colloids, Surfactants & Nanomaterials

Surfactant Systems

R. Nagarajan, *Organizer*

Z. Niroobakhsh, *Presiding*

8:30 COLL 586. Spherical micelle transition behaviors at different composition of calix[4]arene by the electrostatic interaction. **J. Lee**, S. Fujii, R. Takahashi, K. Sakurai

8:50 COLL 587. Effect of tail terminal trimethyl silyl groups on interfacial properties and aggregation behavior of surfactants. **M. Sagisaka**, K. Fujita, T. Endo, T. Narumi, A. Yoshizawa, A. Czajka, J. Eastoe

9:10 COLL 588. Phase behavior of a stabilized surfactant/fatty acid self-assembly material. **Z. Niroobakhsh**, R. Hickey, A. Belmonte

9:30 COLL 589. Switchable photoacoustic effect due to micellization of sodium dodecyl sulfate with methylene blue. **J. Wang**, C. Lin, J.V. Jokerst

9:50 COLL 590. Magnetic surfactants as a versatile tool for functional materials design. **A. Pasc**

10:10 COLL 591. Monodispersity of the micelles composed of polyethylene glycol (PEG)-attached surfactants: Platonic micelles in conventional micelle system. **H. Matsumoto**, S. Fujii, R. Takahashi, K. Sakurai

10:30 COLL 592. Structural and rheological properties of micelles in a shear flow. **B. O Conchuir**, R.L. Anderson, M.A. Johnston

10:50 COLL 593. Formation of ultra-uniform micelles via morphological evolution during a chemical reaction. **W.R. Lindemann**, J. Tian, J. Ortony

11:10 COLL 594. Branched pseudo-oligomeric cationic surfactant in organic media. **M.A. Walters**, B. Jin, L. Vogt-Maranto, A. Velasquez

11:30 COLL 595. Platonic micelles part 1: Monodisperse micelles in the system of reverse micelles. **S. Fujii**, R. Miyake, J. Lee, R. Takahashi, K. Sakurai

11:50 COLL 596. Platonic micelles part 2: Kinetic consideration of the micelles with the discrete aggregation numbers and mono-dispersity. K. Sakurai, R. Takahashi, J. Lee, **S. Fujii**

Section E

Boston Convention & Exhibition Center
Room 157B

Nanomaterials

J. A. Hollingsworth, R. Nagarajan, *Organizers*
A. Singh, *Presiding*

8:30 COLL 597. Protein-like polymers as peptide, small molecule and protein delivery agents to cells and tissues. **N.C. Gianneschi**

9:00 COLL 598. Bioelectronics communication: Encoding regulatory responses using nanostructured semiconductor thin films. **A. Ivanisevic**

9:30 COLL 599. Interfacial chemistry of biomimetic asymmetric nanochannels. **L. Wen**

10:10 COLL 600. Concentric Nd(III)-sensitized core-shell upconversion nanoparticles for excitation with a biobenevolent wavelength. **C. Arboleda**, S. He, A. Stubelius, N. Johnson, A. Almutairi

10:30 COLL 601. Target-specific glucose-conjugated gold nanoclusters as fluorescent probes for quantitative analysis of glucose metabolic cleavage in glucose transporters overexpressed cancer cells. **T. Kuo**, X. Pan, T. Chang, K. Chen, J. Kuo, S. Tan

10:50 COLL 602. Eradication of multidrug-resistant bacteria by DNA-encapsulated two-dimensional transition metal dichalcogenides. **A. Debnath**, S. Saha, A. Yousaf, A. Green

11:10 COLL 603. Excellent activity of biocompatible transition metal dichalcogenide nanosheets for scavenging reactive oxygen species. **D. Yim**, J. Kim, H. Kim, J. Yang, T. Kang, S. Yoo, J. Kim

11:30 COLL 604. Identification of dynamic domains for ligand on monolayer-grafted nanoparticles and their implications for bio-interactions. **D. Hristov**, H. Lopez, Y. Ortin, K. O'Sullivan, K. Hamad-Schifferli, K.A. Dawson, D. Brougham

11:50 COLL 605. Targeting bacteria with nanoantibiotics. **M. Yan**

Boston Convention & Exhibition Center
Room 157C

Basic Research in Colloids, Surfactants & Nanomaterials

Nano-Bio Interactions

R. Nagarajan, *Organizer*

K. Burns, K. Hamad-Schifferli, *Presiding*

8:30 COLL 606. Atomistic modeling of nanoparticles nanomedicines: From protein corona to bio-activity. **P. Kral**

9:00 COLL 607. Biocompatible nanoprobe based on functionalized single-walled carbon nanotubes for the targeted imaging of prostate cancer cells. **F. Cortezon-Tamarit**, V. Mirabello, H. Ge, S. Pascu

9:20 COLL 608. Polymer corona phase on single walled carbon nanotubes as an artificial molecular recognition site for real-time small therapeutic detection. **J. Dong**, M. Strano

9:40 COLL 609. Effects of surface atom coordination on protein-nanoparticle interactions. **Z. Xia**, E. Villarreal, H. Wang, B. Lau

10:00 COLL 610. Polymeric surface chemistry for quantum dot-based pH imaging. **M. Debayle**, N. Lequeux, T. Pons

10:20 COLL 611. Cellular delivery of doxorubicin mediated by disulfide reduction of a peptide-dendrimer bioconjugate. **K. Burns**, J. Delehanty

10:40 COLL 612. Flexible ultrathin graphene microstructures for 3D biosensing. **W. Xu**, J. Pagaduan, Q. Huang, D.H. Gracias

11:00 COLL 613. Ligand mediated exchange of oxidation state dependent ROS scavenging activity of cerium oxide nanoparticles. V. Patel, **A. Karakoti**

11:20 COLL 614. New method for quantifying low-energy electron emission from clinically relevant nanoparticles. **L. Cramer**, B.P. Coughlin, S. Kunjachan, O. Tillement, R. Berbeco, E.H. Sykes

11:40 COLL 615. Targeted perfluorocarbon nanoparticles for disclosing critical information of lung cancer. **L. Wu**, X. Xu, J. Ping, Y. Li, K. Wang, B. Shen

