

COLL

Division of Colloid and Surface Chemistry

R. Nagarajan, *Program Chair*

SUNDAY MORNING

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Colloids

R. Nagarajan, *Organizer*
M. Tsianou, *Presiding*

8:30 1. Colloidal stability of reacting system for visbreaking in different conditions. **J. Li**

8:50 2. Liquid crystal phase transitions and collective behaviors of bent colloidal rods. Y. Yang, A. Gyedu, K. Liu, **Z. Nie**

9:10 3. Molecular dynamics investigation of the electrical double layer at the silica/water interface: structure, surface potential, and electrokinetic phenomena. **S. Chen**, S.J. Singer

9:30 4. Surfactant effects on colloidal stability of silver nanowires from hydrothermal synthesis. **T. Kuo**, B. Mukherjee, J. Goss, G. Athens, P. McGough, T. Calverley

9:50 5. Crystallization kinetics of calcium oxalate: A constant composition study. G. Mallam, C. Moore, **M. Tsianou**

10:10 6. Discovery of metal-lustrous low-molecular-weight organic crystals. **Y. Kondo**

10:30 7. Withdrawn.

10:50 8. Withdrawn.

11:10 9. Direct control of acetaminophen nucleation via functional, biocompatible crystalline substrates. **T.K. Wijethunga**, F. Baftizadeh, J. Stojakovic, A.S. Myerson, B.L. Trout

11:30 10. New optical transduction methods of liquid colloid particles for sensor applications. **L. Zeininger**, T.M. Swager

11:50 11. High throughput screening of nanoparticle flotation collectors. **C. Abarca**, R.H. Pelton

Section B

Walter E. Washington Convention Center
Rooms 208A/B

Responsive, Programmable Assembly of Active Colloids for Functional Materials

Financially supported by JULABO USA Inc.
C. D. Keating, L. D. Zarzar, *Organizers*
R. Hickey, *Organizer, Presiding*

8:30 12. Modular peptide amphiphile micelles for immuno-stimulation. **M.V. Tirrell**, J. Barrett

9:00 13. Responsive polypeptide-based star and triblock copolymer assemblies: Shape change materials for delivery applications. I. Smith, C. Machado, B. Barnes, **D.A. Savin**

9:30 14. Efficient CRISPR delivery via plasmid DNA (or ribonucleoprotein, RNP) packaged in mesoporous silica nanoparticles through cationic vesicle fusion. K. Butler, R. Serda, A. Nouredine, A. Muniz, D.Y. Sasaki, O. Negrete, **C. Brinker**

10:00 15. Stimuli-responsive materials on the basis of compartmentalized particles. **J. Lahann**

10:30 16. Janus 2D nanosheets: Synthesis and interfacial activity. A.C. de Leon, B. Rodier, C. Hemmingsen, **E. Pentzer**

11:00 17. Self-assembling nanocomposite tectons. **R. Macfarlane**

11:30 18. Dynamic nanostructures fabricated by DNA self-assembly. **S. Park**, T. Shim, J. Crocker, D. Lee, C. Kim

12:00 19. Colloidal crystal engineering with DNA. **C.A. Mirkin**

Section C

Walter E. Washington Convention Center
Room 150B

Self-Assembly of Synthetic & Biological Surfactants: Translating Fundamentals to Applications

V. T. John, S. R. Raghavan, *Organizers, Presiding*

8:30 20. Aqueous lyotropic liquid crystalline phase behavior of gemini alkyl phosphonate surfactants. **T.J. Mann**, S. Kim, M.K. Mahanthappa

8:50 21. Experiment and simulation to develop an accurate computational model for nonionic surfactants. **W.C. Swope**, A. Duff, M. Johnston, G. Alva, J. McDonagh, R. Anderson

9:10 22. Effect of Hofmeister series counterions on the colloidal and antimicrobial properties of triple-headed cationic amphiphiles. **K.L. Caran**, K. Thompson, E. Rogers, K. Seifert

9:30 23. Ploxamer block copolymer-based formulations: Structure and function through self-assembly. **P. Alexandridis**

9:50 Intermission.

10:10 24. Wormlike micelles: Boost applications in hostile environment. **Y. Feng**, H. Yin, J. Wang

10:40 25. Novel photo-switchable surfactant molecular assemblies- micelles, worm-like micelles, and admicelles. **H. Sakai**, T. Suzuki, M. Aakamatsu, K. Sakai

11:10 26. Tuning viscoelastic properties of wormlike surfactant micelles. **O. Philippova**, A. Shibaev, V. Pletneva, V. Molchanov

Section D

Walter E. Washington Convention Center
Room 150A

Nanotheranostics for Cancer Applications

Financially supported by Francis College of Engineering, University of Massachusetts, Lowell, MA

P. Rai, *Organizer*

S. Morris, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 27. Active targeting and small molecule delivery to individual leukemia cells utilizing mesoporous silica nanoparticle-supported bilayers (protocells). **K. Butler**, P.N. Durfee, W. Wharton, A. Nouredine, D.T. Teachey, I. Chen, C.L. Willman, C. Brinker

9:05 28. Fluorescent silica nanoparticles for selective detection of small ovarian tumors during surgery. **T. Haber**, S. Aramburo, L. Flores, A. Liu, P. Cao, T. Dellinger, E. Han, K. Aboody, J.M. Berlin

9:25 29. Impact of host germline variation and tumor microenvironment on plasmonic nanoparticle based photo-thermal therapy. **A. Joshi**

9:55 30. Intercellular transport of nanoparticles in myeloid and cancer cells. **R.E. Serda**, J. De La Cerda, H. Suami, C. Brinker

10:25 Intermission.

10:40 31. Spherical nucleic acids as potent immunostimulatory agents in cancer. **C.A. Mirkin**

11:10 32. Imaging and therapy induced by acoustic stimulation of condensed fluorocarbon droplets. **A.P. Goodwin**

11:40 33. Magnetically responsive nanocarriers for cancer theranostics. **Z. Nie**, K. Yang

12:10 34. Synthesis and optimization of a theranostic microRNA-loaded PolyGOLD nanoparticle for targeting glioblastoma: In-vitro characterization. **M. Malhotra**, R. Paulmurugan, T. Massoud

Section E

Walter E. Washington Convention Center
Room 209B

Noble Metal Nanoparticles for Bioimaging, Sensing & Actuation

Nanoparticles for Imaging & Sensing

R. Levy, Z. Nie, *Organizers*

N. M. Khashab, *Organizer, Presiding*

8:30 35. Enhancing T_1 magnetic resonance imaging contrast with internalized Gadolinium(III) in a multilayer nanoparticle. **N.J. Halas**

9:00 36. Towards biocompatible surface enhanced Raman spectroscopy (SERS). **L. Sagle**, W. Lum, I. Bruzas, J. Reifsteck, Z. Gorunmez, J. He

9:20 37. Non-resonant large format SERS substrates for selective detection and quantification of xylene isomers. **N.M. Khashab**

9:40 38. Using plasmonic sensing to monitor the self-assembly of anisotropic nanoparticles in polymer nanocomposite. **Z. Fakhraai**, C. Li, M. Vettelson, E. Glor, R. Ferrier, R.J. Composto

10:00 39. Multimodal stem cell imaging and tracking. **S. Ashraf**, M. Barrow, J. Comenge, A. Taylor, J. Sharkey, P. Murray, B. Wilm, A. Plagge, H. Poptani, M. Rosseinsky, R. Levy

10:20 Intermission.

10:30 40. Fluorescent gold nanoclusters on/in cells visualized by fluorescence lifetime imaging microscopy. **M. Mutas**, T. Hadler, C. Strelow, T. Kipp, A. Mews

10:50 41. Imaging dynamic surface chemistry on plasmonic nanoparticles. **K.A. Willets**

11:20 42. Liposome templated hollow metal nanoshells for biocompatible SERS. **I. Bruzas**, W. Lum, Z. Gorunmez, L. Sagle

11:40 43. Monitoring the oxidation kinetics and size evolution of sapphire-immobilized hemispherical Ag nanoparticles at aqueous interfaces. **T. Duong**

12:00 44. Plasmonic nanostructured biosensors and organic photovoltaics. **Z.H. Kafafi**, F.J. Bartoli

Section F

Walter E. Washington Convention Center
Room 209A

Colloidal Metal & Semiconductor Nanostructures: Theory, Synthesis & Application

Optical Processes in Plasmonic Materials

Financially supported by Department of Chemistry, University of Connecticut; Department of Chemistry, University of Central Florida

A. J. Haes, S. Zou, *Organizers*

J. Zhao, *Organizer, Presiding*

8:30 45. Polymer-enabled SERS sensing. **C.L. Haynes**

9:00 46. Efficient hot electron transfer by plasmon induced interfacial charge transfer transition. **T. Lian**

9:30 47. Different mechanisms for the enhanced transmission in a nanoparticle array. **S. Zou**, Y. Zhou

10:00 Intermission.

10:30 48. New insights into SERS/TERS/FSRS mechanisms. **G.C. Schatz**

11:05 49. Interfacial ligand dynamics and chemistry on highly curved Au nanoparticle surfaces: A plasmon-enhanced spectroscopic study. **H. Wang**

11:35 50. How molecular protonation promotes adsorption and SERS enhancements. **H.T. Phan**, A.J. Haes

11:55 51. Gold nanoparticle oligomers for surface-enhanced femtosecond stimulated Raman spectroscopy. B. Negru, E. Sprague-Klein, T. Ueltschi, M.O. McAnally, G.C. Schatz, **R.P. Van Duyne**

Section G

Walter E. Washington Convention Center
Room 204C

Emulsions, Foams & Dispersions: Symposium in honor of Dominique Langevin at 70

R. Nagarajan, D. A. Weitz, *Organizers*
K. J. Stebe, *Organizer, Presiding*

9:00 52. Effect of star polymer composition and morphology on adsorbed layers formed at fluid interfaces. Y. Huang, K. Matyjaszewski, **R.D. Tilton**

9:25 53. Dimer crystallization of proteomimetic colloids by shape-designed chiral pathway selection. **T.G. Mason**, P. Wang

9:50 54. Swelling kinetics of starch suspensions. **G. Narsimhan**

10:15 55. Stable silicon/carbon anodes for lithium-ion batteries prepared by emulsion-templating. Y. Zhang, B.L. Lucht, **A. Bose**

10:40 Intermission.

10:50 56. Stimuli-driven delivery and release systems using liquid marbles. **S. Fujii**, H. Kawashima, M. Paven, H. Mayama, H. Butt, Y. Nakamura

11:15 57. Depletion with big and small colloids studied in microgravity. **M. Lynch**, T.E. Kodger

11:40 58. Micelles and microemulsions: Interplay of ideas from surfactants and block copolymers. **R. Nagarajan**

Section H

Walter E. Washington Convention Center
Room 155

Basic Research in Colloids, Surfactants & Nanomaterials

Aggregates & Nanoparticles

R. Nagarajan, *Organizer*
M. Dutt, *Presiding*

8:30 59. Three scenarios of macroion-counterion interaction demonstrated by the change of hydration shells of macroions. **H. Li**, J. He, P. Yang, F. Haso, J. Wu, U. Kortz, T. Liu

8:50 60. Flow-induced shape reconfiguration, phase separation and rupture of bio-inspired vesicles. X. Chu, X. Yu, J. Greenstein, F. Aydin, G. Uppaladadiam, **M. Dutt**

9:10 61. Effect of solution viscosity on multi-electron transfer from repeated collisions of a single Ag nanoparticle on a Au electrode. **D.A. Robinson**, Y. Liu, M.A. Edwards, H.S. White

9:30 62. Investigation of water interactions with silk using INS. **C.A. Crain**

9:50 63. Calculation of free-energy of solvation for self-assembled systems: SWCNT-ssDNA hybrids in water/ alcohol mixtures. **K. Hinkle**, F.R. Phelan

10:10 64. Amphiphilic quaternary ammonium chitosans as biocompatible biofilm-binding antimicrobial agents. **j. jung**, Y. Sun

10:30 65. Long acting injectable formulations of atovaquone for malaria prophylaxis. **A.C. Savage**, L.M. Tatham, R.P. Bakshi, A.K. Tripathi, G. Mlambo, T. Shapiro, A. Owen, S. Rannard

10:50 66. *Shewanella oneidensis* MR-1 toxicity studies with CdSe and ZnSe quantum dots. **D.N. Williams**, S. Pramanik, C.L. Haynes, Z. Rosenzweig

11:10 67. Enthalpy of formation of wormlike micelles involving TTAB and halogen derivatives of benzoate. **M.Z. Jora**, E. Sabadini

11:30 68. New method to obtain viscoelastic properties at the nanoscale. L. Li, F. Zypman, **S.J. Eppell**

Nanotechnology & Single Cell Analysis in Biology & Medicine

Sponsored by ANYL, Cosponsored by BIOL, COLL and PHYS

SUNDAY AFTERNOON

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Nanoparticles

R. Nagarajan, *Organizer*
J. L. Liu, *Presiding*

2:00 69. Modulation of morphology and optical properties of surfactant-free plasmonic branched nanoparticles. **S. De Silva Indrasekara**, T. Vo-Dinh

2:20 70. DNA-encoded control of morphologies of bimetallic nanoparticles. **N. Satyavolu**, L. Tan, Y. Lu

2:40 71. Study of structural and electronic changes in zirconia as a function of temperature. **J.R. Soliz**, A. Klevitch, C. Harris, J. Rossin, A. Ng, R. Stroud, A.J. Hauser, G. Peterson

3:00 72. Polyammonium cations in conjunction with metal nanoparticles: Functionalization and recognition. **T.K. Misra**, R. Choudhury

3:20 73. Oxidation-induced transformation of eight-electron gold nanoclusters: $[\text{Au}_{23}(\text{SR})_{16}]^-$ to $[\text{Au}_{28}(\text{SR})_{20}]^0$. **T. Higaki**, C. Liu, Y. Chen, S. Zhao, C. Zeng, N.L. Rosi, R. Jin

3:40 74. Green colloidal chemistry-derived nanocomposite of silver-modified titania used for disinfectant. **J.L. Liu**, S. Bashir

4:00 75. One-dimensional carrier confinement in giant CdS/CdSe excitonic nanoshells. **M. Zamkov**

4:20 76. Microwave-assisted hydrothermal synthesis of plasmonic nanomaterials. **P.N. Njoki**

4:40 77. Optical properties of sol-gel derived CdSe/Ag metal-semiconductor hybrid aerogels. **D. Liyanage**, T.A. Nakagawara, U. Ozgur, I.U. Arachchige

5:00 78. Oxidation state measurements of cerium dioxide nanoparticles: The role of measurement parameters and *in situ* observations. **A.C. Johnston-Peck**

5:20 79. Non-locality driven circular dichroism of isotropic metal nanoparticles. **J. Park**

Section B

Walter E. Washington Convention Center
Rooms 208A/B

Responsive, Programmable Assembly of Active Colloids for Functional Materials

Financially supported by JULABO USA Inc.

