COLL

Division of Colloid and Surface Chemistry

R. Nagarajan, Program Chair

SUNDAY MORNING

Ernest N. Morial Convention Center
Room 242

Nanoparticle Biomolecule Corona: From Fundamentals to Applications

W. Chan, M. Hadjidemetriou, K. Kostarelos, Organizers, Presiding

8:30 Introductory Remarks.

8:35 1. Relevance of the biomolecule corona for nanomaterial-microbe cross-talk. R. Stauber, S. Knauer, D. Westmeier

9:05 2. Spontaneous lipid corona formation at lipid bilayers. F. Geiger


10:05 Intermission.


Section B

Ernest N. Morial Convention Center
Room 245

**Biomaterials & Biointerfaces**

**Bacteria at Interfaces in the Environment**

A. P. Goodwin, Organizer
V. Gordon, Organizer, Presiding

8:30 Introductory Remarks.


10:10 13. Structure and mechanics of microbial biofilms. **J. Wilking**

10:40 Intermission.
11:00 14. Programmable bacterial biofilms via growth microenvironments. A. Hochbaum

11:30 15. Bacterial interactions with immobilized liquid surfaces. C. Howell, J. Aizenberg

12:00 16. Understanding heterogeneous populations of *P. aeruginosa* at the single-cell level
   C. Chang

Section C

Ernest N. Morial Convention Center
R07

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

J. Katsaras, M. Nieh, A. N. Parikh, *Organizers*
S. Muralidharan, *Organizer, Presiding*
C. Naumann, *Presiding*

8:30 17. Molecular dynamics simulation study of alpha-tocopherol interaction with lipid bilayers. S. Kavousi, B. Novak, D. Moldovan

8:50 18. Amphiphilic polypeptoids connect nanoparticle containing lipid rafts onto lipid membranes through self-assembly. V.T. John, Y. Zhang, T. Yu, M. Omarova, D. Zhang


9:50 20. Interplay between passive and active membrane mechanisms regulates the formation of the immunological synapse. O. Farago


Section D

Ernest N. Morial Convention Center
R06

Chemistry of Molecular Electronics

Theory

Cosponsored by PHYS
M. S. Inkpen, G. C. Solomon, L. Venkataraman, *Organizers, Presiding*


9:00 26. Computational tools for chemical insight in molecular electronics. **G.C. Solomon**

9:20 27. Charge transport mechanisms in molecular junctions. **D. Segal**


10:10 29. In search of structure-activity relationships in transition metal-based molecular conductors. **J. Mcgrady**, V. Arcisauskaite, J. Lamb

10:40 Intermission.

10:50 30. Quantum-interference-enhanced thermoelectricity in single-molecule junctions. **C.J. Lambert**

11:40 32. Spin-polarized transport through molecular junctions from first principles. C. Herrmann

12:00 33. Moving electrons: Quantum transport, time dependence, phonons, interference and probes. M.A. Ratner

Section E

Ernest N. Morial Convention Center
R08

Colloidal Nanoparticle Synthesis & Assembly

Financially supported by Henan University and King Abdullah University of Science and Technology
M. Cai, H. Fan, Y. Han, Organizers
F. Bai, Organizer, Presiding
H. Fan, Presiding

8:30 34. Bimetallic Janus nanocrystals. Y. Xia

9:00 35. Crystal phase-engineering of novel nanomaterials. H. Zhang

9:30 36. Understanding the removal pathways of dislocations in imperfectly attached nanocrystals using *in-situ* HRTEM. J. Ondry, M.R. Hauwiller, P. Alivisatos

9:50 37. Controlled syntheses of gold nanostars for stronger surface enhanced Raman scattering. C. Jiang

10:10 Intermission.

10:30 38. Fluorescence kidney functional imaging enabled by renal clearable gold nanoparticles. J. Zheng, M. Yu

11:00 39. Do nucleation and growth have to be twin events in nanoparticle formation? Y. Sun


12:10 42. Chemical soldering of nanoparticle assemblies for photovoltaic applications. **N.N. Kholmicheva**, M. Zamkov

Section F

Ernest N. Morial Convention Center
R09

**Fundamental Studies of Mechanochemical & Tribochemical Processes at Interfaces**

R. M. Espinosa-Marzial, W. T. Tysoe, *Organizers*
J. D. Batteas, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 43. Stress-assisted thermal activation in tribology: from friction and rheology to wear and tribo/mechanochemistry. **W.T. Tysoe**

9:05 44. First-principles modeling of the joint influences of catalysis and mechanical stress in tribopolymer formation. **A.M. Rappe**

9:35 45. Constituents of tribochemistry – molecule and surface at shearing interface: how would their chemical structure affect the critical activation volume of mechanochemical reaction? **S.H. Kim**

10:05 Intermission.