Section G

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

New Formulations

Z. Gu, Z. Wang, J. Xie, *Organizers*
G. Han, J. Zheng, *Organizers, Presiding*

8:30 COLL 616. Development of a dexamethasone prodrug (ZSJ-0228) micelle formulation for effective and safe treatment of lupus nephritis. Z. Jia, X. Wang, X. Wei, G. Zhao, K.W. Foster, F. Qiu, Y. Gao, F. Yuan, F. Yu, G.M. Thiele, T.K. Bronich, J.R. O'Dell, **D. Wang**

9:00 COLL 617. Polymeric nanomedicine: Nanoproperty synchronization. **Y. Shen**, Z. Zhou

9:30 COLL 618. Biomimetic polymer-based self-assembled nanomedicine. **S. Lecommandoux**

9:50 COLL 619. Elevated levels of hydrogen peroxide in mesenchymal-like cancer cells can selectively trigger the dissolution of silver nanoparticles. **R. Singh**

10:20 COLL 620. Bio-inspired nanoparticle-based transcription factor to control stem cell fate and function. **K. Lee**

10:50 COLL 621. Formulation of dual component solid drug nanoparticles for improved oral bioavailability of Darunavir and Ritonavir. **A.C. Savage**, S.J. Ashcroft, H. Box, J. Sharp, M. Neary, A. Owen, S. Rannard

11:10 COLL 622. Structural DNA nanotechnology: Complex self-assembly and biomedical applications. **Y. Ke**

11:40 COLL 623. Dynamic topographical structure: A new parameter for designing nanomedicine. **H. Cheng**, H. Zhou, Z. Fan, P.Y. Li

12:10 COLL 624. Structurally modulated codelivery of siRNA and Argonaute 2 for enhanced RNA interference. **J. Li**, C. Wu, W. Wang, Y. He, P.T. Hammond

Section H

Boston Convention & Exhibition Center
Room 160A

Synthetic Self-Assembled Systems for Drug & Nucleic Acid Delivery: New Materials, Formulation Strategies, Targeting, Toxicity & Regulatory Issues

M. A. Ilies, *Organizer*

K. Sakurai, *Organizer, Presiding*

8:30 COLL 625. Physicochemical properties of self-assembled cyclodextrin nanoparticles and their application in drug delivery. **T. Loftsson**

9:00 COLL 626. Combination loading of doxorubicin and resveratrol in polycaprolactone polymeric micelles. **M.C. Stefan**, K. Washington, R. Kularatne, P. Soltantabar, E.J. Calubaquib, M.C. Biewer

9:30 COLL 627. Self-assembled block copolymer micelles with tuned hydrolytic stability as efficient docetaxel delivery systems for breast cancer therapy. **U. Satyal**, V.D. Sharma, H. Hensley, M.A. Ilies

10:00 Intermission.

10:15 COLL 628. How to increase micelle loading by manipulating the preparation approach for frozen block copolymer micelles? A theoretical view. **R. Nagarajan**

10:45 COLL 629. Stabilizing colloidal drug aggregates for drug-rich nanoparticle formulations. **A. Ganesh**, J. Logie, C. McLaughlin, B. Shoichet, M.S. Shoichet

11:15 COLL 630. Rapid recovery of clofazimine nanoparticles with long-term storage stability as anti-cryptosporidium therapy. **J. Feng**, Y. Zhang, S. McManus, K. Ristroph, H. Lu, K. Gong, C. White, R.K. Prudhomme

Section I

Boston Convention & Exhibition Center
Room 160B

Surface Chemistry

Nanoparticle Surfaces & Atomic Layer Deposition

S. L. Tait, *Organizer*

Y. Chen, *Presiding*

8:30 COLL 631. NMR analysis of ligand environments on gold nanoparticles: The effect of surface curvature and ligand binding modes. **M. Wu**, C.J. Murphy

8:50 COLL 632. Dynamics and morphology of polymer-modified nanoparticle elucidated by NMR spectroscopy. Y. Zhang, **C.G. Fry**, J.A. Pedersen, R.J. Hamers

9:10 COLL 633. Optical evaluation of gold nanostars on polymer mats for uranyl detection. **H.T. Phan**, A.J. Haes

9:30 COLL 634. Light-enabled reversible self-assembly and tunable optical properties of stable hairy nanoparticles. **Y. Chen**, Z. Lin

9:50 COLL 635. Synthesis of bifunctional NHC-CO₂ adducts for SERS-based sensing on gold. **J.F. DeJesus**, M.J. Trujillo, J.P. Camden, D.M. Jenkins

10:10 Intermission.

10:30 COLL 636. Epitaxial, ultra-thin Au coating as a barrier for oxidation damages for silver nanowires. **Y. Zhu**

10:50 COLL 637. Colloidal particle assisted fabrication of self-cleaning ordered ZnO nanostructures for enhanced room temperature gas sensing by light trapping mechanism. **P. Chakrabarty**, M. Banik, S. Santra, N. Gogurla, S. Ray, R. Mukherjee

11:10 COLL 638. Small size Si precursor inhibitors for area-selective atomic layer deposition. **B. Ko**, M. Khan, J. Lee, B. Shong, W. Kim, H. Lee

11:30 COLL 639. Nanoscale structuring of surfaces by using atomic layer deposition: Controlled synthesis of nanocavities. **C. Hess**, P. Ruff

11:50 COLL 640. TiN etching in the semiconductor industry: Effects of material deposition and etch compositions. **J. Hoogboom**, A. Klipp, L. Amundson

Functional Materials from Biopolymer Self-Assembly & Self-Organization

Sponsored by CELL, Cosponsored by CARB, COLL, ENVR and POLY

Molecular Interactions of Synthetic Nanoparticles with Membranes

Sponsored by ANYL, Cosponsored by COLL and PHYS

Surface, Interface & Coating Materials

Functional Surface & Coatings

Sponsored by PMSE, Cosponsored by COLL and POLY

WEDNESDAY AFTERNOON

Section A

Boston Convention & Exhibition Center
Room 152

Biomaterials & Biointerfaces

V. Gordon, *Organizer*

A. P. Goodwin, *Organizer, Presiding*

2:00 COLL 641. Probing antimicrobial peptide/lipid A membrane interactions using single-molecule dynamics. **N. Nelson**, D.K. Schwartz