R. Hickey, C. D. Keating, *Organizers*

L. D. Zarzar, *Organizer, Presiding*

2:00 80. Responsive inorganic nanoparticle assemblies for cancer imaging and therapy. **Z. Nie**, K. Yang

2:30 81. Responsive polymers gated magnetic colloidosomes as multifunctional microreactors for programming biomolecular activity. **G. Cheng**, S. Zheng

2:50 82. Dual-stimuli responsive injectable nanogel/solid drug nanoparticle nanocomposites for release of poorly soluble drugs. **A. Town**, R. Gurjar, M. Giardiello, M.E. Briggs, R. Akhtar, M. Siccardi, T. McDonald

3:10 83. Surface modified nanozymes as biosensors. **J. Liu**

3:40 84. Responsive, programmable assembly of 2D materials into 3D structures for biosensing. **W. Xu**, J. Pagaduan, Q. Jin, D.H. Gracias

4:00 85. Target-induced disassembly of GO-Peptide assemblies for the turn-on fluorescence detection of MMP-2. **J. Yang**, S. Jeon, J. Ju, H. Kim, Y. Lee, J. Kim

4:20 86. Biomimetic artificial organelles with *in vitro* and *in vivo* reduction triggered activity. **C. Palivan**

4:50 87. Photothermally triggered actuation of hybrid materials as a new platform for *in vitro* cell manipulation. **T. Shirman**, A. Sutton, J. Timonen, M. Kolle, L.D. Zarzar, J. Aizenberg

5:10 88. Photo-responsive polymeric nanocarriers for gene therapy and wound healing applications. **T.H. Epps**

Section C

Walter E. Washington Convention Center
Room 150B

Self-Assembly of Synthetic & Biological Surfactants: Translating Fundamentals to Applications

V. T. John, S. R. Raghavan, *Organizers, Presiding*

2:00 89. Probing water structure next to lipid monolayers using vibrational sum frequency spectroscopy. **S. Pullanchery**, P.S. Cremer

2:20 90. Precisely controlled 2D free-floating nanosheets of amphiphilic molecules through frame-guided assembly. **Y. Zhang**

2:40 91. Platonic micelles part 1: Monodisperse sulfonatocalix[4]arene-based micelles with discrete aggregation numbers. **S. Fujii**, R. Takahashi, K. Sakurai

3:00 92. Platonic micelles part 2: Thermodynamic and kinetic consideration of the micelles with the discrete aggregation numbers and mono-dispersity. **K. Sakurai**, R. Takahashi, T. Narayanan, S. Fujii

3:20 Intermission.

3:40 93. Complexes of surfactant with chitosan derivatives: Structural control and potential for application. L. Chiappisi, B. Dai, S. Prevost, I. Grillo, **M. Gradzielski**

4:10 94. Stabilization of spherical nanoparticles of iron (III) oxy-hydroxides by wormlike micelles. T. Destefani, G. Onaga, A. Percebom, **E. Sabadini**

4:40 95. Conduction through temperature sensitive conducting viscoelastic gel. **R.G. Shrestha**, T. Nakayama, R. Higuchi

Section D

Walter E. Washington Convention Center
Room 150A

Nanotheranostics for Cancer Applications

Financially supported by Francis College of Engineering, University of Massachusetts, Lowell, MA

S. Morris, *Organizer*

P. Rai, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 96. Mono- vs. multi-core magnetic iron oxide nanoparticles as dual agents for imaging and treatment of glioblastoma. **G. Hemery**, C. Genevois, F. Couillaud, S. Lacomme, E. Gontier, S. Lecommandoux, E. Garanger, O. Sandre

2:25 97. Multifunctional biomaterials for on-demand cancer therapy. **N. Artzi**

2:55 98. Image-guided radiotherapy with novel trimodal optical/MR/x-ray contrast nanoconstructs enhance the radiation response of head and neck tumor xenografts. **G. Sharma**, A.K. Parchur, J.M. Jagtap, B. Fish, B. Carmen, M.M. Medhora, M.J. Flister, A. Joshi

3:15 99. Self-assembled aptamer-nanomedicine for both target chemotherapy and gene therapy. Z. Nianxi, Z. Zeng, **Y. Zu**

3:45 100. Targeted nanoparticles for detection, targeting, and thermal ablation of metastatic colorectal cancer *in vivo*. **E.E. McCabe**, B.D. McCarthy, M. Peterson, A. Brown, T.L. Brown, N.H. Levi-Polyachenko

4:05 Intermission.

4:20 101. Magnetic nanostructures (MNS) as theranostic agents for early stage prostate cancer. **S. Ryoo**, V. Nandwana, A. Singh, V.P. Dravid

4:40 102. Porphyrin-phospholipid liposomes for theranostic chemophototherapy. **J. Lovell**

5:10 103. Biomimetic magnetic nanostructures as targeted theranostics for lymphoma. **A. Singh**, V. Nandwana, T.H. Chen, V.P. Dravid

5:30 104. Smart hybrid organosilica nanoparticles for biomedical applications. **Y. Fatieiev**, J. Croissant, K. Julfakyan, S. Alsaiari, B. Moosa, K. Alamoudi, L. Deng, D. Anjum, A. Gurinov, N.M. Khashab

5:50 Concluding Remarks.

Section E

Walter E. Washington Convention Center
Room 209B

Noble Metal Nanoparticles for Bioimaging, Sensing & Actuation

Nanoparticles for Therapy: Preparation & Biological Fate

N. M. Khashab, R. Levy, *Organizers*

Z. Nie, *Organizer, Presiding*

2:00 105. How much variability do we have in nanoparticle synthesis? **C.J. Murphy**

2:30 106. How do shape and size matter in the stability of nanoparticles? **A.J. Haes**

2:50 107. Highly engineered platinum nanoparticles as multifunctional active nanocarriers integrating the function of high-performance antioxidant drugs. **M. Moglianetti**

3:10 108. Controlled delivery of single Au nanoparticle probes for spatially-resolved SERS. **N.L. Wong**, M.A. Edwards, M. Mattei, H.S. White, R.P. Van Duyne

3:30 109. Biogenic silver nanoparticles for surface enhanced Raman scattering based biosensing. **S. Rajput**, M.T. McDermott

3:50 Intermission.

4:00 110. Advanced optical detection of carbon nanoparticulates to measure exposure in a biomedical setting. C. Steuwe, H. Bové, M. Ameloot, **M. Roeffaers**

4:20 111. Bimetallic nanostructures and their assemblies for chemical sensing. **S.E. Skrabalak**

4:50 112. Gold nanoparticle-enabled blood test for acute viral infection detection. **T. Zheng**, C. Parrett, Y. Li Sip, K. McKinstry, **Q. Huo**

5:10 113. Liver-directed photothermal therapy in metastatic colorectal cancer using novel trimodal optical/MR/x-ray contrast nanoconstructs. **A.K. Parchur**, J.M. Jagtap, G. Sharma, V. Gogineni, M.J. Flister, S.B. White, A. Joshi

5:30 114. Multi-functional nanoparticles for image-guided photothermal therapy. **C. Li**

Section F

Walter E. Washington Convention Center
Room 209A

Colloidal Metal & Semiconductor Nanostructures: Theory, Synthesis & Application

Synthesis of Metal Nanoparticles

Financially supported by Department of Chemistry, University of Connecticut; Department of Chemistry, University of Central Florida

A. J. Haes, J. Zhao, S. Zou, *Organizers*

J. Chen, *Presiding*

2:00 115. Crystal phase-controlled synthesis of novel noble metal nanomaterials. **H. Zhang**

2:30 116. Observing the overgrowth of a second metal on silver cubic seeds in solution by surface-enhanced Raman scattering. **D. Qin**, Y. Zhang, Y. Wu

3:00 117. Seeded growth of copper-platinum-ruthenium multi-metal nanostructures as active electrocatalysts. **J. Chen**

3:30 118. Synthesis of colloidal metal nanoparticles: A case study in copper. **S.K. Beaumont**, L.M. Bingham

3:50 Intermission.

4:10 119. Experimental quantification of nanoparticle photon extinction, scattering, scattering, and on-resonance fluorescence cross-sections. **D. Zhang**

4:40 120. Reversibly reconfigurable colloidal plasmonic nanomaterials. **D.S. Ginger**

5:10 121. Thin-film nanofluidics for single-particle analysis. B.I. Karawdeniya, Y.D. Bandara, J.W. Nichols, R.B. Chevalier, **J.R. Dwyer**

5:40 122. Formation of Au nanorings array via particle lithography for applications in plasmonics. M. Negrito, A. Pravitasari, M.T. Sheldon, **J.D. Batteas**

Section G

Walter E. Washington Convention Center
Room 204C

Emulsions, Foams & Dispersions: Symposium in honor of Dominique Langevin at 70

R. Nagarajan, K. J. Stebe, D. A. Weitz, *Organizers*

L. Walker, *Presiding*

2:00 123. Evaporation of thin films on patterned substrates. B. Kazmierski, L. Yang, D. Walker, L. Tan, **C.D. Bain**

2:25 124. Nanobubbles in bulk solution. **W.A. Ducker**, Z. Zhang

2:50 125. Dynamics of stratification in micellar freestanding films. Y. Zhang, S. Yilixiati, **V. Sharma**

3:15 126. Solid particles, fluid interfaces, and new opportunities for functional materials. **T. Dinsmore**, N. Senbil, W. He

3:40 Intermission.

3:50 127. Films of bacteria at interfaces. **K.J. Stebe**, L. Vaccari, T. Herman Niepa, M. Moaei, M. Goulian, D. Lee, R. Leheny

4:15 128. Dynamic adhesion by hydrogen bonding in flowing and swimming colloidal systems. **M.M. Santore**

4:40 129. Functional membranes via interfacial complexation in aqueous two phase systems. S. Hann, K.J. Stebe, **D. Lee**

5:05 130. Lattice gas model for asphaltenes adsorption at water/oil interface. **V. Pauchard**, c. maldarelli, S. Darjani

Section H

Walter E. Washington Convention Center
Room 155

Basic Research in Colloids, Surfactants & Nanomaterials

Surface Science

R. Nagarajan, *Organizer*

A. Baber, *Presiding*

2:00 131. Comparative thermodynamic and modeling study of the adsorption of cyclopentane and cyclohexane on MgO(100), hBN and graphite basal plane. **F. Wahida**, J.Z. Larese

2:20 132. Heterogeneity of surface coverage of organic ligands on single facets of gold nanoparticles due to inhomogeneous metal-molecule interactions. **J. Park**

2:40 133. Identifying the adsorption sites of atomic oxygen on Ru(0001)-supported graphene. **M. Nguyen**, Z. Novotny, F. Netzer, V. Glezakou, R. Rousseau, Z. Dohnalek

3:00 134. Understanding surface reaction pathways and the role of chemical functionality in the initial stages of copper and silver deposition in CVD and ALD processes. **A.V. Teplyakov**

3:20 135. Adsorption, decomposition and geometry of toxic chemicals adsorbed on TiO₂(110). **Y.P. Cardona-Quintero**, R. Nagarajan

3:40 136. Determining the optimum surface conditions of TiO₂/Au(111) for the selective oxidation of ethanol to acetaldehyde. **A. Baber**, D.T. Boyle, J.A. Wilke, V.H. Lam

4:00 137. First electronic transition and hydrogen bonding state of interfacial water on alpha-alumina surface studied by far-ultraviolet spectroscopy. **T. Goto**, T. Kinugasa, Y. Ozaki

4:20 138. Altering the surface structure of SAMs through the adsorption of octanethiol and decyl thiocyanate on Au(111). **A.F. Raigoza**, R. Giinther, D. Zoltek

4:40 139. Insights into water adsorption on ZnO(10-10) surfaces: An IRRAS study. **X. Yu**, C. Yang, L. Schöttner, S. Heißler, A. Nefedov, C. Woell, Y. Wang

5:00 140. Interaction of water with the Fe₂O₃(0001) surface. **L. Schöttner**, A. Nefedov, Y. Wang, C. Woell

5:20 141. Impact of atmospheric adsorbates on chemical warfare agent simulant decontamination. **R. Balow**, D. Barlow, J. Lundin, I. Jordanov, W.O. Gordon, C. Knox, V.M. Bermudez, J.H. Wynne, G. Peterson, C.J. Karwacki, P. Pehrsson

Nanotechnology & Single Cell Analysis in Biology & Medicine

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Science Communications: The Art of Developing a Clear Message

Sponsored by PRES, Cosponsored by BIOL, CARB, CEI, CELL, CEPA, CINF, COLL, CPRC, CTA, DAC, I&EC, INOR, ORGN, PROF, SCHB and YCC

Oxidative Stress & Antioxidants: Measurement Tools & Analytical Challenges

Sponsored by ANYL, Cosponsored by COLL

SUNDAY EVENING

Section A

Walter E. Washington Convention Center
Halls A/B

Fundamental Research in Colloids, Surfaces & Nanomaterials

R. Nagarajan, *Organizer*

6:00 - 8:00

- 142.** Self-adjustable synthetic nano-clay/polyacrylamide hydrogel system containing methyl cellulose via ammonium persulfate induced polymerization. **J. Pu**, B. Bai, J. Geng, N. Zhang
- 143.** Paramagnetic gold nanorods for combined magnetic resonance imaging and photo-thermal therapy. **A. Pitchaimani**, T. Nguyen, S. Aryal
- 144.** Biocompatible and label-free microfluidic separation of cancer cells from blood in ferrofluids. **W. Zhao**, R. Cheng, S. Lim, J.R. Miller, L. Mao
- 145.** Six year manufacturing to human clinical trial programme for the first oral dosed HIV nanomedicines. **M. Giardiello**, T. McDonald, N. Liptrott, P. Martin, D. Smith, M. Siccardi, R. Gurjar, A. Owen, S. Rannard
- 146.** Effective exfoliation of transition metal dichalcogenides in aqueous solution. **T. Kang**, S. Jeon, H. Kim, S. Lee, I. Hwang, J. Han, J. Kim
- 147.** Liquid biopsies for cancer detection: The good, the bad, and the costly? **S.H. Bossmann**, H. Wang, M. Kalubowilage, A.P. Malalasekera, C.T. Culbertson, D.L. Troyer, G. Zhu
- 148.** Biodegradable magnetic vesicles of iron oxide nanoparticles for imaging-guided drug delivery. **K. Yang**, Z. Nie
- 149.** Albumin/asparaginase capsules prepared by ultrasound to retain ammonia. **A. Tinoco**, A. Cavac-Paulo
- 150.** Topological control of polystyrene-silica core-shell microspheres. **Z.M. Grady**, A.Z. Arthur, P.I. Tiemsin, C. Wohl
- 151.** Effect of TiO₂/Au(111) surface preparation on oxidation state and the water-gas shift reaction. **J.A. Wilke**, D.T. Boyle, V.H. Lam, D.A. Schlosser, A. Baber