10:20 46. Mechanochemical synthesis, structure and properties of solid solutions of alkaline earth metal fluorides $M_a^xM_{1-x}^bF_2$ ($M = \text{Ca, Sr, Ba, Pb}$). **G. Scholz**

10:50 47. Emergence and applications of techniques for real-time monitoring of mechanochemical reactions. **T. Friscic**

11:50 49. Dissipation pathways upon sliding a tip along the calcite-brine interface: Connection between nanotribology and mineral reactivity. **Y. Diao, R.M. Espinosa-Marzal**

Section G

Ernest N. Morial Convention Center
Room 203

**Nanomaterials**

**Nanoscience in Industry & Manufacturing**

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

8:30 50. Improving mechanical properties in glassy polymer nanocomposites: Effect of molecular weight. **V. Bocharova**, A. Genix, A. Kisliuk, S. Zhao, A.P. Sokolov

8:50 51. Functional nanomaterials: Towards magnetically activated adhesives. **G. Davies**


9:50 54. Light, but strong SiC foam for thermal insulation and electromagnetic interference shielding at elevated temperatures. **Z. Wang**


10:30 56. Unusual ion-exchange behavior of nanoparticulate oxides: Applications in food, energy, and water sectors. **A.W. Apblett**, C.K. Perkins, T. Reed
10:50 57. Nanoaptasensors based on gold nanotriangles for the efficient and selective detection of ochratoxin A via LSPR and SERS. Y. Hernandez, L. Lagos, B.C. Galarreta

11:10 58. Preparation and toughening performance investigation of epoxy resins containing carbon nanotubes modified with hyperbranched polyester. I. Lu, X. Liao

Section H
Ernest N. Morial Convention Center
Room 204

Basic Research in Colloids, Surfactants & Nanomaterials

Nanoparticle Synthesis & Assembly

R. Nagarajan, Organizer
F. Bai, Presiding


8:50 60. Synthesis and characterization anisotropic rod-like colloids with thermoreversible short-range attractions: Towards a universal phase diagram for adhesive hard rod suspensions. N.J. Wagner, R.P. Murphy


9:30 62. Every which way but loose: A single thermoresponsive diblock copolymer can form spheres, worms or vesicles in aqueous solution. S.P. Armes


10:10 64. Controlled self-assembly of porphyrin and catalytic applications. F. Bai

10:30 65. Tuning local nanoparticle arrangements and dynamical properties in polymer nanocomposites by grafting of small molecules. A. Genix, D. Musino, V. Bocharova, A.P. Sokolov, J. Oberdisse

11:10  67. Three-dimensional assemblies of Fe_{2-x}Ni_xP (0 ≤ x ≤ 2) and Co_{2-y}Fe_yP (0 ≤ y ≤ 2) nanoparticles and their magnetic properties: Towards effective magnetic refrigerant materials. **M.A. Hettiarachchi**, S. Brock, E. Abdelhamid, B. Nadgorny

11:30  68. Concentric Nd(III)-sensitized core-shell upconversion nanoparticles for excitation with biobenign wavelength. **C. Arboleda**, S. He, A. Stubelius, N. Johnson, A. Almutairi

Section I

Ernest N. Morial Convention Center
Room 205

**ACS Award in Surface Chemistry: Symposium in honor of Stacey F. Bent**

**Atomic-Level Precision in Deposition & Etching**

Cosponsored by WCC
A. V. Teplyakov, Organizer
H. Lee, Organizer, Presiding

8:30 Introductory Remarks.

8:35 69. Strategies for selective deposition and selective etching of metal oxide materials on patterned substrates. **F. Minaye Hashemi**

9:05 70. Topographically selective atomic layer deposition on 3D nanostructures for novel nanopatterning processes. **W. Kim**, S.F. Bent

9:35 71. Surface reactions for area-selective atomic layer deposition and thermal atomic layer etching of metals and dielectrics. **G. Parsons**

10:05 72. Surface chemistry of metal atomic layer deposition (ALD) precursors. **F. Zaera**

10:35 Intermission.
10:50 73. A tale of two coordination modes: Diaminoalkylsilane adsorption on dielectric and silicon substrates. J. Kachian

11:20 74. Surface chemistry of thermal atomic layer etching. S.M. George


Section J

Ernest N. Morial Convention Center
Room 225

Basic Research in Colloids, Surfactants & Nanomaterials

Surfactants

R. Nagarajan, Organizer
K. Sakurai, Presiding


8:50 77. Molecular dynamics investigation of ionic interfacial partitioning in reverse micelles. A.K. Sharma