2:20 COLL 642. Analysis of fluorescence recovery after photobleaching for freestanding lipid membrane over SiO₂ microwells. **A. Oshima**, H. Nakashima, K. Sumitomo

2:40 COLL 643. Towards realistic large area cell membrane mimics: Excluding oil, controlling composition and including ion channels. **P.J. Beltramo**, L. Scheidegger, J. Vermant

3:00 COLL 644. Investigating the interactions of menaquinones with common phospholipids using Langmuir monolayers. B.J. Peters, C. Van Cleave, A. Haase, J.T. Koehn, K. Werst, D. Crick, **D.C. Crans**

3:20 COLL 645. Controlling receptor recycling using engineered ligands. **A. Trementozi**, A.C. DeGroot, C. Zhao, J. Stachowiak

3:40 Intermission.

4:00 COLL 646. Neutron reflectometry reveals structural aspects of blood protein and antibody adsorption to polymer brushes. **V.M. Latza**, I. Rodriguez Loureiro, I. Kiesel, A. Halperin, G. Fragneto, E. Schneck

4:20 COLL 647. Label-free direct visualization of multivalent binding of cartilage oligomeric matrix protein and bone morphogenetic protein-2. **V. Tran**, A. Karsai, M. Fong, Q. Yang, J. Yik, D. Haudenschild, G. Liu

4:40 COLL 648. Single molecule level studies of enzyme-ligand interactions using molecular recognition atomic force spectroscopy. **T.I. Lansakara**, H. Morris, P. Singh, A. Kohen, A.V. Tivanski

5:00 COLL 649. Surface-enhanced Raman spectroscopy of fluid supported lipid bilayers on silica-coated silver film over nanosphere structures. **I. Bruzas**, L. Sagle

5:20 Concluding Remarks.

Section B

Boston Convention & Exhibition Center
Room 153A

Toward Atomic Precision in Controlling the Low Dimensional Materials

G. Chen, R. Jin, G. Wang, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 COLL 650. Near infrared electrochemiluminescence of Au nanoclusters: Solution sensing and surface assays. **G. Wang**, T. Wang, H. Ma, S. Chen

2:45 COLL 651. Luminescent group IB alloy metal nanoclusters with atomic precision. **H. Yu**, M. Zhu

3:25 Intermission.

3:55 COLL 652. Single molecule conductance of ferrocene on gold. **M. Kamenetska**

4:15 COLL 653. Discovery of biomaterials by simulation and experiment: Molecular recognition, assembly, applications. **H. Heinz**

4:45 COLL 654. Controlled dopant speciation of dopants in CdS-based nanoclusters. **K.R. Kittilstved**

Section C

Boston Convention & Exhibition Center
Room 156C

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Characterization of Nanocatalysts

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

2:00 COLL 655. Probing phase evolution of metal oxide nanomaterials in batteries. **D. Su**

2:30 COLL 656. Nano catalyst with enhanced activity and stability. **T. Li**

3:00 COLL 657. Watching single nanocrystal transformations with fluorescence microscopy. **B. Sadtler**, B. Yin

3:30 Intermission.

3:45 COLL 658. Partially poisoned Pd nanoparticles for selective hydrogenation and/or isomerization of olefins. M. Mahdaly, K.M. Vargas, **Y. Shon**

4:15 COLL 659. *In-situ* visualization of plasmon-induced hydrogenation reactions in individual palladium nanocubes. **M. Vadai**, D.K. Angell, F. hayee, K. Sytwu, J.A. Dionne

4:35 COLL 660. Superiorly active and selective Au nanocatalysts supported on nitrated carbon for electrocatalytic CO₂ reduction. **L. Jin**, B. Liu, P. Wang, H. Yao, L. Achola, P. Kerns, A. Lopes, Y. Yang, J. Ho, A. Moewes, Y. Pei, J. He

4:55 COLL 661. Plasmonic photocatalytic silver nanoparticles for hydrogenation and oxidation reactions. **A. Gelle**, M. Landry, A.H. Moores

5:15 COLL 662. Colloidal synthesis of noble metal nanostructures with unusual crystal phase. **Y. Chen**, Z. Fan, H. Zhang

Section D

Boston Convention & Exhibition Center
Room 157A

Basic Research in Colloids, Surfactants & Nanomaterials

Lipids, Peptides & Proteins

R. Nagarajan, *Organizer*

T. Wei, *Presiding*

2:00 COLL 663. Equilibrium and transport distributions of DNA in hydrophilic nanotubes. **F. Cruz**, J. Mota

2:20 COLL 664. Understanding and characterizing lipid bilayer dynamics by vibrational sum frequency generation spectroscopy. **A. Chowdhury**, F. Liu, M. Phan, F. Heberle, J. Katsaras, C.P. Collier, Y. Ma, B. Doughty

2:40 COLL 665. Peptide-grafted gold nanoparticles studied with ReaxFF MD simulations. **T. Wei**

3:00 COLL 666. Bovine serum albumin protein surface properties in the presence of polymers or surfactants. **A. Erfani**, S. Khosharay, N.H. Flynn, J.D. Ramsey, C. Aichele

3:20 COLL 667. Adsorption orientation of amyloidogenic peptides over nano-gold colloidal particles' surfaces. **K. Yokoyama**

3:40 COLL 668. Ionic strength-mediated phase transitions of surface-adsorbed DNA on single-walled carbon nanotubes. **D. Salem**, X. Gong, A. Liu, V. Koman, J. Dong, M. Strano

4:00 COLL 669. Flavin self-assemblies towards chiral enrichment of single-walled carbon nanotubes. **E. Karunaratne**, M. Mollahosseini, F. Papadimitrakopoulos

4:20 COLL 670. Effects of β -sitosteryl sulfate on the phase behavior and hydration properties of phospholipids. **H. Sakai**, K. Ananda, M. Akamatsu, K. Sakai, C. Kaise, T. Kaneko