- 152.** Liposome-based silver nanoparticle on mirror construct exhibiting high SERS enhancement. **W. Lum**, I. Bruzas, Z. Gorunmez, T.L. Beck, L. Sagle
- 153.** Earth-abundant nanomaterials for future energy storage. **N. Elathram**, J.C. Poler
- 154.** Mussel-inspired surface modification of fluorescent nanodiamond for biomedical applications. **H. Jung**, K. Cho, P. Roche, K. Neuman
- 155.** Bioinspired transparent graphene-enabled super-hydrophobic surfaces with various robust. **S. Zhai**, H. Zhao
- 156.** Perfluoro-functionalized flavin and its effect on stability of flavin helices around single-walled carbon nanotubes. **E. Karunaratne**, M. Mollahoseini, F. Papadimitrakopoulos
- 157.** Plasmonic nanoparticles as sensors to probe the kinetics of polymer brush formation on two-dimensional nanoparticles. **A. Khan**, C. Scruggs, D. Hicks, G. Liu
- 158.** Synthesis and characterization of hyperbranched CdS_{1-x}Se_x nanocrystals. **M. Yazdanparast**, E.J. McLaurin
- 159.** Particle and structural characterization of whey protein microgels as affected by fabrication pH and heating duration: Promising candidate as emulsifier. **S. Zamani**, A. Madadlou, N. Malchione, A. Abbaspourrad
- 160.** β -Galactosidase Langmuir monolayer at air-subphase interface. **S.K. Sharma**
- 161.** Improvement of photo-efficiency and reliability of light-emitting diode fabricated with K₂SiF₆:Mn⁴⁺ phosphor through surface modification. **I. Jang**, J. Kim, J. Kim
- 162.** Stability of limonene in oil-in-water emulsion and microcapsule after freezing and thawing. T. Ishigaki, **Y. Watanabe**
- 163.** Diamond shape formation by spontaneous aggregation of silver clusters in gels. **Q. Lin**, Y. Han, J. Li, W. Lin
- 164.** Functionalized graphene oxide for selective sensing of SKBR3 CTC cells. **A.K. Singh**
- 165.** Azobenzene-based periodic mesoporous organosilica nanoparticle, dual azoreductase triggered and degradable platform for drug delivery. **H.W. Omar**, B. Moosa, K. Alamoudi, N.M. Khashab
- 166.** Core-shell microparticles for the enrichment and discovery of cationic antimicrobial peptides (CAMPs). **Y. Zhu**, B. Ueberheide, B. Bishop
- 167.** Sorption of carbamazepine to humic substances determined through fluorescence quenching. **D. Cairnie**, C. Ajjan, G.D. Foster

168. Research of superhydrophobic surface fabricated by interfacial polymerization. **X. Xiao**, H. Yang, x. tantai, N. Yang, L. Zhang
169. Towards an understanding of azobenzene intramolecular isomerization reaction kinetics at ZrO₂ nanoparticle thin film interfaces. **D.C. Achey**, C. Pointer
170. Preparation of adlay oil based nanoemulsion gel as novel delivery system for topical application. **H. Yin Ting**, Y. Ting
171. Wettabilities of different faces of the same crystal. **Y. Deng**, X. Huang, H. Lu
172. Surface modification for DNA studies. **J.R. Pyle**, J. Chen
173. Modularly designable vesicle for sequentially multiple loading. **Y. Zhang**
174. Economical way to construct mesoporous liquids: Hydrolysing liquid medium on the surface of hollow structure. **P. Li**, J. Zhang, S.M. Mahurin, S. Dai
175. Regulation of α -thrombin enzymatic activity through interactions with gold nanoparticles. A.L. Lira, R.J. Torquato, M.L. Oliva, A.S. Tanaka, **A.A. Sousa**
176. Toward novel nanomaterials for ¹⁹F magnetic resonance imaging (MRI) contrast agents. **J.L. Steinbacher**, A.J. Berardi, S.T. Caico, L.E. Rudin
177. Modification of inorganic oxide surfaces via vapor-solid ring-opening polymerizations of cyclic siloxanes. **K.M. Ryan**, J.W. Krumpfer
178. Engineering Ru nanoframes with fcc crystal structure and enhanced catalytic activities. **H. Ye**, X. Xia
179. Detecting single-nucleotide polymorphisms in DNA with ultrathin film field-effect transistors. **K.M. Cheung**, J.M. Abendroth, N. Nakatsuka, B. Zhu, Y. Yang, A.M. Andrews, P.S. Weiss
180. Development of modified polyol process for synthesis of tetrahedrite. **G. Kunkel**, A. Ochs, D. Weller, D. Stevens, C. Holder, D. Morelli, M.E. Anderson
181. Plasmon-enhanced spectroscopy with shell-isolated mode. **J. Li**
182. Effect of extreme cold treatment on morphology and behavior of hydrogel microparticles. **E. Hirst**, E. Anderson, P. D'Angelo
183. Site-selective deposition of Pt atoms on Ag nanocubes for the generation of bifunctional Ag-Pt core-frame nanocrystals. **Y. Zhang**, X. Sun, D. Qin
184. Photochemical patterning of surface charges in fluidic channels. **K. Sy Piecco**

- 185.** Correlating carrier densities with composition and surface ligands in Cu_{2-x}Se nanoparticles. **X. Gan**, L.E. Marbella, D.C. Kaseman, J. Millstone
- 186.** Controlled surface chemistry for the directed attachment of copper(I) sulfide nanocrystals. **E.H. Robinson**, M. Turo, J. Macdonald
- 187.** Efficient releaser based on the As-synthesized mesoporous silica. M. Wan, X. Dong, S. Li, Y. Wang, **J. Zhu**
- 188.** Molecular self-assembly and redox assembly of quinone derivatives on Au(100). **T. Morris**, I.J. Huerfano, C.D. Tempas, D.L. Wisman, N.A. Maciulis, A.V. Polezhaev, K.G. Caulton, S.L. Tait
- 189.** Towards selective molecular biosensing: Fundamental investigation of polymeric filtering effect on field-effect transistor biosensor. **S. Nishitani**, T. Sakata
- 190.** Withdrawn.
- 191.** Evaluation of stress-grown carbon nanotubes for optically-active hybrid mixtures. **M.S. Lowry**
- 192.** Synthetic mechanism of Janus Au-silica particle in aqueous phase. **Y. Luo**
- 193.** Modeling of the interfacial behaviors in demulsification of crude oils. **D. Yu**, J. Mendenhall
- 194.** Engineering hybrid nanosystem as a novel sustainable tool for Zika vector *Aedes aegypti* control. **L. Pokhrel**
- 195.** Ligand mediated evolution of size dependent magnetism in cobalt nanoclusters. **M. Hartmann**, J. Millstone
- 196.** Controlled release perivascular drug delivery from graphene oxide-hybridized HA hydrogels. **P. Maturavongsadit**, Q. Wang, T. Cui
- 197.** Dispersions of carbon black in aqueous medium: Rheological and electrical study. **F. Kamand**, M.I. Magzoub, M.S. Nasser, M. Youssry
- 198.** Size-tunable plasmonic nanoparticles using block copolymer lithography. **A. Cutri**, K.A. Willets
- 199.** New DelPhi feature for modeling electrostatic potential around proteins: Role of bound ions and implications for zeta-potential. **A. Chakravorty**, Z. Jia, L. Li, E. Alexov
- 200.** Universal linker enabling enzyme-mediated attachment of ligands to nanoparticle surfaces. **J. Santiana**, **S. Gudipati**

- 201.** Functionalization of single-walled carbon nanotubes for use in supercapacitors. **J. Zuczek**, J.C. Poler
- 202.** Unconventional synthesis of semiconductor nanotetrapods using core/shell CdSe/CdS as seeds. **X. Wang**, S. Chen, J. Zhao
- 203.** Enantiomeric separation of chiral pharmaceuticals using chirally modified Au nanoparticles with high-index facets. **A.A. Pradhan**, A.V. Nagarajan, N. Shukla, A.J. Gellman
- 204.** Catechol-conjugated hydroxyethyl chitosan as a tissue adhesive. **Y. Peng**, X. Peng, B. Han, R.J. Linhardt
- 205.** Effect of film deposition conditions on the properties of multilayer films of a dual responsive block copolymer micelle. **D. Gündoğdu**, V. Butun, I. Erel-Goktepe
- 206.** Electrostatic self-assembly of EGF and DOTAP liposomes into multi-lamellar complexes. **B. Koo**, M. Yang, S. Jo, Y. Nam
- 207.** Single pot reduction, nucleation, and growth of Au nanoparticles with peptides. **C.J. Munro**, Z.E. Hughes, T.R. Walsh, M.R. Knecht
- 208.** Dual drug release from layer-by-layer films of PLGA-*b*-PEG micelles and tannic acid. **G. Calis**, I. Erel-Goktepe
- 209.** ALD preparation of SiO₂ protected Pd-MnO_x nanoparticles supported on TiO₂: Highly efficient nanocatalyst for the dehydrogenation of formic acid. N. Caner, M. Yurderi, A. Bulut, **M. Zahmakiran**
- 210.** Sum frequency generation vibrational spectroscopy study of lead(II) adsorbed on functionalized magnesium ferrite nanoadsorbent. **J. Nonkumwong**, S. Ananta, L. Srisombat, K.A. Cimat
- 211.** Protecting the paint: Topcoats for improved decontamination of painted surfaces. B.J. Johnson, **B.J. Melde**, B.D. Martin
- 212.** Osmolytes to ions: Elucidating the effects of preorganization on ion-ion interactions. **C.I. Drexler**, S. Lee, B. Rogers, T. Yang, P.S. Cremer
- 213.** Using nuclear magnetic resonance (NMR) techniques to study noble metal-transition metal nanoparticle alloys. **E.A. Eikey**, L.E. Marbella, A. Smith, J. Millstone
- 214.** Combined high stretchability and gas barrier in hydrogen-bonded multilayer nanobrick wall thin films. S. Qin, **Y. Song**, J.C. Grunlan, M. Floto

- 215.** Bovine serum albumin adsorption on metal oxide nanoparticles: Effects of pH, nanoparticle surface, and co-adsorbed oxyanions on protein-surface interactions and protein structure. **Z. XU**, B. Givens, V.H. Grassian
- 216.** Influence of nanoparticle surface functional groups on the function of gramicidin A (gA) in a suspended bilayer. **I.U. Foreman-Ortiz**, X. Zhang, C.J. Murphy, J.A. Pedersen
- 217.** Role of polyvinylpyrrolidone on the shape and size of hydrothermally synthesized cobalt oxide particles. **X. Xia**, M. Becker, B.D. Vogt
- 218.** Synthesis of highly stereoregulated poly-(3-hexylthiophene) within a porous material. **M. Mukai**, T. Hirai, M. Nishibori, K. Kamitani, A. Takahara
- 219.** Directed contraction of microgrooved nanosheets powered by engineered myotubes under electrical stimulation. **A. Hasebe**, L. Vannozzi, T. Mazzocchi, L. Ricotti, S. Takeoka, T. Fujie
- 220.** Measuring the plasmon to exciton energy transfer *via* sample-transmitted excitation photoluminescence spectroscopy. **H.E. Eckard**, M. Zamkov, P. Moroz
- 221.** Single-particle correlated studies of electrodeposition on plasmonic nanoparticles. **A. Kumar**, E. Villarreal, E. Ringe
- 222.** Reversing the odd-even effects in self-assembled monolayers using UPD silver. **M.D. Marquez**, D. Rodriguez, O. Zenasni, T. Lee
- 223.** Polymer mimics using cyclohexyl-terminated derivatives as organic thin films. **T. Yu**, M.D. Marquez, O. Zenasni, T. Lee
- 224.** Sum frequency generation spectroscopy of terminally fluorinated self-assembled monolayers on UPD silver and bare gold substrates. **D. Rodriguez**, M.D. Marquez, O. Zenasni, S. Baldelli, T. Lee
- 225.** Dectin-1 targeting delivery of a therapeutic oligonucleotide with a beta-1,3-glucan carrier for cancer treatment. **N. Fujiwara**, H. Izumi, S. Mochizuki, K. Sakurai
- 226.** Cell membrane-attractive deformable polymeric micelles for enhanced transdermal delivery. **D. Park**, K. Shin, J. Kim
- 227.** Simple microwave-assisted synthesis of fluorescent carbon quantum dots from polyamidation monomer set. **Y. Choi**, I. In
- 228.** Catalytic activation of amphiphilic Janus microparticles at the oil-water interface. **J. Cho**, H. Kim, J. Cho, J. Kim
- 229.** Biomimetic cancer cell membrane coated PMOs (CCPMOs) for efficient drug targeted delivery in colorectal cancer cell. **K. Alamoudi**, J. Croissant, N.M. Khashab

- 230.** *In situ* monitoring of cation exchange reactions in semiconductor nanocrystals. J.W. Campbell, A.L. Morris, C. Lin, **P.G. Van Patten**
- 231.** Development of double action probes based on Zn- and Co-doped iron oxide nanoparticles. **S. Bram**, J. Dittmar, B. Stein, M. Pink, Y. Losovyj, L. Bronstein
- 232.** Reconfigurable electric field directed nanoparticle assembly. **N. Famularo**, S.J. Boehm, X. Guo, L. Kang, C.D. Keating, T.S. Mayer, D. Werner
- 233.** Simple route to prepare sub-100 nm plasmonic vesicles for drug delivery. **K. Yang**, Z. Nie
- 234.** Binary mixed self-assembled monolayers derived from ammonium-terminated adsorbates on gold for oligonucleotide immobilization. **J. Hoang**, C. Park, H. Lee, P. Gunaratne, T. Lee
- 235.** Pressure-induced hetero-dimer and hetero-rods formation through intraparticle coalescence of QD-Au satellite nanocrystals. **H. Zhu**, Z. Wang, R. Li, O. Chen
- 236.** Development of efficient hyperthermia/drug delivery agents based on functionalized superparamagnetic nanoparticles. **P. Price**, K. Carlson, J. Dittmar, A. Voronov, A. Kohut, L. Bronstein
- 237.** Two-dimensional nanosheet antioxidants. **D. Yim**, H. Kim, T. Kang, J. Yang, J. Kim
- 238.** Multiple-patterning nanosphere lithography for periodic 3D hierarchical nanostructures. **N. Wattanatorn**, X. Xu, Q. Yang, C. Zhao, S.J. Jonas, P.S. Weiss
- 239.** Quantum dot absorptive filter array based shortwave infrared miniaturized spectrometer. **J. Yoo**, J. Carr, J. Caram, M.G. Bawendi
- 240.** Fabrication and characterization of hybrid particles with CeO₂ core and polymer brushes. **A. Hamada**, M. Nishibori, Y. Konishi, K. Kamitani, T. Hirai, K. Kojio, A. Takahara
- 241.** Characterization of polymer thin film by tender x-ray reflectivity. **K. Kamitani**, M. Nishibori, Y. Konishi, A. Hamada, T. Hirai, K. Kojio, A. Takahara
- 242.** Chemotherapeutic drug delivery system based on gold nanoparticle carriers for cancer treatment. **L. Running**, R. Espinal, R.S. DeVaux, J. Herschkowitz, M.R. Hepel
- 243.** Isothermal reversible softening and hardening of polymer gels and networks based on a photo-triggered repeatable macromolecular architectural transformations. **S. Honda**, N. Tanaka, T. Toyota
- 244.** Characterizing molecular diffusion through nanopores using nanoporous anodic alumina waveguides. **A. Sousa**, J. Dostalek, K. Lau