9:10 78. Transitions between non-equilibrium micelles. F. Plamper, N. Warren, A. Steinschulte


9:50 80. Platonic micelles part 2: Thermodynamic and kinetic consideration of the micelles with the discrete aggregation numbers and mono-dispersion. K. Sakurai, R. Takahashi, S. Fujii

10:10 81. Structural and thermodynamic impact of diproplyne glycol (DPG) on mixed surfactant system. H. Jiang, K. Vogtt, G. Beaucage, M.R. Weaver
10:30 82. Intermolecular headgroup interaction and hydration as driving forces for
lipid transmembrane asymmetry. N. Smolentsev, C. Luetgebaucks, H. Okur, S. Roke

10:50 83. Force mapping and characterization of surfactant adsorbed on flat and
patterned surfaces. J. Hamon, B.P. Grady, R. Tabor, A. Striolo

11:10 84. Electrochemical diffusion coefficients for cationic surfactants using
ferrocene probes. S.J. Bachofer, B. Schepergerdes, M.D. Lingwood

11:30 85. Transport properties in micelle nanoreactors: Molecular modeling approach.
C. Callaway, S. Jang, K.R. Hendrickson, N. Bond, S. Lee

11:50 86. Studying the Interaction of Hydrophobically modified Ethoxylated
UREthane (HEUR) polymers with Sodium Dodecylsulfate (SDS) in aqueous solution.
M. Ibrahim, P. Griffiths, M.W. Murray, A. Szczygiel

Elucidation of Mechanisms & Kinetics on Surfaces

Mechanisms & Selectivity

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry
Research: A Symposium in Honor of David J. Wesolowski

Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

LGBTQ+ Graduate Student & Postdoctoral Scholar Research Symposium

Emerging Applications of Organic & Biochemistry: Soil Science, Biomaterials &
Synthesis

Sponsored by PROF, Cosponsored by ANYL‡, BIOL‡, BIOT, CHED, CMA, COLL,
COMP‡, CWD, ENVR, INOR‡, MEDI‡, ORGN, PHYS‡, PMSE‡, POLY‡, PRES‡,
SUNDAY AFTERNOON

Ernest N. Morial Convention Center
Room 242

Nanoparticle Biomolecule Corona: From Fundamentals to Applications

W. Chan, M. Hadjidemetriou, K. Kostarelos, *Organizers, Presiding*

2:00 87. Engineering protein coronas for applications in nanomedicine. **K. Hamad-Schifferli**


3:00 89. Nanoscale tools for biomarker discovery: The emerging role of biomolecule corona. **M. Hadjidemetriou**, K. Kostarelos

3:40 Intermission.

4:00 91. Interaction of proteins with nanoparticles probed with non-optical methods.  W. Parak

4:30 92. Selective blood vessel deletion using nanoparticle-mediated drug delivery in zebrafish embryos.  A. Kros

5:00 93. Protein, lipid membrane and cell interactions of PEGylated and POZylated superparamagnetic iron oxide nanoparticles.  E. Reimhult, A. Lassenberger, N. Gal, S. Kurzhals, E. Benetti, R. Zirbs


5:40 Concluding Remarks.

Section B

Ernest N. Morial Convention Center
Room 245

Biomaterials & Biointerfaces

Bacteria at Interfaces in Healthcare

A. P. Goodwin, Organizer
V. Gordon, Organizer, Presiding

2:00 95. Glycan engineering at nanoparticle surfaces to understand and detect infection.  B. Martyn, S. Won, S. Richards, M.I. Gibson


2:40 97. Biological colloids: Bacterial outer membrane vesicles.  E.S. Rasti, J.B. Nice, A.C. Brown


4:00 Intermission.

4:20 100. Mechanical and chemical properties of polymer hydrogels influence bacterial adhesion. K.W. Kolewe, **J.D. Schiffman**

4:50 101. How bacteria sense surfaces to begin biofilm development, and how we might thwart surface sensing to prevent biofilm development. **V. Gordon**


5:30 103. Interaction of bacterial cells with model graphene oxide surfaces: Insights from single-cell force spectroscopy. **S. Romero-Vargas Castrillon**

Section C

Ernest N. Morial Convention Center
R07

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

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, **Organizers**
M. L. Longo, A. B. Subramaniam, **Presiding**

2:00 104. Preparation and characterization of nanopore supported phospholipid bilayers for Raman microscopy detection and quantification of membrane-associated signaling peptides. **D. Bryce**, J.P. Kitt, J.M. Harris

2:20 105. Quantifying the electrostatics of polycation–lipid bilayer interactions. **F. Geiger**