4:40 COLL 671. Direct measurement of metal ion binding to ionophores in lipid bilayers by affinity chromatography. **E.E. Ross**

5:00 COLL 672. Entropy-driven self-assembly of protein 2D liquid crystal at solid-liquid interface. **S. Zhang**, H. Pyles, D. Baker, J.J. DeYoreo

5:20 COLL 673. Mechanistic investigation of methylene blue and heparin interaction in phosphate buffer saline. **J. Wang**, K. Humphries, B. Miller, J.V. Jokerst

Section E

Boston Convention & Exhibition Center
Room 157B

Nanomaterials

J. A. Hollingsworth, R. Nagarajan, *Organizers*
A. Ivanisevic, *Presiding*

2:00 COLL 674. Dendritic effect and magnetic permeability in dendronized magnetic nanoparticles. **J.D. Lee**, D. Jishkariani, H. Yun, T. Paik, J.M. Kikkawa, C.R. Kagan, B. Donnio, C.B. Murray

2:20 COLL 675. Ligand-mediated near-infrared photoluminescence of small diameter copper, silver, and gold nanoparticles. **S. Crawford**, C.M. Andolina, A. Smith, K. Johnston, L. Marbella, P. Straney, J. Millstone

2:40 COLL 676. NHC-capped polymers for surface functionalization of metal nanoparticles in aqueous solution. **S. Thanneeru**, K. Ayers, M. Anuganti, L. Jin, L. Zhang, G. Ung, J. He

3:00 COLL 677. Surface modification of carbon-based material with terminal alkene ligands using radical coupling reactions. **Y. Zhang**, R.J. Hamers

3:20 COLL 678. Chiro-magnetic nanoparticles and gels. **J. Yeom**, U. Santos, M. Chekini, M. Cha, A. de Moura, N. Kotov

3:40 COLL 679. Setting carriers free – healing faulty interfaces promotes delocalization and transport in nanocrystal solids. **W. Walravens**, N. Mahmoud, F. Geenen, E. Solano, J. Dendooven, A. Tadjine, C. Delerue, G. Roelkens, C. Detavernier, Z. Hens

4:00 COLL 680. Wavefunction engineering in CdSe/PbS core/shell heterostructures. **B.M. Wieliczka**, W.E. Buhro, R.A. Loomis

4:20 COLL 681. Colloidal synthesis and photophysical characterization of SiGeSn alloy quantum dots. **E. Eladgham**, U. Ozgur, D.O. Demchenko, I.U. Arachchige

4:40 COLL 682. Synthesis of quaternary Cu-Zn-In-S nanocrystals and photovoltaic characteristics. **R.D. Rajapaksha**, M.I. Ranasinghe

5:00 COLL 683. Kinetically controlled aggregation and growth, a pathway for synthesis simple-branched to hyperbranched NCs. **M. Yazdanparast**

5:20 COLL 684. Autonomous thermal-oxidative composition inversion (TOCI) and texture tuning in liquid metal particles. J. Cutinho, B.S. Chang, I.D. Tevis, **M.M. Thuo**

Section F

Boston Convention & Exhibition Center
Room 157C

Basic Research in Colloids, Surfactants & Nanomaterials

Nano-Bio Interactions

R. Nagarajan, *Organizer*

T. Pons, *Presiding*

2:00 COLL 685. MnO₂ and MoS₂ nano-knives exhibit antibacterial properties. F. Alimohammadi, **M. Sharifian Gh.**, N.H. Attanayake, A. Thenuwara, Y. Gogotsi, B. Anasori, D.R. Strongin

2:20 COLL 686. Time-gated fluorescence imaging and sensing using long lifetime near infrared quantum dots. M. Debayle, N. Lequeux, V. Lorient, a. Fragola, **T. Pons**

2:40 COLL 687. Glycosylated gold nanoparticle biosensors: Detection of toxins, bacteria and viruses. **S. Richards**, M.I. Gibson

3:00 COLL 688. Gold nanoparticle radiosensitization of synchronized cell populations. **B.P. Coughlin**, P.T. Lawrence, E.H. Sykes, C. Mace

3:20 COLL 689. Engineered nanozymes to catalyze site-specific bioorthogonal reactions for imaging and therapeutic applications. **R. Das**, A. Gupta, G.Y. Tonga, R.F. Landis, T. Mizuhara, V.M. Rotello

3:40 COLL 690. Electric field sensitive upconverting nanoparticles: Toward background free *in vivo* action potential imaging. **R. Mehlenbacher**, C. Siefe, A. Lay, J.A. Dionne

4:00 COLL 691. Gold nanoparticle-polyplex electroporation in the enhancement of nucleic acid delivery. S. Huang, X. Liu, **S. Wang**

4:20 COLL 692. High content analysis (HCA) of nanoparticle uptake by mammalian cells and their effects on motility, proliferation and viability. **A. Pallaoro**, W.H. Dragowska, B.D. Gates, D.T. Yapp

4:40 COLL 693. UV-visible spectroscopy-based quantification of biomolecules bound to nanoparticles. **B.L. Baldock**, J.E. Hutchison

5:00 COLL 694. Understanding the interfacial events of stimuli responsive nanomaterials for the treatment of bacterial infection. **D. Bagchi**, S. Pal

5:20 COLL 695. Biodegradable nanocomposite antimicrobials for the eradication of multidrug-resistant bacterial biofilms without accumulated resistance. **C. Li**, R. Landis, A. Gupta, Y. Lee, J.M. Makabenta, M. Yazdani, N. Ngernyuang, I. Altinbasak, S. Mansoor, M. Khichi, A. Sanyal, V.M. Rotello

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

Design Considerations

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

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

2:00 COLL 696. Development of targeted nanomedicines via machine learning processes. **D.A. Heller**, Y. Shamay, J. Shah, M. Isik, J. Budhathoki-Uprety, D. Roxbury, R. Sridharan, J.D. Chodera, S.W. Lowe