- 245.** Carbon nanotubes decorated with fluorophores as photothermal agents for efficient killing of antibiotic resistant bacteria. **B. Altin**, H. Unal
- 246.** Novel wax dispersant for single emulsion phase stabilization of simulated waxy crude oil. **M. Lukkanasiri**, A. Charoensaeng, U. Suriyaphadilok
- 247.** Second harmonic generation spectroscopy of substrate-based surfactant free gold and silver nano-hemispheres. **T. Marshall**, Y. Aulin, K. Gilroy, S. Neretina, E. Borguet
- 248.** Characterization of polymer/inorganic-nanoparticles composite by using small-angle x-ray scattering and x-ray absorption spectroscopy. **M. Nishibori**, T. Takahashi, Y. Ushio, K. Suematsu, K. Kamitani, T. Hirai, A. Takahara
- 249.** Two-component micelle with mixing dilauroyl phosphocholine(DLPC) and deoxycholic acid(DA) and its delivery of proteins into the cytosol on the pH responsiveness. **N. Miyamoto**, S. Fujii, K. Sakurai, K. Koiwai, N. Sakaguchi
- 250.** Developing a tunable copper indium sulfide (CIS) nanocrystal synthesis using thiourea precursors. **S. Hughes**, A. Cohen, M. Maust
- 251.** Surface catalyzed C-C bond formation through dehydrogenation and dehydrocyclization pathways. **C.G. Williams**, M. Wang, C. Tempas, T. Morris, D. Wisman, L.L. Kesmodel, S.L. Tait
- 252.** High density covalent functionalization of graphene from hyper-stage-1 graphite intercalation compound. **I. Jeon**, B. Yoon, M. He, T.M. Swager
- 253.** Bioconjugated graphene quantum dots (B-GQDs) nanoprobe synthesis for imaging applications. **A. Kalluri**, **D. Leighton**, S. Singh, I. Macwan, P.K. Patra
- 254.** Colloidal synthesis of Si nanoparticles and their chemical transformation into orthorhombic lithium silicate nanowires. **E. Eladgham**, I.U. Arachchige
- 255.** Hierarchical self-assembly of novel tubular nanoparticles and surface-attached nanoscaffolds from modified *Tobacco mosaic virus* capsid protein. **A. Brown**, J.N. Culver
- 256.** Formation of monodisperse microemulsions using elastin-like polypeptide surfactants. **R.J. Schmitt**, A. Maraschky, I. Tsuper, D. Terrano, K.A. Streletsky, N.B. Holland
- 257.** Facile method for construction of folate targeted fluorescent magnetic beads. **W.A. Henne**, V. Schmitz, H. Ledbetter
- 258.** Solvent mediated dye encapsulation into resorcinarene cavitand nanocapsules. **S. Allmon**, K. Mahadevan, B. Ramjee

- 259.** IR study of the particle-polymer interface in MOF mixed matrix membranes. **X. Chen**, A.P. Odegard, J.C. Moreton, S. Cohen, L.B. Benz
- 260.** Designing sterically stable peptide nanostructures with target morphologies. **S. Mushnoori**, M. Dutt
- 261.** Laser crystallization of inkjet-printed aluminum doped zinc oxide and indium tin oxide nanomaterials for highly transparent conductive electrodes. **O.K. Ranasingha**, K. Jayawardana, Q. Nian, S. Kepelner, C. Yapp, J. Bailey, G.J. Cheng, M. Callahan
- 262.** Covalent attachment of phthalocyanine and cobalt metalation on chlorine terminated Si(111) surface. **C. He**, A.V. Teplyakov
- 263.** pH-sensitive antimicrobial agent. Y. Nelson, **J. Sun**
- 264.** Tuning upconversion in Nd(III)-sensitized core-shell nanoparticles for excitation with biobeneficial wavelength. **C. Arboleda**, S. He, A. Stubelius, A. Almutairi
- 265.** Compositional tuning of hybrid organic-inorganic lead halide perovskite nanocrystals through solid-liquid-solid cation exchange. **K. Hills-Kimball**, Y. Nagaoka, O. Chen
- 266.** Wearable personal thermal management through silver nanowire-coated textiles. **P. D'Angelo**, E. Hirst, E. Anderson
- 267.** Temperature-programmed desorption (TPD) and density functional theory (DFT) study comparing the adsorption of ethyl halides on the Si(100) surface. **J. Zhao**, B.W. Noffke, K. Raghavachari, A.V. Teplyakov
- 268.** Nanoparticles (-)-epicatechin-loaded chitosan induced apoptosis in breast cancer: *in vivo* and *in vitro* study. **A. Perez Ruiz**, I. Olivares Corichi, F. Ganem Rondero, J. García Sánchez
- 269.** Effect of temperature and surface topology on supported lipid bilayer lateral diffusion. **C. Henderson**, A. Sendekci, P.S. Cremer
- 270.** Asymmetric plasmonic nanoparticle array on flexible substrate. J. He, **J. Reifsteck**, I. Bruzas, L. Sagle
- 271.** Novel light-mediated walking and sensing device via integration of assembled plasmonic film and hydrogel. **H. Guo**, Z. Nie
- 272.** XPS study of the surfaces of metal organic frameworks following post-synthetic ligand exchange. **J. Low**, L.B. Benz, J.C. Moreton, S. Cohen
- 273.** Immiscible polymer blend nanoparticles formed by nanoprecipitation. **C. Zhao**, T. Li, X. Zhang, R. Nieuwendaal, E. VanKeuren

- 274.** Investigating relative binding strengths of various attachment chemistries to titania surfaces for potential use in dye sensitized solar cells. **G.J. Smith**, B. Harvey
- 275.** Controlled protonation of transition metal substituted heteropoly tungstates in nonpolar solvents. **S.H. Szczepankiewicz**, **J. Canavan**
- 276.** Biosensor based on Au-UCNP for dynamic detection of glucose. **K. Shrestha**, A. Rafiei, H.H. Richardson
- 277.** Adenosine-functionalized biodegradable PLA-b-PEG nanoparticles for osteoarthritis blocking in rats. **X. Liu**, **A. Ulman**, **B.N. Cronstein**
- 278.** Preparation of fabric with differentiated water-transport ability. **L. Lao**, D. Shou, Y. Wu, J. Fan
- 279.** Development of sepiolite supported-nano TiO₂ composites as high performance photocatalysts. **L. Liao**, J. Feng
- 280.** Remediating interior building surfaces contaminated by methamphetamine: Methods development. **K.R. Caldwell**
- 281.** Colloidal metal and semiconductor nanostructures: Theory, synthesis, and application. **S. Atta**
- 282.** Improvement of methane hydrate formation kinetics with activated carbon, tetrahydrofuran, and sodium dodecyl sulfate. A. Siangsai, K. Inkong, **P. Rangsunvigit**
- 283.** Preparation of pure and decorated metal oxide materials for energy applications using novel physical deposition methods and their characterization. **D. Paradiso**, J.Z. Larese
- 284.** Adsorption site determination for oxygenates on TiO₂/Au(111). **M.Z. Gillum**, J.A. Wilke, D.T. Boyle, A. Baber
- 285.** Concentration dependence and applications of mixed self-assembled azide-terminated monolayers. **R.M. Mandel**, A.V. Teplyakov, M. Williams
- 286.** Formation of bioactive hydrogels through the cross-linking of thermally responsive polypeptide micelles. A. Mistry, H. Celik, **N.B. Holland**
- 287.** Investigating surMOF thin film growth for sensing and storage applications. **A. Trojniak**, L. Brower, M. Ohnsorg, M.E. Anderson
- 288.** Exploring fabrication and gas adsorption for HKUST-1 thin films and powders. **L. Brower**, A. Trojniak, B. Bowser, M.L. Ohnsorg, M.E. Anderson

- 289.** Synthesis of gold-silica core-shell nanostructures. J. Jeffries, S. Nasser, K. Ruta, O. Altahan, K. Bandyopadhyay
- 290.** Generation of Au-Pd bimetallic nanoparticles and anisotropic structure of gold on functionalized surfaces. A. Peer, K. Bandyopadhyay
- 291.** Dopamine biosensor using two dimensional assemblies of palladium nanoparticles. M. Osto, C. Dodge, K. Bandyopadhyay
- 292.** Two dimensional assemblies of gold nanoparticle as non-enzymatic glucose biosensor. A. Bitar, K. Bandyopadhyay
- 293.** Seed mediated growth of highly monodisperse spherical gold nanoparticles. R. Darienzo, O. Chen, M. Sullivan, R. Tannenbaum
- 294.** Determination of optimal probe density and salt concentration for fast and complete DNA melting. N. Le, A. Chin, R. West

MONDAY MORNING

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Colloidal Assembly

R. Nagarajan, *Organizer*
S. L. Tait, *Presiding*

- 8:30 295.** Assembly mechanism of polymer-grafted nanocubes. B.H. Lee, G. Arya
- 8:50 296.** Bottom-up design and self-assembly of supracolloidal molecules made from binary metallic nanoparticles. C. Yi, Z. Nie
- 9:10 297.** Understanding the temporal and spatial dynamics of surface assembly. K.M. Carroll, C. Rawlings, Y. Zhang, S.R. Marder, A. Knoll, H. Wolf, U. Duerig

9:30 298. Thermo-mechanical behavior of self-assembled nanoparticle membranes. **H. Chan**, B. Narayanan, Y. Wang, X. Lin, H. Jaeger, S. Sankaranarayanan

9:50 299. Tunable random laser emission via reconfigurable particle assembly. **P. Donahue**, C. Zhang, N. Nye, C. Wang, J. Miller, D. Christodoulides, Z. Liu, C.D. Keating

10:10 300. Aggregation of conjugated polymer nanowires studied by atomic force microscopy and kelvin probe force microscopy. **S. Guo**

10:30 301. Effective interactions between colloids induced by attractive reversibly adsorbed polymers. **A. Chervanyov**

10:50 302. Dynamic supramolecular assembly at surfaces: Impact of guest, solvent, and STM bias. **S.L. Tait**

11:10 303. Gold nanoparticle self-assembly in mixed lipid nanodiscs: Molecular dynamics simulations. **H. Sharma**, E. Dormidontova

11:30 304. Designing and tuning self-assemblies towards the single chirality enrichment of single-walled carbon nanotubes. **E. Karunaratne**, M. Mollahosseini, F. Papadimitrakopoulos

Section B

Walter E. Washington Convention Center
Rooms 208A/B

Responsive, Programmable Assembly of Active Colloids for Functional Materials

Financially supported by JULABO USA Inc.
R. Hickey, C. D. Keating, *Organizers*
L. D. Zarzar, *Organizer, Presiding*

8:30 305. Microrobots at interfaces. D. Wong, I. Liu, S. Das, E. Steager, M. Hsieh, V. Kumar, **K.J. Stebe**

9:00 306. Collective behavior of self-powered single molecules and nano/microparticles. **A. Sen**

9:30 307. Tuning the hydrodynamics and collective behaviors of active colloidal motors via a chemical approach. **N. Wu**, X. Yang

10:00 308. Spatiotemporal dynamics of filamentous bacteria near and on affinity substrates. **J. Jahnke**, J. Terrell, A. Smith, X. Cheng, D.N. Stratis-Cullum

10:20 309. Surface-bound enzymatic reactions organize microcapsules and protocells in solution. O.E. Shklyaeu, H. Shum, A. Sen, **A. Balazs**

10:50 310. Engineering of shape-changing and motile colloidal assemblies: Magnetically reconfigurable clusters and self-propelling microbots. **O.D. Velev**

11:20 311. New generation of remotely AC-field-powered self-propelling active particles with on-demand assembly and propulsion. **U. Ohiri**, K. Han, C.W. Shields, T. Tyler, O.D. Velev, N.M. Jokerst

11:40 312. Shaped-directed dynamics of active colloids. **K.J. Bishop**, A. Brooks, S. Sabrina

Section C

Walter E. Washington Convention Center
Room 150B

Self-Assembly of Synthetic & Biological Surfactants: Translating Fundamentals to Applications

V. T. John, S. R. Raghavan, *Organizers, Presiding*

8:30 313. Surface functionalized biodegradable polymersome for targeted drug delivery. **S. Roy**, M. Nallani

8:50 314. Patchy and degradable polymersomes enabled by a miktoarm star terpolymers and polypeptoids. **J. Gaitzsch**, V. Chudasama, R. Luxenhofer, G. Battaglia, W. Meier

9:10 315. Self-assembly of peptide bolaamphiphiles into nanostructures for siRNA delivery. **Z. Guan**, A. Eldredge, D. Yang

9:30 316. Peptide insertion into lipid bilayer creating membrane pores. **R. Nagarajan**

9:50 Intermission.

10:10 317. Pyrrolidone diblock copolymers nano-objects: From bulk to interface. **J. Dong**

10:40 318. Aqueous self-assembly of A_nK peptides. **U. Olsson**

11:10 319. Effect of pH of skincare and cleansing products on the stratum corneum barrier function. **K. Ananthapadmanabhan**

Section D

Walter E. Washington Convention Center
Room 150A

Targeted Nanosystems for Therapeutic Applications: New Concepts, Dynamic Properties, Efficiency & Toxicity

K. Sakurai, *Organizer*

M. A. Ilies, *Organizer, Presiding*

8:30 320. Targeting precision nanomedicines to the tumor microenvironment. **D.A. Heller**, Y. Shamay, A. Haimovitz-Friedman, M. Scaltriti

9:00 321. Targeting lung adenocarcinoma using fibrin-specific short linear peptide motif. **J. Yu**, M. Yang, Y. Nam

9:30 322. Dectin-1 targeting delivery of a YB-1 antisense oligonucleotide with a beta-1,3-glucan carrier. **N. Fujiwara**, H. Izumi, S. Mochizuki, K. Sakurai

10:00 Intermission.

10:15 323. Glycopolypeptide self-assembled nanomaterials as efficient delivery systems with multivalent properties. **S. Lecommandoux**

10:45 324. Aptamer micelles targeting cancer cells expressing the chemokine fractalkine. M.A. Harris, T.R. Pearce, T. Pengo, H. Kuang, C. Forster, **E. Kokkoli**

11:15 325. Carbonic anhydrase IX targeted nanosystems for hypoxic tumor detection and treatment. **M.A. Ilies**

Section E

Walter E. Washington Convention Center
Room 209B

Colloidal Metal & Semiconductor Nanostructures: Theory, Synthesis & Application

Metal Nanoparticle: Synthesis & Spectroscopy

Financially supported by Department of Chemistry, University of Connecticut; Department of Chemistry, University of Central Florida

J. Zhao, S. Zou, *Organizers*

A. J. Haes, *Organizer, Presiding*

8:30 326. Aluminum nanocrystals: Size control and SERS applications. **N.J. Halas**

9:05 327. Chemistry at the ends of gold nanorods. **C.J. Murphy**

9:40 328. Controlling and exploiting nanoscale curvature in gold nanostars. **T.W. Odom**

10:15 329. Probing charge delocalization in plasmonic gold nanoparticles via a molecular reporter using ultrafast surface-enhanced Raman spectroscopy. **E. Keller**, R.R. Frontiera

10:35 Intermission.

11:00 330. Two-photon photoluminescence and biomedical applications of hollow gold nanospheres (HGNs). **J.Z. Zhang**

11:30 331. Super-resolution imaging of hybrid organic-plasmonic nanostructures. **K.A. Willets**

12:00 332. Probing formation and transformation of colloidal nanoparticles with in-situ synchrotron x-ray scattering. **Y. Sun**

Section F

Walter E. Washington Convention Center
Room 209A

Photoresponsive Nanoparticles: From Fundamentals of Excitation to Applications

Photocatalysis

B. G. DeLacy, Y. Han, *Organizers*
Y. Sun, *Organizer, Presiding*
H. Fan, *Presiding*

8:30 333. Synthesis of shape-defined Ta₃N₅ and SrTaO₂N nanostructures for photocatalysis. **S.E. Skrabalak**

9:00 334. Interfacial self-assembly of hierarchically structured nanocrystals with photocatalytic activity. **H. Fan**

9:30 335. Oxygen-insensitive hydrogen evolution sites coated by Cr and Mo species for overall water splitting. **K. Takahashi**

10:00 Intermission.