2:30 COLL 697. Genetically encoded acousto-magnetic protein nanostructures for non-invasive imaging of cellular functions. **G.J. Lu**, A. Farhadi, J.O. Szablowski, A. Lee-Gosselin, S.R. Barnes, A. Lakshmanan, R.W. Bourdeau, M.G. Shapiro

3:00 COLL 698. Photothermal intracellular delivery using large-area Au nanodisk arrays fabricated by chemical lift-off lithography. **C. Zhao**, T. Man, X. Xu, Q. Yang, W. Liu, S.J. Jonas, M.A. Teitell, A.M. Andrews, P. Chiou, P.S. Weiss

3:20 COLL 699. Rapid sequential *in situ* multiplexing with DNA exchange imaging. **P.L. Yin**

3:50 COLL 700. Small platform enables big change – Nanotech-assisted discovery of novel biomarkers for disease diagnosis. **T. Hu**

4:20 COLL 701. Cartilage penetrating nanocarriers enhance drug delivery and efficacy in osteoarthritis. **B. Geiger**, S. Wang, R.F. Padera, A. Grodzinsky, P.T. Hammond

4:40 COLL 702. Magnetothermal neuromodulation in awake, freely moving animals. R. Munshi, S. Qadri, I. Castellanos-Rubio, **A. Pralle**

5:10 COLL 703. Tuning the scaffolding biionanofiber's structure and surface for electrochemically sensing cancer and normal cells. **Z.R. Tian**, H. Alismail, Y. Du, J. Zhou, J. Koster, P. Cole, L. Mantooth

5:30 COLL 704. Design of quantum dot-protein bioconjugates for extracellular control of intracellular drug release. **L.D. Field**, S. Walper, K. Susumu, G. Lasarte-Aragones, E. Oh, I. Medintz, J. Delehanty

Section H

Boston Convention & Exhibition Center
Room 160A

Synthetic Self-Assembled Systems for Drug & Nucleic Acid Delivery: New Materials, Formulation Strategies, Targeting, Toxicity & Regulatory Issues

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

2:00 COLL 705. Functionalized thin shell microcapsule for targeted delivery and release. **L. Zhang**, J. Didier, H. Wang, D.A. Weitz

2:30 COLL 706. Encapsulation, protection and programmed release of retinol from silicone particles for topical applications. **W. Shields**, J.P. White, E.G. Osta, J. Patel, S. Rajkumar, S. Zauscher

3:00 COLL 707. Specific targeting of ovarian tumor associated macrophages by large, anionic nanoparticles. **J.M. Berlin**

3:30 Intermission.

3:45 COLL 708. Ligand design, synthesis and formulation for gold nanoparticle stabilization, targeting, drug loading and controlled release: towards new multi-ligand targeted nanoplatfoms for doxorubicin delivery. **U.K. Mondal**, A. Shabana, M.R. Alam, T. Spoon, C.A. Ross, M. Muniswamy, C.T. Supuran, M.A. Ilies

4:15 COLL 709. Integration of inorganic nanomaterials within biological systems using a coordinating polymer coating. L. Du, W. Wang, Z. Jin, **H.M. Mattoussi**

4:45 COLL 710. Self-assembled fluorinated quantum dots as a novel delivery platform for enzymes. **C. Carrillo Carrion**, M. Carril, W. Parak

Section I

Boston Convention & Exhibition Center
Room 160B

Surface Chemistry

Self-Assembled Monolayers & Films

S. L. Tait, *Organizer*

M. S. Minkara, L. Xiang, *Presiding*

2:00 COLL 711. Preparation and quantification of various degrees of hydrophobic glass surfaces. **S. Pradhan**, P.K. Bikkina

2:20 COLL 712. Optical characterization of surface adlayers and their compositional demixing at the nanoscale. **L. Xiang**, M. Wojcik, S. Kenny, R. Yan, S. Moon, W. Li, K. Xu

2:40 COLL 713. Development of a self-assembled monolayer that is cleavable under mild conditions for surface-grafted conjugated polymers. **P.M. Lundin**

3:00 COLL 714. Chain-length dependent reactivity of thiolate self-assembled monolayers with atomic gas species. **S. Brown**, J. Sayler, S. Sibener

3:20 COLL 715. Probing curvature effects of surfactant adsorbing onto liquid/vapor interfaces of water using Monte Carlo simulations. **M.S. Minkara**, C.L. Venteicher, J.L. Chen, B. Xue, J.I. Siepmann

3:40 Intermission.

4:00 COLL 716. Electrochemistry and viscoelasticity of DNA self-assembled monolayers conjugated with hexamine metal(III) complexes: Effects of H/D isotope exchange. **G. Flechsig**, S.K. Galagedera

4:20 COLL 717. Antioxidant hydrogen-bonded films of synthetic polyphenol polymers. **R. Hlushko**, S.A. Sukhishvili

4:40 COLL 718. Influence of molecular weight on assembly and surface properties of polyelectrolyte multilayers. E. Towle, I. Ding, **A.M. Peterson**

5:00 COLL 719. Electrochemically triggered surface deposition of polyelectrolytes. **M. Iqbal**, W. Zhan

5:20 COLL 720. Hybrid glasses coatings obtained by electrospray deposition. L. Lei, M. Tenorio, K. Al-Marzoki, J. Guzman, L. Klein, A. Pelegri, J.P. Singer, **A. Jitianu**

Functional Materials from Biopolymer Self-Assembly & Self-Organization

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Molecular Interactions of Synthetic Nanoparticles with Membranes

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Surface, Interface & Coating Materials

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THURSDAY MORNING

Section A

Boston Convention & Exhibition Center
Room 104B

Basic Research in Colloids, Surfactants & Nanomaterials

Colloidal Systems

R. Nagarajan, *Organizer*

K. Sasan, *Presiding*

8:30 COLL 721. High yield synthesis of semiconductor helices through self-assembly of CdTe nanoparticles. **J. Yan**, J. Kim, W. Feng, N. Kotov

8:50 COLL 722. Universal fluorescence enhancement substrate based on multiple heterostructure colloidal photonic crystal with super-wide stopband and highly sensitive Cr(VI) detecting performance. **L. Zhang**

9:10 COLL 723. Structural synergy of shell conformation in p-n heterostructured water-processable semiconducting colloids for ultra-fast and long-term quenching efficiency. **Y. Kim**

9:30 COLL 724. Dual self-assembly of chiro-magnetic cobalt-based supraparticles with rice-like structure. **Z. MU**, N. Kotov

9:50 COLL 725. Adsorption of rhamnolipid biosurfactant and its effect on the aggregation kinetics of iron oxide (Fe₃O₄) nanoparticles in monovalent and divalent electrolyte solutions. **A. Ghosh**, N. Sharma, W. Li, J. Fortner

10:10 COLL 726. Developing 3D-printed optical glasses from sol-gel feedstocks. **K. Sasan**, J.F. Destino, N. Dudukovic, M.A. Johnson, D.T. Nguyen, T.D. Yee, L.L. Wong, A. Lange, T.M. Fears, P. Ehrmann, R. Dylla-Spears

10:30 COLL 727. Study of the phase state and viscoelastic properties of individual substrate deposited model aerosol systems by atomic force microscopy force spectroscopy. **K.K. Ray**, H. Lee, A.V. Tivanski

10:50 COLL 728. Determination of zeta potential in high ionic strength aqueous colloidal dispersions using next generation electrophoretic light scattering (NG-ELS). **J. Miller**

11:10 COLL 729. Characterization of fluorocarbon surfactant solutions for understanding fire suppression enhancement with solvent incorporation. **S.L. Giles**, A. Snow, K.M. Hinnant, R. Ananth

11:30 COLL 730. Spectroscopic investigations of AuPd bimetallic nanoparticles supported on TiO₂. **X. Yu**, A. Nefedov, C. Woell, Y. Wang

11:50 COLL 731. Layer-by-layer self-assembly of amphiphilic quaternary ammonium chitosans/sodium alginate as a biocompatible anti-biofouling coating. **J. Jung**, Y. Sun

12:10 COLL 732. Synthesis and characterisation of silicon germanium oxide (Si_{0.5}Ge_{0.5}O₂) nanoparticles via liquid mix and sol-gel techniques. **G.B. Teh**, T. Lim, S. Ganesan, R.D. Tilley

Section B

Boston Convention & Exhibition Center
Room 258A

Toward Atomic Precision in Controlling the Low Dimensional Materials

G. Chen, R. Jin, G. Wang, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 COLL 733. Selective distribution of HOMO-LUMO in gold nanoclusters. **Z. Wu**

9:15 COLL 734. Understanding and prediction of the structures of ligand-protected gold nanoclusters using electron counting rule. **Y. Gao**, W. Xu, X.C. Zeng

9:55 COLL 735. Modulating the hierarchical fibrous assembly of Au nanoparticles with atomic precision. **Q. Li**, R. Jin

10:15 Intermission.

10:45 COLL 736. Kinetic control of the seed-mediated growth of gold nanorods. **G. Chen**, R. Gallagher, X. Zhang

11:25 COLL 737. Hierarchical nanostructures through prescribed structural symmetry breaking. **T.J. Kempa**, B. Stephens, A. Kossak, M. Sliwa, T. Chowdhury

11:45 COLL 738. DNA-templated silver clusters. **J.T. Petty**, D. Chevrier, P. Zhang, T. Yeh, R. Dickson

Boston Convention & Exhibition Center
Room 257B

Frontiers & Challenges in Nanoparticle-Mediated Chemical Transformations

Nanocatalyst-Mediated Reactions

H. Fan, J. He, Y. Sun, *Organizers*
L. Jin, *Presiding*

8:30 COLL 739. Synthesis of hierarchical 4H/*fcc* Ru nanostructures for highly efficient hydrogen evolution in alkaline media. **Q. Yun**, Q. Lu, A. Wang, H. Zhang

8:50 COLL 740. Single-walled carbon nanotube mediated *in situ* electrochemistry. **A.T. Liu**, Y. Kunai, A. Cottrill, M. Strano

9:10 COLL 741. *In-situ* observation of plasmon-driven hydrogenation reactions within Au@Pd core-shell nanoparticles. **K. Sytwu**, M. Vadai, F. hayee, A. Koh, R. Sinclair, J.A. Dionne

9:30 COLL 742. Investigations of plasmonic enhancement for small molecule oxidation using gold nanoparticle decorated semiconductor heterostructures. **J. Boltersdorf**, G. Forcherio, J. McClure, D. Baker, A. Leff, C.A. Lundgren

9:50 Intermission.

10:05 COLL 743. Solvent mixing to induce aggregation: Applications to control molecular motor behavior. **Y. Wei**, B. Feringa

10:25 COLL 744. Molecular dynamics simulations of peptide conformations and interactions with gold nanoparticles. **P. Rehak**

10:45 COLL 745. Plasmonic hot-carriers mediated tunable photochemical reactions: A non-adiabatic molecular dynamics study of H₂ splitting. **Y. Zhang**, S. Tretiak, T. Nelson, H. Guo, G.C. Schatz

Boston Convention & Exhibition Center
Room 259A

Basic Research in Colloids, Surfactants & Nanomaterials

Polymers & Gels

R. Nagarajan, *Organizer*
P. D'Angelo, *Presiding*

8:30 COLL 746. Engineering the shape of non-crosslinked poly(styrene) particles. **M. Liu, X. Zheng, F. Dong, M.D. Ward, M. Weck**

8:50 COLL 747. Structure-property relationship in particle brush materials. **J. Lee, Z. Wang, T. Deng, R. Davis, K. Matyjaszewski, M.R. Bockstaller**

9:10 COLL 748. Improvement of personal thermal management by electrically conductive silver nanowire-hydrogel textile coatings. **P. D'Angelo, E.S. Hirst, J. Lum**

9:30 COLL 749. Synthesis of functional particles by condensation and polymerization of monomer droplets in silicone oils. **P. Karandikar, M. Gupta**

9:50 COLL 750. Revisiting the colloidal fundamentals of water-dispersible polyesters: Interactions and self-assembly of polymer nanoaggregates in water. **S. Islam, O.D. Velev**