10:20 336. Nanostructures and their influence upon outer sphere electron transfer rates. **M. Spitler**

10:50 337. Exploring plasmonic-enhanced reduction: Catalytic hydrogen activation for ketone and aldehyde reduction using silver nanocubes under visible light. **M. Landry**, C.J. Barrett, A.H. Moores

11:10 338. Quantum-sized metal nanoparticles for photoinduced chemical transformations. **Y. Sun**

11:30 339. Balancing near-field enhancement, absorption, and scattering for effective antenna-reactor plasmonic photocatalysis. **P. Christopher**

Section G

Walter E. Washington Convention Center
Room 204C

Emulsions, Foams & Dispersions: Symposium in honor of Dominique Langevin at 70

R. Nagarajan, K. J. Stebe, D. A. Weitz, *Organizers*
B. Binks, *Presiding*

8:30 340. Temperature-dependent assembly of thermosensitive cationic diblock copolymers in water and on interfaces. **F.M. Winnik**, P. Claesson

8:55 341. Complexes of oppositely charged polyelectrolytes and microemulsion droplets: An investigation of structure and dynamics. M. Simon, L. Noirez, I. Hoffmann, **M. Gradzielski**

9:20 342. Adsorption of colloid-surfactant complexes at fluid-fluid interfaces and impact on mechanical properties. S.M. Kirby, S.L. Anna, **L. Walker**

9:45 343. Correlating the attractive interactions between polymer-surfactant coated droplets measured via AFM to collisions in microfluidic channels. **R.R. Dagastine**, C. Fewkes, E. Jamieson, J.D. Berry

10:10 Intermission.

10:20 344. Emulsion templated lipid vesicles. **L.R. Arriaga**

10:45 345. Eco-friendly surfactant herders for the remediation of maritime oil spills. **c. maldarelli**, H. Zhou, G. John

11:10 346. Protein diffusion in a bicontinuous microemulsion: sub-diffusion by tunable soft confinement. **T. Hellweg**

11:35 347. Lipid droplets: The interaction of amphipathic α -helix model protein with an oil/buffer interface. **E. Mann**, M.S. Mirheydari, E.E. Kooijman

Building a Safety Culture Across the Chemistry Enterprise

Institutional & Enterprise Level Efforts to Developing a Safety Culture

Sponsored by PRES, Cosponsored by BIOL, BMGT, CARB, CCS, CEI, CELL, CEPA, CHAS, CINF, COLL, CPRC, CTA, DAC, ETHX, I&EC, INOR, ORGN, PROF, SCHB and YCC

Nanotechnology & Single Cell Analysis in Biology & Medicine

Sponsored by ANYL, Cosponsored by BIOL, COLL and PHYS

Chemistry in an Evolving Political Climate: Research Priorities & Career Pathways in Public Policy

Sponsored by YCC, Cosponsored by BIOL, CARB, CCPA, CEI, CELL, CEPA, CHED[‡], CINF, COLL, COMSCI, CPRC, DAC, GEOC, IAC, PRES and SCHB

Self-Assembly & Non-Covalent Interactions: The Fundamental Science of Supramolecular Materials

Sponsored by ANYL, Cosponsored by COLL

MONDAY AFTERNOON

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Bio Amphiphiles & Colloids

R. Nagarajan, *Organizer*

G. Narsimhan, *Presiding*

2:00 348. Exploring the mechanisms of liquid-liquid phase separation in concentrated protein solutions. **B.A. Rogers**, K.B. Rembert, M.F. Poyton, H.I. Okur, T.S. Yang, J. Zhang, P.S. Cremer

2:20 349. Identification and characterization of novel peptide domains, which exhibit binding affinities for electroactive materials. **A. Winton**, S.J. Riley, M.A. Allen

2:40 350. Multivalent presentation of precision glycomacromolecules on soft microgels for specific lectin binding studies. **F. Jacobi**, H. Wang, A. Camaleño de la Calle, S. Schmidt, L. Hartmann

3:00 351. Pore formation by aggregates of antimicrobial peptides in DMPC liposomes. **Y. Lyu**, M. Fritiyanti, X. Zhu, G. Narsimhan

3:20 352. Transmembrane difference in colloid osmotic pressure affects the lipid membrane fluidity of liposomes encapsulating a concentrated protein solution. **H. Sakai**

3:40 353. Studies of the interactions between Cu^{2+} and sphingosine-1-phosphate. **A.J. Baxter**, T. Yang, P.S. Cremer

4:00 354. Functionalization of living bacterial cells with metallic nanoparticles mediated by surface-displayed peptides. **H. Dong**, D.A. Sarkes, D.N. Stratis-Cullum

4:20 355. Interaction of cationic poly (oxonorbornene) coated gold nanoparticles with model membranes. **Z. Zheng**, Y. Zhang, B. Zhi, I.U. Foreman-Ortiz, D. Boschert, R.J. Hamers, C.L. Haynes, J.A. Pedersen, K. Lienkamp, Z. Rosenzweig

4:40 356. Cellular and particle dynamics in blood flow with rigid red blood cells. **M. Gutierrez**, O. Eniola-Adefeso

5:00 357. Investigation of the adsorption properties of dipeptides: A thermodynamic, inelastic neutron scattering and modeling study. **D. Paradiso**, J.Z. Larese

Section B

Walter E. Washington Convention Center
Rooms 208A/B

Self-Assembly of Synthetic & Biological Surfactants: Translating Fundamentals to Applications

V. T. John, S. R. Raghavan, *Organizers, Presiding*

2:00 358. Linking gene expression with phospholipid membrane formation. **A. Bhattacharya**

2:20 359. Chemoselective assembly and modification of lipids for use in model and live-cell systems. **A.K. Rudd**, R. Brea Fernandez, N.K. Devaraj

2:40 360. New insights into the diffusion of fluorescently labeled lipid probes in phospholipid membranes by FRAP: Identification of multiple diffusing populations and their origins. **C.M. Smith**, K.R. Griffin, S. Herman, S.S. Saavedra

3:00 361. Near infrared responsive gold-layered nanoshells. A. Abbasi, G.D. Bothun, **A. Bose**

3:20 Intermission.

3:40 362. Steering an enzymatic reaction with vesicles. **P. Walde**, S. Luginbühl, G. Ćirić-Marjanović

4:10 363. Lipidic templates and coatings for designing nanotheranostics. **G.D. Bothun**

4:40 364. Can vesicles transform into helical tubules in a system based on achiral surfactants? **S.R. Raghavan**

5:00 365. Amphiphilic polypeptoids and their hydrophobic interactions with lipid bilayers: Fundamentals and translation to drug delivery systems. **V.T. John**, Y. Zhang, M. Omarova, D. Zhang, T. Yu, S. Xuan

Section C

Walter E. Washington Convention Center
Room 150B

Targeted Nanosystems for Therapeutic Applications: New Concepts, Dynamic Properties, Efficiency & Toxicity

K. Sakurai, *Organizer*

M. A. Ilies, *Organizer, Presiding*

2:00 366. Bi-CTAB composite photocatalytic nanomaterial for antibacterial applications. **S. Li**, C. Lu, K. Yu, S. Wong, M. Goh

2:30 367. Particle modulus as a key parameter of vascular-targeted drug delivery *in vitro* and *in vivo*. **M. Fish**, C. Fromen, T.F. Scott, R. Adili, M. Holinstat, O. Eniola-Adefeso

3:00 368. Molecular design of non-toxic polymeric inhibitors as novel anti-thrombotics and antidotes for anticoagulants. M. Kalathottukaren, S. Abbina, C.A. Haynes, **J.N. Kizhakkedathu**

3:30 Intermission.

3:45 369. Cationic amphiphiles designed to mimic antimicrobial peptides exhibit marked activity against planktonic bacteria and biofilms. **A.E. Moretti**, R. Weeks, M. Chikindas, K.E. Uhrich

4:15 370. Withdrawn

4:45 371. Polymer therapeutics and stem cell therapies as a combinatorial approach for the treatment of chronic spinal cord injuries. V.J. Nebot, R. Requejo-Aguilar, A. Armiñan, O. Zagorodko, A. Alastrue-Agudo, V. Moreno-Manzano, **M.J. Vicent**

Section D

Walter E. Washington Convention Center
Room 150A

Photoresponsive Nanoparticles: From Fundamentals of Excitation to Applications

Novel Synthesis

B. G. DeLacy, Y. Han, *Organizers*
Y. Sun, *Organizer, Presiding*
D. Qin, *Presiding*

2:00 372. Plasmon-driven anisotropic growth of gold nanoprisms: Cooperative action of surfactants with light. **W. Wei**

2:30 373. Gold nanoboxes with plasmonic absorption at near infrared wavelength. **D. Qin**, X. Sun, J. Kim, J. Ahn

3:00 374. Multifunctional nanomaterials and their photo- and magneto-thermal applications. **S. Hunyadi Murph**

3:20 375. Using gold nanoparticle surface chemistry to control electronic behavior: Towards energy transfer applications. **S. Crawford**, C.M. Andolina, A. Smith, J. Millstone

3:40 Intermission.

4:00 376. Molecular plasmons: A new take on an old molecule with new applications. **N.J. Halas**

4:30 377. Plasmonic field and heat from gold nanorods. **C.J. Murphy**

5:00 378. Atomically precise metal nanoparticles: Fundamentals and opportunities. **R. Jin**

Section E

Walter E. Washington Convention Center
Room 209B

Colloidal Metal & Semiconductor Nanostructures: Theory, Synthesis & Application

Theory

Financially supported by Department of Chemistry, University of Connecticut; Department of Chemistry, University of Central Florida

A. J. Haes, J. Zhao, *Organizers*

S. Zou, *Organizer, Presiding*

2:00 379. Strong plexcitonic interactions in colloidal solutions containing hybrid metal nanoparticle/dye systems. R. Thomas, A. Thomas, R. Swathi, **S.K. Gray**, K.G. Thomas

2:30 380. Optical and energy-related phenomena in metal nanocrystal chains with hot spots: Coherent transfer of plasmons, hot electrons and heat generation. **A. Govorov**

3:00 381. Electron- and photon-driven optical responses in metallic, alloyed, and semiconducting nanostructures. **D.J. Masiello**

3:30 382. Designing nanoparticle solar cells without defect states and with enhanced charge transport using ab initio simulations. **M. Voeroes**, N. Brawand, F. Giberti, G.A. Galli

3:50 Intermission.

4:10 383. Electron density dependent core-shell model in simulation optical properties of metallic nanoparticles. **S. Li**, C. Chen

4:40 384. Atomistic electrodynamic simulations of plasmonic nanoparticles. **L. Jensen**

5:10 385. Low dimensional nanomaterials: Insights from the established, exotic, and imagined. P.A. Brown, **K.L. Shuford**

5:40 386. Optical properties of self-assembled supracolloidal nanostructures for metamolecules.
Z.A. Benson, M. Dias, C. Gong, M.S. Leite

Section F

Walter E. Washington Convention Center
Room 209A

Emulsions, Foams & Dispersions: Symposium in honor of Dominique Langevin at 70

K. J. Stebe, D. A. Weitz, *Organizers*
R. Nagarajan, *Organizer, Presiding*

2:00 387. Oil foams stabilised by surfactant or fat crystals. **B. Binks**, E.J. Garvey, I.P. Marinopoulos

2:25 388. Arresting bubble coarsening with surface elasticity. **A. Salonen**, C. Gay, A. Maestro, W. Drenckhan, E. Rio

2:50 389. Foams and dispersions at high salinity. **K.P. Johnston**, M. Iqbal, J. Lee, C. Dandamudi, S. Alzobaidi, E. Moaseri, B. Chang, C. Da

3:15 390. Encapsulation in double emulsions: Fabrication and time stability of the capsules. M. Nollet, M. Mercé, E. Laurichesse, **V. Schmitt**

3:40 Intermission.

3:50 391. New directions in the science and engineering of particle-containing foams: Responsive materials and bioreactor operations. **O.D. Velev**

4:15 392. Stability of flowing foams under confinement. **S.L. Biswal**

4:40 393. Border-crossing model for the diffusive coarsening of wet foams. **D. Durian**

5:05 394. Emulsions, foams and dispersions. **D. Langevin**

Section G

Walter E. Washington Convention Center
Room 204C

Basic Research in Colloids, Surfactants & Nanomaterials

Metal & Semiconductor Nanomaterials

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

2:00 395. Gas and vapor dependent photoluminescence changes and surface chemistry of zinc oxide nanoparticles. **S. Kim**, R. Somaratne, S.K. Sengupta, J.E. Whitten

2:20 396. Watching submonolayer deposition of platinum on colloidal silver nanocrystals with a molecular probe. **Y. Zhang**, D. Qin

2:40 397. Enhanced emission of nanocrystal solids featuring slowly diffusive excitons. **N.N. Kholmicheva**

3:00 398. Plasmon enhanced multiexciton emission of single quantum dots. **J. Zhao**, S. Dey, S. Zou

3:20 399. Au exchange or Au deposition: Control of morphology in Au-CsPbBr₃ heterostructure nanoparticles. **B. Roman**, M.T. Sheldon

3:40 400. Thermochemical measurements of cation exchange in cadmium selenide nanocrystals using isothermal titration calorimetry. **S. Jharimune**, A. Sathe, R.M. Rioux

4:00 401. Catalytic applications of Cu_{2-x}Se nanoparticles in redox reactions. **M. Richard**, X. Gan, J. Millstone, E. Borguet

4:20 402. Fate of photoexcited charge carriers in lead-free perovskite nanocrystals for excitonic solar cells. **C. Liu**, K. Zheng, D.J. Gosztola, S. Canton, X. Zhang

4:40 403. Sensitivity of plasmonic metal nanoparticles and their potential in plasmonic polymer nanocomposites. **A. Khan**, G. Liu

5:00 404. Dye-loaded core-shell Au-SiO₂ nanoparticles for cancer theranostics. **F.M. Roland**, Q. Zhang, B.D. Smith, R. Roeder

Building a Safety Culture Across the Chemistry Enterprise

Grassroots Approaches to Developing a Safety Culture

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Nanotechnology & Single Cell Analysis in Biology & Medicine

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Chemistry in an Evolving Political Climate: Research Priorities & Career Pathways in Public Policy

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Transformative Research & Excellence in Education Award

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Self-Assembly & Non-Covalent Interactions: The Fundamental Science of Supramolecular Materials

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MONDAY EVENING

Section A

Walter E. Washington Convention Center
Halls D/E

Sci-Mix

R. Nagarajan, *Organizer*

8:00 - 10:00

142, 157-158, 166, 178-179, 183, 185-188, 194-196, 199-205, 207-208, 211, 213-215, 221-223, 231-234, 236, 238-239, 244, 251-252, 254-256, 258-260, 264, 266, 270-273, 278, 281, 283-286, 294. See previous listings.

TUESDAY MORNING

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Emulsions & Gels

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

8:30 405. Double emulsion for the encapsulation of reactive lipophilic components. **M. Stasse**, V. Heroguez, V. Schmitt

8:50 406. Structure and dynamics of solid-like ion gels with high ionic conductivity. **Z. Yu**, Y. He, Y. Wang, L.A. Madsen, R. Qiao

9:10 407. Food-grade dispersants for remediation of oil spills: Insights from colloid science. **N. Agrawal**, S.R. Raghavan

9:30 408. Structure-property relationships and mechanotropic properties of molecular gels based on simple fatty acid based gelators. **A.V. Mallia**, B. Matel

9:50 409. Investigating the crosslinking of Pickering nanoemulsions stabilised by epoxy-functional diblock copolymer nanoparticles. **F. Hatton**, K. Thompson, S.P. Armes

10:10 410. Modified two-step emulsion solvent evaporation technique for fabricating biodegradable rod-shaped drug carriers. **H. Safari**, O. Eniola-Adefeso

10:30 411. Stabilization of lipase in polymerized high internal phase emulsions through interfacial assembly. **S. Andler**, J.M. Goddard

10:50 412. Solid drug nanoparticles synthesised using water-in-oil emulsion templating and nanoprecipitation: From proof of concept to *in vitro* validation of long acting depot. **J.J. Hobson**, P. Curley, A. Al-khouja, C.L. Meyers, C. Flexner, A. Owen, S. Rannard

11:10 413. Exploration and tunability of the aggregation and gelation process of tripeptides. **D.M. DiGuseppi**, L. Thursch, N. Alvarez, R. Schweitzer-Stenner

11:30 414. Interfacial properties of surfactant monolayers and the formation of microemulsions by molecular dynamics simulations. **D. Cheong**, F. Lim, J. Tan, L. Zhang

Section B

Walter E. Washington Convention Center
Rooms 208A/B

In-Situ Investigation of Energy Systems using Ambient-Pressure X-Ray Photoelectron Spectroscopy

E. Crumlin, H. Ogasawara, I. Waluyo, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 415. Revisiting CO oxidation on Pt(110) surface with ambient pressure XPS. **B.S. Mun**

9:15 416. Diluted alloys based on noble metals as selective catalysts for oxidation and (de)hydrogenation. **M. van Spronsen**, B. Eren, N. Janvelyan, C. Wu, B. Zugic, M. Salmeron, R.J. Madix, C.M. Friend

9:35 417. *In situ* XPS as a tool to unravel surface chemistry in C-H reforming reactions. **S.D. Senanayake**, Z. Liu, R.M. Palomino, D. Grinter, I. Waluyo, J. Rodriguez

10:15 Intermission.

10:35 418. Dissociative adsorption of CO₂ on Cu(100). B. Hagman, A. Schaefer, C. Zhang, M. Shipilin, L.R. Merte, E. Lundgren, A.P. Borbon, H. Gronbeck, **J. Gustafson**

11:15 419. *In-situ* investigation of water dissociation on NiO_x/CeO₂ (111) surfaces using ambient-pressure XPS. **Z. Liu**, R.M. Palomino, J. Rodriguez, S.D. Senanayake

11:35 420. Ethanol reactivity over Ti-modified CeO_x(111) mixed oxide surfaces from UHV conditions to elevated pressures. **J. Zhou**

Section C

Walter E. Washington Convention Center
Room 150B

Responsive, Programmable Assembly of Active Colloids for Functional Materials

Financially supported by JULABO USA Inc.

C. D. Keating, L. D. Zarzar, *Organizers*
R. Hickey, *Organizer, Presiding*

8:30 421. Active colloids and liquid crystals. **N.L. Abbott**

9:00 422. Self-assembly of nanoparticles in droplets of colloidal cholesteric liquid crystals. **Y. Li**

9:20 423. Synthesis and liquid crystal behavior of bent colloidal silica rods. **Y. Yang**, G. Chen,
Z. Nie

9:40 424. Surprises in self-assembly dynamics at the nanoscale. **Q. Chen**

10:10 425. Hybrid quantum dots-based flexible films with tailored mono-type microdomains by ligand interactions of tethered polymers. **J. Zhang, J. Lee**, D. Luo, Z. Wang, J. Yan, K. Matyjaszewski, M.R. Bockstaller

10:30 426. Tuning the dielectrophoretic assembly of dielectric and semiconducting particles through surface functionalization. **N.D. Burrows**, C.D. Keating

10:50 427. Controlling anisotropic colloidal assembly in external fields. **M.A. Bevan**

11:20 428. Assembly of amphiphilic hyperbranched polymeric ionic liquids in aqueous media at different ionic environments. **V. Korolovych**, A.J. Erwin, A. Stryutsky, E. Mikan, V. Shevchenko, L. Bulavin, V.V. Tsukruk

11:40 429. Hierarchical assembly of amphiphilic supracolloids with tunable patterns. **S. Zhang**, C. Yi, J. He, Z. Nie

12:00 430. Directed self-assembly and crystallization of colloids. **M. Weck**

Section D

Walter E. Washington Convention Center
Room 150A

Targeted Nanosystems for Therapeutic Applications: New Concepts, Dynamic Properties, Efficiency & Toxicity

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

8:30 431. Bionanoparticles via self-assembly induced by complexation of nucleic acid with double hydrophilic block copolymer. **R. Nagarajan**

9:00 432. Histone-targeted gene nanocarriers enable 100-fold reductions in BMP-2 dosing for bone regenerative applications. **E. Munsell**, M.O. Sullivan

9:30 433. Delivering RNAi therapeutics: From discovery to applications. **M. Manoharan**

10:00 Intermission.

10:15 434. ssDNA nanotubes targeting glioblastoma multiforme. M.A. Harris, M. Shiao, H. Kuang, W. Low, **E. Kokkoli**

10:45 435. Nucleic acid nanocapsules: A hybrid biomaterial for controlled drug delivery. **J.L. Rouge**

11:15 436. Tunable degradability of disulfide-functional poly(amido amine)s as gene carriers. **R. Elzes**, N. Akeroyd, J.M. Engbersen, J.M. Paulusse

Section E

Walter E. Washington Convention Center
Room 209B

Photoresponsive Nanoparticles: From Fundamentals of Excitation to Applications

Assembled Plasmonic Nanostructures

Y. Han, *Organizer*

B. G. DeLacy, Y. Sun, *Organizers, Presiding*

8:30 437. Nanoparticle superlattices in 2D and 3D. **G.C. Schatz**

9:00 438. Understanding the lasing mechanism of plasmonic nanoparticle arrays. **T.W. Odom**

9:30 439. Site-specific surface encoding for programmable self-assembly of colloidal nanoparticles. **G. Chen**

10:00 Intermission.

10:20 440. Ultrafast dynamics of plasmonic nanostructures. **S. Link**

10:50 441. Lead halide perovskite nanostructures for fundamental photophysical studies and optoelectronic applications. **S. Jin**, Y. Fu

Section F

Walter E. Washington Convention Center
Room 209A

Colloidal Metal & Semiconductor Nanostructures: Theory, Synthesis & Application

Theory

Financially supported by Department of Chemistry, University of Connecticut; Department of Chemistry, University of Central Florida

J. Zhao, S. Zou, *Organizers*

A. J. Haes, *Organizer, Presiding*

8:30 442. Geometrical singularities in metal nanostructures for enhanced biosensor sensitivity and selectivity. A. House, M. Mursalat, **S. Basuray**

9:00 443. Electrically modulated localized surface plasmon around self-assembled-monolayer-covered nanoparticles. **M. Su**

9:30 444. Development of plasmonic nanostructures toward surface-enhanced Raman scattering detection in point-of-care settings. **N. Wu**

10:00 445. Symmetry broken nanostructures: Anisotropic and multi-component nanoparticles. A. Kossak, B. Stephens, Y. Tian, M. Chen, **T.J. Kempa**

10:20 Intermission.

10:40 446. Plasmonic biosensors with ultrastable biorecognition elements. C. Wang, J. Morrissey, E. Kharasch, R.R. Naik, **S. Singamaneni**

11:10 447. Biocompatible, liposome-based surface enhanced Raman spectroscopy (SERS) substrates. **L. Sagle**, W. Lum, I. Bruzas, Z. Gorunmez

11:40 448. Surface coding of nanoparticles for self-assembly and plasmonic bioapplications. **Y. Weizmann**

12:10 449. Controlling enzyme activity in enzyme-nanoparticle conjugates through selective ligand choice. **S. Diaz**, S. Sen, C. Brown, E. Oh, K. Susumu, M.H. Stewart, J. Breger, L.D. Field, P. Kral, I. Medintz

Section G

Walter E. Washington Convention Center
Room 204C

Bioconjugate Chemistry Lecturer Award Symposium

V. M. Rotello, *Organizer, Presiding*

8:30 450. Bio-conjugation for designing novel adjuvants for vaccines via multiple reactions: Don't get too attached. **A. Esser-Kahn**, T.J. Albin, J. Tom, A. Burkhardt, A. Gilkes, D.H. Davies, P. Felgner

9:00 451. Transition-metal catalysis for site-selective protein modification. **Z.T. Ball**

9:30 452. Cysteine-mediated redox signaling: Chemical tools for biological discovery. **K.S. Carroll**

10:00 453. Biocompatible chemistries for imaging cellular cross-talk. **J.A. Prescher**

10:30 454. Making new materials from synthetically modified proteins. **M.B. Francis**

Understanding the Chemistry of Our Planet

Chemistry's Role in our Earth System

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GSSPC: Standing on the Shoulders of Giants: Developing Chemistries for Improved Global Health

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Journey to Mars: Materials, Energy & Life Sciences

Sponsored by POLY, Cosponsored by ANYL[‡], BMGT[‡], COLL[‡], ENVR[‡], FLUO[‡], PMSE[‡], PRES, SCHB[‡] and YCC[‡]

TUESDAY AFTERNOON

Walter E. Washington Convention Center
Room 147A

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

R. Nagarajan, *Organizer*
H. Fairbrother, *Presiding*

2:00 Introduction of Langmuir Lecturer **Frank Caruso**.

2:05 455. Engineering particles for bio–nano science and beyond. **F. Caruso**

2:50 Introduction of Langmuir Lecturer **Paul Cremer**.

2:55 456. Probing the interactions of anions and cations with phospholipid membranes. **P.S. Cremer**

3:40 Introduction of NanoLetters Lecturer **Liangbing Hu**.

3:45 457. Nanocellulose for nanotechnologies. **L. Hu**

4:30 Introduction of ACS Materials & Interfaces Lecturer **Yanli Zhao**.

4:35 458. Responsive organic nanosystems for targeted bioimaging and therapy. **Y. Zhao**

GSSPC: Standing on the Shoulders of Giants: Developing Chemistries for Improved Global Health

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Understanding the Chemistry of Our Planet

Human Impacts to our Planet

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Journey to Mars: Materials, Energy & Life Sciences

Sponsored by POLY, Cosponsored by ANYL[‡], BMGT[‡], COLL[‡], ENVR[‡], FLUO[‡], PMSE[‡], PRES, SCHB[‡] and YCC[‡]

TUESDAY EVENING

Journey to Mars: Materials, Energy & Life Sciences

Sponsored by POLY, Cosponsored by ANYL[‡], BMGT[‡], COLL[‡], ENVR[‡], FLUO[‡], PMSE[‡], PRES, SCHB[‡] and YCC[‡]

WEDNESDAY MORNING

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Interface Engineering

R. Nagarajan, *Organizer*
R. M. Espinosa-Marzal, *Presiding*

8:30 459. Interface engineering for nanoelectronics. **C.A. Hacker**

8:50 460. Ultra-thin thermo-responsive self-folding 3D graphene. **W. Xu**, Z. Qin, C. Chen, H. Kwag, Q. Ma, A. Sarkar, M.J. Buehler, D.H. Gracias

9:10 461. Aquatic stability of few-layered black phosphorus: The leading edge of 2-dimensional nanomaterials. **S. Story**, L. Guiney, M. Hersam, S.L. Walker

9:30 462. Molecular insight into polymer-ionic liquid mediated lubrication. M. Han, **R.M. Espinosa-Marzal**

9:50 463. Investigation of effect of steric substituents on the organization of methacrylate monomers at air-liquid interface using sum frequency generation spectroscopy. **U.I. Premadasa**, K.A. Cimat, N.M. Adhikari

10:10 464. Liquid surfactants for boron nitride nanosheet (BNNS) processing. **T. Habib**, D.S. Devarajan, F. Khabaz, D. Parviz, T. Achee, R. Khare, M.J. Green

10:30 465. Constrained dewetting of grafted homopolymers for nanolithography. **M. Tebbe**, E. Galati, G.C. Walker, E. Kumacheva

10:50 466. Effects of external electric field on spreading of a surfactant on aqueous surface. **S. Tsuchitani**, T. Shuto, H. Miki, K. Kikuchi

11:10 467. Self-collapse lithography. **C. Zhao**, X. Xu, Q. Yang, T. Man, S.J. Jonas, J. Schwartz, P. Chiou, A.M. Andrews, P.S. Weiss

11:30 468. Ultra-dense and long-lasting shells for inorganic nanoparticles are based on cyclic polymer brushes. **G. Morgese**, B.S. Shaghasemi, E. Reimhult, E. Benetti

Section B

Walter E. Washington Convention Center
Rooms 208A/B

Responsive, Programmable Assembly of Active Colloids for Functional Materials

Financially supported by JULABO USA Inc.
R. Hickey, C. D. Keating, *Organizers*
L. D. Zarzar, *Organizer, Presiding*

8:30 469. Reconfigurable all-liquid systems using dimensionally confined colloidal nanoparticle-polymer surfactant assemblies at liquid-liquid interfaces. **B. Helms**, W. Feng, J.W. Forth, T.P. Russell

9:00 470. Competition between ions and nanoparticles during the reversible attachment of nanoparticles to a fluid interface. M.A. Bevan, **J. Frechette**

9:30 471. Emulsion-based, stimuli-responsive compound micro-lenses. S. Nagelberg, L.D. Zarzar, N. Nicolas, K. Subramanian, J.A. Kalow, V. Sresht, D. Blankschtein, G. Barbastathis, M. Kreysing, T.M. Swager, **M. Kolle**

10:00 472. Continuous visualization of complex liquid emulsions using on-chip ring resonators. **S. Savagatrup**, T.M. Swager

10:20 473. Exploiting the fluororous phase to readily access multifunctional nanomaterials. R. Day, D. Estabrook, **E.M. Sletten**

10:50 474. ZIF as efficient acid-sensitive nanoparticles for intelligent anticorrosion coatings. **S. Yang**

11:10 475. Nanoscale interfacial complexation in emulsions (NICE): From encapsulation and controlled release to protocells. **D. Lee**

11:40 476. Self-assembled structures using DNA-coated colloids and depletion. **D. Pine**

Section C

Walter E. Washington Convention Center
Room 150B

In-Situ Investigation of Energy Systems using Ambient-Pressure X-Ray Photoelectron Spectroscopy

E. Crumlin, H. Ogasawara, I. Waluyo, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 477. Studies of catalyst surfaces under near-ambient pressure conditions. **G. Held**

9:15 478. *In-operando* study of CO oxidation on Pt/TiO₂ nanoparticles to investigate the reaction mechanism: A step towards closing the pressure and materials gap. **R. Galhenage**, J. Bruce, D. Ferrah, A. Hunt, I. Waluyo, J.C. Hemminger

9:35 479. Application of ambient pressure x-ray photoelectron spectroscopy to studies of catalytic materials. **F. Tao**

10:15 Intermission.

10:35 480. Bridging the pressure and materials gaps: Methanol oxidation on La_{1-x}Sr_xMnO₃ thin-films and powders. **D.R. Mullins**, Y. Zhang, M. Kidder, S.H. Overbury

11:15 481. Interface chemistry of H₂O on pure and Ni-modified CoOOH nanowires probed by ambient-pressure x-ray photoelectron spectroscopy. Z. Chen, C.X. Kronawitter, I. Waluyo, **B.E. Koel**

11:35 482. Surface chemistry and catalysis confined under two-dimensional (2D) materials. **Q. Fu**

Section D

Walter E. Washington Convention Center
Room 150A

Targeted Nanosystems for Therapeutic Applications: New Concepts, Dynamic Properties, Efficiency & Toxicity

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

8:30 483. *In silico* modeling of nanodrug: Molecular insight of metallofullerenol Gd@C82(OH)22 in cancer anti-metastasis. **S. Kang**

9:00 484. Dextran coated iron oxide nanoparticle: Biomimetic catalysts and anti-biofilm agents. **P.C. Naha**, Y. Liu, S. Gubara, G. Hwang, D. Kim, V. Jonnakuti, L. Gao, H. Koo, D. Cormode

9:30 485. Non-crosslinking aggregation of DNA-modified gold nanoparticles for gene diagnosis and directed assembly. **G. Wang**, Y. Akiyama, N. Kanayama, T. Takarada, M. Maeda

10:00 Intermission.