10:10 COLL 751. Green synthesis of polyrhodanine microspheres and its application for the adsorption of organic dye. **M. Chauhan, A. Gaba, Y. Saleh, Q.R. Johnson, G. Longia, B.P. Chauhan**

10:30 COLL 752. Soft-templating of ultra-large pores using block bottlebrush copolymer via a cooperative assembly approach. **X. Xia, G. Bass, M. Becker, B.D. Vogt**

10:50 COLL 753. Elucidating the effects of metal-complexation on morphological and rheological properties of polymer solutions by a dissipative particle dynamics model. **A. Vishnyakov, S. Kolattukudy Poulouse, A.V. Neimark**

11:10 COLL 754. Impact of amine rich polyelectrolyte coating chain length on AuNP-Liposome interaction. **Z. Zheng, Z. Rosenzweig**

11:30 COLL 755. Comparison of structure-property relationship of molecular gels prepared from simply structured alkanolic acid derivatives as efficient ambidextrous gelators. **A.V. Mallia**, K. Galinat, C. Dill

11:50 COLL 756. Dynamics and mechanism of polyelectrolyte-neutral block copolymer micellization in aqueous solution by explicit atomistic MD simulations. R. Chockalingam, **U. Natarajan**

Section E

Boston Convention & Exhibition Center
Room 259B

Nanomaterials

J. A. Hollingsworth, R. Nagarajan, *Organizers*
J. Wang, *Presiding*

8:30 COLL 757. Layer-by-layer growth of DNA-functionalized nanoparticle thin films with tailored surface architectures. **D. Lewis**, P. Gabrys, R. Macfarlane

8:50 COLL 758. Self assembly of polymer coated Au nanocrystals with controlled polymer grafting density. **H. Yun**, Y. Lee, J. Kim, J. Han, G. Stein, B. Kim

9:10 COLL 759. Multiscale modeling of DNA-wrapped carbon nanotube nanosensors. **L. Vukovic**, A. Alizadehmojarad

9:30 COLL 760. Hybrid conjugated oligomer/polymer-metal nanoparticles. **D. Tuncel**

9:50 COLL 761. Directed organization of giant quantum dots (gQDs) during polymerization of ionic liquid (IL) crystalline mesophases. **A. Joshi**, H. Magurudeniya, C.J. Hanson, J.A. Hollingsworth, M.A. Firestone

10:10 COLL 762. Open circuit chemical corrosion drives porosity evolution of 3D bicontinuous nanoporous precious metal structures: *In situ* and real time kinetic study via synchrotron small angle X-ray scattering. **A.A. Farghaly**, M.M. Collinson, B. Lee, S. Seifert, K. Suthar

10:50 COLL 763. "Soft" epitaxy in DNA-nanoparticle thin films. **P. Gabrys**, R. Macfarlane

11:10 COLL 764. Influence of chain architecture on transport properties in polyelectrolyte functionalized mesopores. **R. Brilmayer**, A. Andrieu-Brunsen

11:30 COLL 765. Building up AuPd@m-SiO₂ nanocatalyst with alloyed noble metal core and mesoporous silica shell structure: Designed composite for enhanced p-chloronitrobenzene hydrogenation selectivity. **H. Yin**, S. Zhou, G. Yang

Section F

Boston Convention & Exhibition Center
Room 105

Basic Research in Colloids, Surfactants & Nanomaterials

Nano-Bio Interactions

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

8:30 COLL 766. Synergistic antimicrobial therapy using nanoparticles and antibiotics for the treatment of multidrug-resistant bacterial infection. **A. Gupta**, N.M. Saleh, R. Das, R.F. Landis, A. Bigdeli, M. Mahmoudi, V.M. Rotello

8:50 COLL 767. Interactions between gold nanoparticles and lipid membranes: The effect of the liquid flow. **C. Molinaro**, F. Cecchet

9:10 COLL 768. Bionano interactions of ultras-small nanoparticles: What the cell sees in this size regime. **L. Boselli**, E. Polo, V. Castagnola, F. Muraca, K. Dawson

9:30 COLL 769. Modifying the interactions between semiconductor quantum dots and bacterial targets. **D.N. Williams**, Z. Zheng, S. Pramanik, C.L. Haynes, Z. Rosenzweig

9:50 COLL 770. Elucidating biomolecular corona role for nanoparticle interactions. **E. Polo**

10:10 COLL 771. β -amyloid detection in an animal model of Alzheimer's disease using glyconanoparticle. **S. HossainiNasr**

10:30 COLL 772. Small-angle scattering of interpenetrating polymer networks (IPNs) as medical devices with reduced risk of infection. **G. Smith**, E. Brok, M. Schmiele, L. Arleth, K. Mortensen, M. Alm, P. Thomsen

10:50 COLL 773. Correlating structural and functional heterogeneity of immobilized enzymes. **D.F. Kienle**, R. Falatach, J. Kaar, D.K. Schwartz

11:10 COLL 774. Self-assembly of nanoparticle-protein superstructures for the direct cytosolic protein delivery to lymphoma B cells. **Y. Liu**, X. Zhang, M. Ray, D. Luther, V.M. Rotello

11:30 COLL 775. Layer-by-layer nanoparticles for the detection and treatment of ovarian cancer. **N. Boehnke**, S. Correa, L. Hao, W. Wang, S. Bhatia, P.T. Hammond

11:50 COLL 776. Screening for canine transitional cell carcinoma (TCC) by SERS-based quantitative urine cytology. **A. Pallaoro**, R.Y. Mirsafavi, W.T. Culp, G.B. Braun, C.D. Meinhart, M. Moskovits

Section G

Boston Convention & Exhibition Center
Room 252B

Nanomedicines: From Fundamentals to Applications

Young Scientists & the Future

Z. Gu, Z. Wang, J. Xie, J. Zheng, *Organizers*
G. Han, *Organizer, Presiding*
M. Yu, *Presiding*

8:30 COLL 777. Physiological stability and renal clearance of ultras-small zwitterionic gold nanoparticles: Ligand length matters. **X. Ning**