10:15 486. Surface chemistry dictates the internalization and cytotoxicity of carbonic anhydrase inhibitor functionalized gold nanoparticles targeting hypoxic tumors. **A. Shabana**, M.R. Alam, T. Spoon, U. Mondal, C.A. Ross, M.A. Ilies

10:45 487. Spatiotemporal modulation of doxorubicin toxicity *via* delivery as a nanoparticle-bioconjugate complex. **A. Sangtani**, E. Petryayeva, M. Wu, K. Susumu, E. Oh, A. Huston, G. Lasarte-Aragónés, I. Medintz, W.R. Algar, J. Delehanty

11:15 488. Interaction of gold nanorods with genomic DNA. **J.A. Kretzmann**, D. Ho, P. Toshniwal, C.W. Evans, M. Norret, M. Nguyen, J. Veder, H. Jiang, A. Munshi, A.J. Blythe, M. Saunders, M. Archer, M. Fitzgerald, J.A. Keelan, C.S. Bond, L.H. Hurley, M.R. Kilburn, N.M. Smith, K. Iyer

Section E

Walter E. Washington Convention Center
Room 209B

Photoresponsive Nanoparticles: From Fundamentals of Excitation to Applications

Spectroscopy & Imaging

Y. Han, *Organizer*

B. G. DeLacy, Y. Sun, *Organizers, Presiding*

8:30 489. Tracking photon-induced electron transfers in nanoparticle systems using ultrafast x-ray absorption spectroscopy. **X. Zhang**, C. Liu, K. Zheng, A. Hassan, P.T. Snee, J. Huang, S. Canton

9:00 490. Mapping carrier dynamics on semiconductor material surfaces and at interfaces using laser spectroscopy and 4D electron microscopy. **O.F. Mohammed**

9:30 491. Excitation wavelength dependent multiphoton emission of single semiconductor nanocrystal near gold nanoparticles. **J. Zhao**

10:00 492. Single and multiexciton energy and electron transfer processes in 2D semiconductor structures. B. Diroll, C.E. Rowland, P. Guo, I. Fedin, P. Darancet, S.K. Gray, A. Govorov, D. Talapin, **R.D. Schaller**

10:30 Intermission.

10:50 493. Coupled optical and electrochemical measurements for studying nanostructured materials. **K.A. Willets**

11:10 494. Imaging the photochemical reactions of single nanoparticles with surface plasmon resonance microscopy. **W. Wang**

Section F

Walter E. Washington Convention Center
Room 209A

Colloidal Metal & Semiconductor Nanostructures: Theory, Synthesis & Application

Photocatalysis & Photo Processes

Financially supported by Department of Chemistry, University of Connecticut; Department of Chemistry, University of Central Florida

A. J. Haes, S. Zou, *Organizers*

J. Zhao, *Organizer, Presiding*

8:30 495. Key insights into carbon dioxide photoreduction from single-nanoparticle catalysis studies. **P.K. Jain**

9:00 496. Hybrid semiconductor-metal nanoparticles as photocatalysts. **U. Banin**

9:30 497. Colloidal semiconductor nanocrystal photocatalysts: Teaching an old dot new tricks. **T.D. Krauss**, J. Caputo, L.C. Frenette, C. Liu, F. Qiu, J.J. Peterson, K.L. Sowers, D.J. Weix

10:00 498. Photoinduced charge transfer in chiral nanoparticle assemblies. **D.H. Waldeck**

10:30 Intermission.

10:40 499. Understanding and manipulating quantum dot photoluminescence lineshapes: Traps, defects and surface states. **J.R. Caram**, S.N. Bertram, M.G. Bawendi

11:00 500. Detailed balance efficiencies for luminescent solar concentrators with aligned semiconductor nanorods. **M.T. Sheldon**

11:20 501. Exploiting exciton plasmon coupling to enhance optical transitions in colloidal quantum dots. K. Dipple, A.K. Tobias, **M. Jones**

11:40 502. Distance- and dye-dependent quenching behavior of magnetic (nickel or iron oxide) core- gold shell nanoparticles. **P. Vakil**, G.F. Strouse

12:00 503. Mechanical vibrations of metal nanoparticles for sensing applications and fundamental fluid dynamics. **M. Pelton**

Section G

Walter E. Washington Convention Center
Room 204C

Frontier of the Interface of Materials & Biology: Click Chemistry Approaches to Bio-Inspired Materials

Q. Wang, *Organizer*

V. O. Rodionov, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 504. Engineering cell surfaces with synthetic polymers. **H.A. Klok**

9:05 505. Click chemistry to enable bioinspired polymer nanofibers. **J.K. Pokorski**

9:35 506. Orthogonal click chemistry allows encapsulation of functional drugs in nanocapsules. **K. Landfester**

10:05 Intermission.

10:20 507. Thiol-ene photo-addition as versatile tool for biomedical applications. **U.S. Schubert**

10:50 508. Combined supramolecular and click chemistry approach towards the development of functional biomaterials. **Q. Wang**

11:20 509. Gel networks as confined microenvironments for photochemical reactions under mild conditions. **D. Diaz-Diaz**

Section H

Walter E. Washington Convention Center
Room 155

Multimodal Imaging with Colloids

P. del Pino, J. V. Jokerst, L. Liz Marzan, *Organizers*
W. Parak, *Organizer, Presiding*

8:30 510. Quantitative particle-cell interaction: Some basic physicochemical pitfalls. **W. Parak**, N. Feliu

9:00 511. Simultaneous detection and inhibition of Healthcare-Associated Infections (HAIs) by colloidal gold nanoclusters. **N.M. Khashab**

9:30 512. Photo/magnetic stimulated nanocargos: Cancer theranostics for MR/CT-imaging-guided magneto-chemotherapy. **N. Thorat**, S.A. Tofail, W. Parak

10:00 513. Developing endothelial targeted nanotechnologies to wean cancer nanomedicine and bioimaging nanotechnology off the EPR effect. **D. Leong**, M.I. Setyawati, C. Tay

10:30 Intermission.

11:00 514. Cylindrical graphene nanomaterials for disease assessment and drug development. **D.A. Heller**, J. Budhathoki-Uprety, R. Frederiksen, T.V. Galassi, J.D. Harvey, C.P. Horoszkó, P.V. Jena, R.E. Langenbacher, D. Roxbury, J. Shah, Y. Shamay, R.M. Williams

11:30 515. Targeting macrophages with multimodal nanomaterials. **A. Smith**, K.S. Swanson, E.R. Nelson, W. Dobrucki, T.L. Cross, L. Ma, H. Deng

12:00 516. Novel fluorine probes for gold nanoparticle labelling with application in ^{19}F -MRI. **M. Carril**

Journey to Mars: Materials, Energy & Life Sciences

Sponsored by POLY, Cosponsored by ANYL[‡], BMGT[‡], COLL[‡], ENVR[‡], FLUO[‡], PMSE[‡], PRES, SCHB[‡] and YCC[‡]

WEDNESDAY AFTERNOON

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Polymers

R. Nagarajan, *Organizer*
J. S. Lum, *Presiding*

2:00 517. Functional approach to solubility parameter computations. J. Howell, M. Roesing, **D.S. Boucher**

2:20 518. Investigation of functional monomers, polymers, and polymer thin films using sum frequency generation spectroscopy (SFGS) and atomic force microscopy (AFM). **K.A. Cimatu**, U.I. Premadasa, N.M. Adhikari, A. Kruse

2:40 519. Solubility characteristics of poly(3-hexylthiophene). M. Roesing, J. Howell, **D.S. Boucher**

3:00 520. Effect of long chain reptation on surface tackiness. **Y. Wang**, B. Xia, A. Zhou, X. Wang

3:20 521. Cavity ring-down spectroscopy monitoring of thermal degradation of 2D polymer monolayers on fused silica substrates. **S.M. Casey**, A.C. Murray

3:40 522. Preparation and characterization of PHMB-based multifunctional microcapsules. **J.S. Lum**, L.W. Place, S. Gulcius-Lagoy

4:00 523. Effect of surfactant system on polyHIPE morphology and mechanical properties. **K. Rohm**, V. Karimkhani, D. Feke, I. Manas-Zloczower

4:20 524. Covalently bonded thioxanthone-laponite hybrid as photoinitiator for polymerization. **S. Valandro**, A.L. Poli, C.C. Schmitt

4:40 525. Study early drying stage of latex film using diffusing wave spectroscopy. **L. Wang**, A. Van Dyk, J. Derocher

5:00 526. Superhydrophobic, infrared transmissive moth eye-like substrates for use in wet conditions. **D.A. Boyd**, J.A. Frantz, L.E. Busse, W. Kim, S.S. Bayya, I. Aggarwal, J.S. Sanghera

Section B

Walter E. Washington Convention Center
Rooms 208A/B

Basic Research in Colloids, Surfactants & Nanomaterials

Nanomaterial Functionalization

R. Nagarajan, *Organizer*
J. W. Krumpfer, *Presiding*

2:00 527. Surface PEGylation to silver nanoparticles: Kinetics of simultaneous surface dissolution and molecular desorption. **D. Tsai**, W. Chang

2:20 528. Hydrophobization of inorganic oxide surfaces via siloxane equilibration reactions. K.M. Ryan, W.Y. Bender, J. Kreitler, **J.W. Krumpfer**

2:40 529. Unveiling the internal structure of light-harvesting porphyrin nanoaggregates using phase-sensitive vibrational sum frequency generation spectroscopy. **C.C. Rich**, A.T. Krummel

3:00 530. Exploring graphene oxide through stable emulsion systems. **H. Kumar**, V. Vasu, C.D. Liyanage, T. Francis, D.H. Adamson

3:20 531. Schizophyllan-guided cell-specific delivery platform technology loaded with anti-CD40 oligonucleotide induces permanent cardiac allograft acceptance at low dose. **B.N. Alizadeh**, A. Uno, H. Ando

3:40 532. Chalcogenide nanomaterials in thin-film photovoltaics. **D.R. Radu**, C. Lai, M. Liu, P. Hwang, D. Berg, C. Chen, K. Dobson

4:00 533. Functionalised silica nanoparticles as fouling resistant surface coatings. **P. Molino**, B. Knowles, B. Zhang, M. Higgins, G. Wallace

4:20 534. Template-free 3D titanium carbide (MXene) particles crumpled by capillary forces. **S. Shah**, T. Habib, H. Gao, P. Gao, W. Sun, M.J. Green, M. Radovic

4:40 535. Extremely stretchable coatings for super-repellent flexible electronics. **J.E. Mates**, I. Bayer, J. Palumbo, P. Carroll, C. Megaridis

5:00 536. Plant-based polyphenol coatings for surface functionalization with proteins and enzymes. **A. Sousa**, S. Varghese, T. Li, P. Halling, K. Lau

Section C

Walter E. Washington Convention Center
Room 150B

***In-Situ* Investigation of Energy Systems using Ambient-Pressure X-Ray Photoelectron Spectroscopy**

E. Crumlin, H. Ogasawara, I. Waluyo, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 537. Soft and hard x-ray ambient pressure photoelectron spectroscopy of semiconductor/electrolyte interfaces for water splitting applications. **D.E. Starr**, M. Favaro, F. Abdi, M. Kanis, H. Bluhm, E. Crumlin, R. Van de Krol

2:45 538. Assessing doping effects on surface chemical stability by *in situ* AP-XPS in barium perovskites, $\text{BaCe}_x\text{Zr}_{0.9-x}\text{Y}_{0.1}\text{O}_{2.95}$ ($x = 0.9 ; 0.2 ; 0$). **A. Jarry**, C. Pellegrinelli, A. Geller, S. Ricote, X. Zhang, I. Takeuchi, E.D. Wachsman, E. Crumlin, B.W. Eichhorn

3:05 539. Structure and chemistry of oxide thin films and surfaces revealed by ambient pressure x-ray photoelectron spectroscopy and absorption spectroscopy: Implications for better electrochemical energy conversion and electronic devices. **B. Yildiz**

3:45 Intermission.

4:05 540. Understanding solid/liquid electrified interfaces using ambient pressure x-ray photoelectron spectroscopy. **M. Favaro**, Z. Liu, E. Crumlin

4:45 541. *Operando* AP-XPS evaluation of semiconductor/liquid and associated systems. **M. Lichterman**, M. Richter, S. Hu, E. Crumlin, B.S. Brunschwig, A. Lewerenz, N.S. Lewis

5:05 542. Operando APXPS studies of electrocatalysis. **A.R. Nilsson**

Section D

Walter E. Washington Convention Center
Room 150A

Targeted Nanosystems for Therapeutic Applications: New Concepts, Dynamic Properties, Efficiency & Toxicity

K. Sakurai, *Organizer*

M. A. Ilies, *Organizer, Presiding*

2:00 543. Anchor peptide enables rapid targeting, loading and capture of exosomes of diverse origins and targets oligonucleotides to muscle in *mdx* mice. X. Gao, H. Moulton, **H. Yin**

2:30 544. Targeting the *FGFR3-TACC3* fusion: Toward personalized medicine. **B. Parker Kerrigan**, S. Yamashita, M. Kronowitz, D. Ledbetter, J. Gumin, L. Phillips, A. Hossain, W. Zhang, F. Lang

3:00 545. Immunization with antigenic peptides complexed with β -glucan induces potent cytotoxic T-lymphocyte activity in combination with CpG-ODNs. **S. Mochizuki**, H. Morishita, K. Sakurai

3:30 Intermission.

3:45 546. Protein mimics enable antibody delivery into T-cells. **G.N. Tew**

4:15 547. Semi-solid pro-drug nanoparticles for long-acting delivery of water-soluble antiretroviral drugs for combination HIV therapies. J.J. Hobson, A. Al-khouja, P. Curley, C. Flexner, C.L. Meyers, A. Owen, **S. Rannard**

4:45 548. Refilling drug-eluting depots through systemic administration of inert prodrugs. **Y. Brudno**, R. Desai, B.J. Kwee, M. Aizenberg, N.S. Joshi, D.J. Mooney

Section E

Walter E. Washington Convention Center
Room 209B

Photoresponsive Nanoparticles: From Fundamentals of Excitation to Applications

Synthesis & Assembly

B. G. DeLacy, Y. Han, Y. Sun, *Organizers*
J. He, S. Neretina, *Presiding*

2:00 549. Nanostructure synthesis at the liquid-substrate interface: A new strategy for obtaining plasmonic and chemically active surfaces. **S. Neretina**, R. Hughes

2:30 550. Porous metals via the oriented attachment of nanoparticles. **Z. Quan**

3:00 551. Hot carrier up-conversion luminescence in nanocrystal heterostructures. **M.T. Sheldon**

3:20 552. Photo-triggered N₂-generating submicroparticles for selective cancer cell killing. **W. Tong**, H. Li, C. Gao

3:40 Intermission.