8:50 COLL 778. Reinforcement of polymeric nanoassemblies for ultra-high drug loadings, modulation of stiffness and release kinetics, and sustained therapeutic efficacy. I. Ekladios, R. Liu, N. Varongchayakul, L.A. Mejia Cruz, D. Todd, H. Zhang, N.H. Oberlies, R.F. Padera, Y.L. Colson, **M.W. Grinstaff**

9:10 COLL 779. Co-aggregation of multiple drugs for chemotherapeutic delivery. **E. Donders**, A.N. Ganesh, B. Shoichet, M.S. Shoichet

9:30 COLL 780. Cationized albumin carrier for potential synergistic chemotherapy of non-muscle-invasive bladder cancer. S. Lu, J. Rahmat, R. Mahendran, E. Kang, E. Chiong, **K. Neoh**

9:50 COLL 781. Sequential co-delivery of EGFR inhibitor and doxorubicin for targeted combination chemotherapy. **J. Lee**, Z. Zhou, M. Jafari, V. Sriram

10:10 COLL 782. Highly engineered platinum nanoparticles as multifunctional active nanocarriers integrating the function of high-performance antioxidant drugs. **M. Moglianetti**

10:30 COLL 783. Fast releasing oral formulation of clofazimine nanoparticles prepared via flash nanoprecipitation as anti-cryptosporidiosis therapeutics. **Y. Zhang**, J. Feng, S. McManus, K. Ristroph, R.K. Prudhomme

10:50 COLL 784. Solid drug nanoparticles synthesised using spontaneous nanoprecipitation of tenofovir disoproxil fumarate: From proof of concept to *in vivo* pharmacokinetics of improved oral dosage. **J.J. Hobson**, P. Curley, A. Al-khouja, M. Siccardi, C. Flexner, C.L. Meyers, A. Owen, S. Rannard

11:10 COLL 785. Polymersomes based on temperature-sensitive poly(N-vinylcaprolactam) for anticancer therapy. **V.A. Kozlovskaya**, A. Alford, E.P. Kharlampieva

11:30 COLL 786. Hybrid viral/nonviral gene carriers for molecularly targeted, versatile cancer therapy. **M. Lugin**, K. Kelada, A. Fleischman, Y.J. Kwon

11:50 COLL 787. Cellulose-based photonic nanomaterials for biomedical imaging. **B. Peng**, M. Almeqdadi, F. Laroche, S. Palantavida, S. Peerzade, M. Dokukin, J. Roper, H. Feng, I. Sokolov

12:10 COLL 788. Biodegradable periodic shRNA systems for enhanced gene silencing. **C. Wu**, J. Li, W. Wang, P.T. Hammond

Section H

Boston Convention & Exhibition Center
Room 160A

Synthetic Self-Assembled Systems for Drug & Nucleic Acid Delivery: New Materials, Formulation Strategies, Targeting, Toxicity & Regulatory Issues

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

8:30 COLL 789. Size characterization of micelles and microemulsions by Taylor dispersion analysis. **V. Jannin**, H. Cottet

9:00 COLL 790. Polymeric micelles for therapeutic delivery of hydrogen sulfide. **U. Hasegawa**, A. van der Vlies, J.J. Chen

9:30 COLL 791. Complexation loading of antimicrobial peptides into microgel-modified surfaces. **J. Liang**, M. Libera

10:00 Intermission.

10:15 COLL 792. Novel, self-assembled PLGA-PEG-PLGA nanogels, utilizing multiple non-covalent interactions for the extended and controlled release of nucleic acid conjugates to treat secondary cataracts. **L.L. Osorno**, R. Getts, M. George-Weinstein, M. Byrne

10:45 COLL 793. Yeast β -glucan functionalized graphene oxide for targeted delivery of CpG ODNs and enhanced cancer immunotherapy. **H. Zhang**, J. Chen

11:15 COLL 794. Time-lapse live cell imaging to monitor doxorubicin release from DNA origami nanostructures. **R. Wang**, Y. Zeng, J. Liu, S. Yang, W. Liu, L. Xu

Section I

Boston Convention & Exhibition Center
Room 156A

Surface Chemistry

Non-Metal Surface Chemistry

S. L. Tait, *Organizer*
A. Holm, C. E. Mohler, *Presiding*

8:30 COLL 795. Ultra-violet photoelectron spectroscopy studies on HOPG exfoliations in ambient air and ultra-high vacuum. **M. Salim**, M. Montgomery, H. Liu

8:50 COLL 796. Inverse electron demand Diels-Alder reaction for surface modification of sp^2 hybridized carbon nanomaterials. **J. Zhu**, R. Lennox

9:10 COLL 797. Applying imaging XPS towards understanding surface phenomena of 2D-like and nano-material structures. **J.M. Gorham**, W.A. Osborn, J. Woodcock, K.C. Scott, J.M. Heddleston, A.R. Hight Walker, J. Gilman, F. DelRio, M.R. Amer, A. Alrasheed, S.A. Alodan, K. Chung

9:30 COLL 798. Langmuir-Blodgett deposition of graphene oxide — identifying Marangoni flow as a process that fundamentally limits deposition control. **A. Holm**, C.J. Wrasman, A.R. Riscoe, M. Cargnello, C.W. Frank

9:50 Intermission.

10:10 COLL 799. Surface complexation modeling of calcite zeta potential in mixed brines with varied ionic strength for carbonate wettability characterization. **J. Song**, Y. Zeng, X. Duan, M. Puerto, G.J. Hirasaki, S.L. Biswal

10:30 COLL 800. Molecular and dissociative adsorption of DMMP, Sarin and Soman on dry and wet $TiO_2(110)$ using density functional theory. **Y.P. Cardona-Quintero**, R. Nagarajan

10:50 COLL 801. Adsorption of high molecular weight polymers on clay surfaces. **C.E. Mohler**, M. Poindexter, G. Meyers, C. Reinhardt, A.I. Nakatani

11:10 COLL 802. Vibrational SFG of thermally treated clay minerals. **A.E. Nessler**, A. Montenegro, E. Howard, M. Mammetkuliyeu, B.C. Melot, A.V. Benderskii

Functional Materials from Biopolymer Self-Assembly & Self-Organization

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Surface, Interface & Coating Materials

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