4:00 553. Reversible self-assembly and tunable optical properties of stable photoresponsive nanoparticles. **Z. Lin**, Y. Chen, G. Zhang

4:30 554. Polymer-assisted co-assembly approach toward mesoporous hybrid metal oxides catalysts for photocatalysis. B. Liu, S.L. Suib, **J. He**

5:00 555. A customizable class of colloidal-quantum-dot spasers and plasmonic amplifiers. **J. Cui**, S.J. Kress, P. Rohner, D.K. Kim, F.V. Antolínez, K. Zaininger, K. McPeak, D. Poulidakos, D.J. Norris

Section F

Walter E. Washington Convention Center
Room 209A

Colloidal Metal & Semiconductor Nanostructures: Theory, Synthesis & Application

Synthesis of Semiconductor Nanocrystals

Financially supported by Department of Chemistry, University of Connecticut; Department of Chemistry, University of Central Florida
A. J. Haes, J. Zhao, S. Zou, *Organizers*
O. Chen, *Presiding*

2:00 556. Monodisperse hexagonal pyramidal and bipyramidal wurtzite CdSe-CdS core-shell nanocrystals. **O. Chen**, R. Tan, J. Zhao

2:30 557. Correlating carrier density and emergent plasmonic features in Cu_{2-x}Se nanoparticles. **J. Millstone**, L.E. Marbella, X. Gan

3:00 558. Correlations between dopants and defects in colloidal metal oxide nanocrystals. **K.R. Kittilstved**

3:20 559. Controlled dopant migration in CdS/ZnS core/shell quantum dots. E. Hofman, R. Robinson, Z. Li, B. Dzikovski, **W. Zheng**

3:40 560. Group-V chemistry of semiconductor nanocrystals. **P.T. Snee**, A. Das

4:00 Intermission.

4:20 561. Colloidal III-V nanocrystals: Syntheses, challenges and opportunities. **V. Srivastava**, D. Talapin

4:40 562. Blue-emitting multi-shell quantum dots made from ZnSe cores: Synthesis and application for ratiometric pH sensing. **K. Susumu**, L.D. Field, E. Oh, M. Hunt, J. Delehanty, A. Huston, I. Medintz

5:00 563. Synthesis and characterization of PbS/ZnS core/shell nanocrystals. **J.E. Boercker**, D. Woodall, D. Placencia, P.D. Cunningham, C. Ellis, J. Tischler, M. Stewart, T. Brintlinger, R. Stroud

5:20 564. Continuous flow platforms for exploring growth mechanisms and ligand exchange reaction kinetics of colloidal quantum dots. **Y. Shen**, L. Xie, M. Abolhasani, M.G. Bawendi, K.F. Jensen

Section G

Walter E. Washington Convention Center
Room 204C

Frontier of the Interface of Materials & Biology: Click Chemistry Approaches to Bio-Inspired Materials

V. O. Rodionov, *Organizer*

Q. Wang, *Organizer, Presiding*

2:00 565. Click chemistry approaches to bio-inspired materials: Well-defined (co)polypeptides bearing pendant alkyne groups. W. Zhao, Y. Gnanou, **N. Hadjichristidis**

2:30 566. Bioactive nano- and microstructures from self-assembling amphiphilic glycopolymers. **N.R. Cameron**

3:00 567. Catalysis and complexity: From mechanism to function. **V.V. Fokin**

3:30 Intermission.

3:45 568. Multifunctional and responsive polymersomes through CRP and efficient postfunctionalization. **B. Voit**, B. Iyisan, D. Appelhans, J. Gaitzsch, M. Yassin

4:15 569. Amphiphilic polysaccharide block copolymers for nanoparticulate drug delivery. B. Breitenbach, **P.R. Wich**

4:45 570. Soft materials for catalysis and encapsulation: From micelles to complex macromolecular architectures. **V.O. Rodionov**

Section H

Walter E. Washington Convention Center
Room 155

Multimodal Imaging with Colloids

J. V. Jokerst, L. Liz Marzan, W. Parak, *Organizers*
P. del Pino, *Organizer, Presiding*

2:00 571. Hybrid materials based on plasmonic gold nanostars as alternative imaging probes. **D. Jimenez de Aberasturi**, M.S. Strozyk, J. Langer, M. Henriksen-Lacey, J. Reguera, L. Liz Marzan

2:30 572. Next-generation in vivo optical imaging with short-wave infrared quantum dots. **O. Bruns**, T. Bischof, D. Franke, J. Carr, M.G. Bawendi

3:00 573. Nanoparticle interactions with proteins. **F. Stellacci**

3:30 574. Polymer amphiphile stabilized hydrophobic silica nanoparticles for acoustic imaging and site-specific therapy. **A.P. Goodwin**

4:00 Intermission.

4:30 575. Gas-filled microbubbles as contrast agents for targeted (molecular) imaging. S. Unnikrishnan, Z. Du, G.B. Diakova, **A.L. Klibanov**

5:00 576. Multicompartment microreactors with preserved intracellular activity: A step towards the creation of artificial organelles. M. Godoy-Gallardo, C. Labay, V.D. Trikalitis, M.M. Jansman, P.K. Ek, P.J. Kempen, J.B. Larsen, T.L. Andresen, **L. Hosta-Rigau**

5:30 577. Thermo-sensitive dye laden polymer nanosheets for ratiometric temperature mapping of living muscle tissues. **T. Fujie**, T. Miyagawa, F. Ferdinandus, V. Tat Thang, H. Sato, S. Takeoka

Journey to Mars: Materials, Energy & Life Sciences

Sponsored by POLY, Cosponsored by ANYL[‡], BMGT[‡], COLL[‡], ENVR[‡], FLUO[‡], PMSE[‡], PRES, SCHB[‡] and YCC[‡]

THURSDAY MORNING

Section A

Walter E. Washington Convention Center
Room 147A

Basic Research in Colloids, Surfactants & Nanomaterials

Synthesis of Nanomaterials

R. Nagarajan, *Organizer*
G. Liu, *Presiding*

8:30 578. Thermodynamic influence of structure-directing agents in shape-controlled nanocrystal syntheses. **X. Qi**, K.A. Fichthorn

8:50 579. Synthesis of Ag/Au/AgCl nanocubic metal-semiconductor composite via co-reduction method. **J. Joo**, J. Lee

9:10 580. Synthesis and stabilization of ultrasmall-metal nanoparticles (Ni, Co, Cu) within a polymer matrix via a one-step aerosol spray pyrolysis. **Y. Yang**, M. Romano, M.R. Zachariah

9:30 581. Controllable synthesis of triangular and circular gold nanorings. **X. Lin**, Z. Nie

9:50 582. Synthesis of core@shell nanostructures in a continuous flow droplet reactor: Controlling structure through relative flow rates. **J.S. Santana**, K.M. Koczur, S.E. Skrabalak

10:10 583. Synthesis of porous Ti₄O₇ nanoparticles as high-efficiency polysulfide mediator for lithium-sulfur batteries. S. Mei, C.J. Jafta, M.M. Ballauff, **Y. Lu**

10:30 584. Molecular surgery on a 23-gold-atom nanoparticle. **Q. Li**, R. Jin

10:50 585. Safer, high quality, Cd-free quantum dots- new and improved InP-based quantum dots with excellent optical properties as a viable alternative to Cd-containing quantum dots. **R.P. Brown**, Z. Rosenzweig

11:10 586. Synthesis of near-infrared light absorbing ag nanoplates through multiple seed-mediated steps. A. Khan, J. Krause, Z. Zhou, **G. Liu**

11:30 587. Spectroscopic determination of electronic and structural properties in colloiddally synthesized tin chalcogenide nanomaterials. **A.J. Biacchi**, B.G. Alberding, S.T. Le, J.A. Hagmann, S. Chowdhury, S. Pookpanratana, C.A. Richter, E.J. Heilweil, A.R. Hight Walker

Section B

Walter E. Washington Convention Center
Rooms 208A/B

In-Situ Investigation of Energy Systems using Ambient-Pressure X-Ray Photoelectron Spectroscopy

E. Crumlin, H. Ogasawara, I. Waluyo, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 588. Aqueous interfaces investigated under ambient conditions by XPS. **H. Bluhm**

9:15 589. Two-dimensional zeolites and their study with surface science tools: Trapping Ar in the nano-cages. **N. Akter**

9:35 590. *In operando* PEEM imaging and electron spectroscopy of electrochemical processes and interfaces. S. Nemsak, E. Strelcov, H. Guo, A. Yulaev, D.N. Mueller, C.M. Schneider, **A. Kolmakov**

10:15 Intermission.

10:35 591. Following atomic layer deposition in real time. **J. Schnadt**

11:15 592. Using ambient pressure-photoelectron spectroscopy as a diagnostic tool for carbon nanotube growth. **J. Carpena-Núñez**, J.A. Boscoboinik, S.M. Saber, J. Zhong, E. Stach, D. Zakharov, B. Maruyama

Section C

Walter E. Washington Convention Center
Room 150B

Targeted Nanosystems for Therapeutic Applications: New Concepts, Dynamic Properties, Efficiency & Toxicity

M. A. Ilies, *Organizer*

K. Sakurai, *Organizer, Presiding*

8:30 593. Capturing reactive oxygen (RO) at modal membrane interface: Ferrocenyl anilines on modal micelle/reverse micelle membrane interfaces. **A. Altaf, A. Badshah**, D.C. Crans, P. Chatterjee, **S. Kausar**

9:00 594. Graphene oxide nanosheets stimulate ruffling and shedding of mammalian cell plasma membranes. **C. Sun**, D. Wakefield, Y. Han, D. Muller, D. Holowka, B. Baird, W. Dichtel

9:30 595. Facile gas-phase self-assembly of noble metal-decorated hybrid nanoparticles for biomedical and photocatalytic applications. **D. Tsai**, Y. Chen

10:00 Intermission.

10:15 596. Highly efficient delivery of potent anticancer iminoquinone derivative by multilayer hydrogel cubes. **B. Xue**, W. Wang, V.A. Kozlovskaya, R. Zhang, S.E. Velu, E.P. Kharlampieva

10:45 597. Biomimetic growth and control of a pathologic biomineral in hydrogels. G. Mallam, **M. Tsianou**

11:15 598. Oral redox nanotherapeutics for treatment of ulcerative colitis and colon cancer. **B. Vong**, Y. Nagasaki

Section D

Walter E. Washington Convention Center
Room 150A

Photoresponsive Nanoparticles: From Fundamentals of Excitation to Applications

Devices

Y. Han, *Organizer*

B. G. DeLacy, Y. Sun, *Organizers, Presiding*

8:30 599. Low-threshold optical gain and lasing with colloidal semiconductor nanoplatelets. **M. Pelton**

9:00 600. Metal halide perovskite nanocrystals: Doping and surface-engineering for efficient optoelectronics. J. Pan, R. Begum, L. Quan, I. Dursun, B. Ooi, E. Sargent, O.F. Mohammed, **O.M. Bakr**

9:30 601. Solution-processed nanomaterials for efficient optoelectronic devices. **F. Garcia de Arquer**, E. Sargent

10:00 Intermission.

10:20 602. Plasmonic detection of reactions on nanostructures. **E. Borguet**

10:50 603. Optically-thin metallic films for high-radiative-efficiency plasmonics. **B. Zhen**, Y. Yang, O. Miller, C. Hsu, J. Joannopoulos, M. Soljacic

Section E

Walter E. Washington Convention Center
Room 209B

Basic Research in Colloids, Surfactants & Nanomaterials

Interfacial Interactions

R. Nagarajan, *Organizer*
V. Sharma, *Presiding*

8:30 604. Prediction of membrane breakthrough pressure using multicomponent surface energy models. **N. Redeker**, K. Greenson, J.R. Alston, A.J. Guenther

8:50 605. Supramolecular structural forces influence drainage and stratification kinetics in stratifying foam films. S. Yilixiati, R. Rafiq, Y. Zhang, **V. Sharma**

9:10 606. Surface tensions of frothers and oil at saltwater-air interfaces: A computational study. **L. Chong**, Y. Lai, F. Shi, M. Gray, Y. Soong, Y. Duan

9:30 607. Viscosity of liquids from the transfer function of microcantilevers. **S.J. Eppell**, P.B. Abel, A.M. Walker, F. Zypman

9:50 608. Mesoscale structuring of binary liquids and its impact on chemical reactivity probed by photocatalysis. **T. Buchecker**, S. Krickl, A.U. Meyer, I. Grillo, P. Bauduin, B. König, A. Pfitzner, W. Kunz

10:10 609. New insights into nanoparticle-protein interactions through measurement of binding kinetics. A.L. Lira, R.S. Ferreira, R.J. Torquato, H. Zhao, M.L. Oliva, P. Schuck, **A.A. Sousa**

10:30 610. Quantifying nanoparticle stability and aggregation dynamics as a function of organic coating structure and density. **C. Kim**, S. Lee, J. Fortner

10:50 611. Functional groups on carbon nanotubes are not necessary for their covalent attachment to surfaces. **M. Williams**, F. Gao, I. Ben Dhiab, A.V. Teplyakov

11:10 612. Synthesis and characterization of methyl-terminated partially fluorinated alkanethiols. **R. Ghanbaripour**, O. Zenasni, M.D. Marquez, T. Lee

Section F

Walter E. Washington Convention Center
Room 209A

Frontier of the Interface of Materials & Biology: Click Chemistry Approaches to Bio-Inspired Materials

V. O. Rodionov, Q. Wang, *Organizers, Presiding*

8:30 613. X-ray excited optical luminescence of surface functionalized, hybrid LSO:Ce-fluorophore particles. **M.K. Burdette**, I. Bandera, E. Zhang, J.N. Anker, J. Weick, S.H. Foulger

8:50 614. Versatile single chain polymeric nanoparticles via thiol-Michael addition. **P. Kröger**, J.M. Paulusse

9:10 615. Bio-functionalizable polymer colloids prepared by radical-mediated thiol-ene click polymerizations. D.V. Chapman, M.N. Arguien, R.D. Beltran, O.Z. Durham, S. Krishnan, **D.A. Shipp**

9:30 616. Fluorescent dye loaded resorcinarene cavitand nanocapsules. **B. Ramjee**, S. Allmon, K. Mahadevan

9:50 617. Fluorescent functionalization across the quaternary structure of virus-like particles. **Z. Chen**, J.J. Gassensmith

10:10 618. Analysis of noble polymer micelle by double hydrophilic block glycopolymer. **T. Oh**, M. Nagao, Y. Hoshino, Y. Miura

10:30 619. Solid phase assisted split & combine approach towards branched precision glycomacromolecules. **M. Baier**, M. Giesler, L. Hartmann

Walter E. Washington Convention Center
Room 204C

Multimodal Imaging with Colloids

P. del Pino, L. Liz Marzan, W. Parak, *Organizers*
J. V. Jokerst, *Organizer, Presiding*

8:30 620. Polymeric nanocapsules for theranostics. **B. Pelaz**

9:00 621. Targeted delivery of zinc phthalocyanine (ZnPc) using liquid crystal nanoparticle for effective photodynamic therapy. **O.K. Nag**, J. Naciri, K. Burn, J. Delehanty

9:30 622. Theragnostic approach for early diagnosis of Alzheimer disease. M. Rodriguez-Perez, B. Pelaz, P. Aguiar, R. Iglesias-Rey, L. Vazquez-Vazquez, J. Pias-Peleiteiro, J. Aldrey-Vazquez, F. Campos, J. Castillo, P. del Pino, **T. Sobrino**

10:00 Intermission.

10:30 623. Cluster-nanocarrier MRI contrast agents. **S.L. Stoll**, V. Dahanayake, E. VanKeuren, O. Rodriguez, C. Albanese

11:00 624. Colloidal tetrapyrroles as high contrast, multimodal biomedical imaging agents. **J. Lovell**

11:30 625. Hybrid nanocomposites based on nanoMOFs and nanoparticles for theragnostic applications. **P. del Pino**

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