3:20 107. Charge switch regulating structures and dynamics of lipid membrane. M. Choi

3:50 108. Smart polymersomes as structural analogues of eukaryotic cells: From membrane asymmetry to compartmentalization. A. Peyret, L. Beaute, E. Ibarboure, O. Sandre, J. Le Meins, N.D. McClenaghan, S. Lecommandoux

4:20 109. Coupling of lipid membrane elasticity and dynamics. Y. Chen

4:50 110. Antioxidant implication of the physical presence of vitamin E in lipid membranes. M. DiPasquale, M. Nguyen, D. Marquardt

Section D

Ernest N. Morial Convention Center
R06

Chemistry of Molecular Electronics

Molecular-Scale Electronics

Cosponsored by PHYS
M. S. Inkpen, G. C. Solomon, L. Venkataraman, Organizers, Presiding

2:00 111. Enhancing the thermoelectric properties of molecular junctions. N. Agrait


2:50 113. Quantum interference effects in the charge transport through single-molecule junctions. W. Hong

3:20 Intermission.

3:30 114. Metal complexes for molecular electronics and Moore. P.J. Low

4:00 115. Reduced length-dependent conductance decay in polymethine molecular wires. S. Gunasekaran, I. Davydenko, D. Hernangomez-Perez, F. Evers, S.R. Marder, L. Venkataraman


5:10 118. Mechanical stretching-induced electron transfer reactions and conductance switching in single molecules. N. Tao, Y. Li, N. Haworth, L. Xiang, S. Ciampi, M. Coote

Section E

Ernest N. Morial Convention Center
R08

Colloidal Nanoparticle Synthesis & Assembly

Financially supported by Henan University and King Abdullah University of Science and Technology
M. Cai, H. Fan, Y. Han, Organizers
F. Bai, Organizer, Presiding
H. Fan, Presiding


2:30 120. Large-scale assembly of 2-D honeycomb semiconductor superlattices and their incorporation in opto-electronic devices. D. Vanmaekelbergh, J. Peters, S. Buhbut-Sinai, M. Alimoradi Jazi, G. Soligno, J. Geuchies

3:00 121. In situ space- and time-resolved small angle x-ray scattering to probe electric field-driven assembly of nanocrystal superlattices. Y. Yu, C. Orme

3:20 Intermission.

3:30 122. Nanomanufacturing by self-assembly. N. Kotov

4:00 123. In-situ scattering techniques to study synthesis and crystallization processes of colloidal nanocrystals. M. Cargnello, L. Wu, J. Qin, C. Tassone

4:50 125. Improved synthetic efficiency and greener preparation of gold nanorods. **J.W. Stone**

5:10 126. Utilization of colloidal plasmonic metal nanoparticles for understanding polymer chemistry. **G. Liu**

Section F

Ernest N. Morial Convention Center
R09

**Fundamental Studies of Mechanochemical & Tribochemical Processes at Interfaces**

J. D. Batteas, R. M. Espinosa-Marzal, *Organizers*
W. T. Tysoe, *Organizer, Presiding*

2:00 127. Tribochemical nanolithography. **G.J. Leggett**

2:30 128. Interrogating force-induced reaction acceleration on bond-forming surface reactions. **A.B. Braunschweig**

3:00 129. Chemistry of trinuclear molybdenum compounds and impact on friction. A. Jaishankar, A. Konicek, A. Jusufi, **A.M. Schilowitz**


3:40 Intermission.

3:55 131. Chemistry of friction, wear, and tribofilm growth on 2D materials. S. Raghuraman, M. Elinski, J. Batteas, **J.R. Felts**


Section G

Ernest N. Morial Convention Center
Room 203

**Nanomaterials**

**Surface Chemistry & Modification**

J. A. Hollingsworth, R. Nagarajan, *Organizers*
M. A. Firestone, *Presiding*

2:00 135. Facile surface exchanges in CdSe quantum belts. **W.E. Buhro**, Y. Yao, Y. Zhou

2:30 136. Quantum dot-ligand equilibrium in purified samples. **A.B. Greytak**

3:00 137. Consequences of InP quantum dot modification using fluoride. **E.J. McLaurin**, R. Siramdas, M. Yazdanparast, S. Lee, C. Aparicio, J.M. Rosado


4:10 140. Approach to retard oxidation during processing of colloidal Ti3C2 MXenes. **T. Habib**, S. Shah, W. Sun, E. Prehn, Z. Tan, M.J. Green, M. Radovic


4:50 142. nano-FTIR: Infrared imaging and spectroscopy with 20nm spatial resolution. **T. Gokus**, P. Schäfer
5:10 143. Binding of hydrogen and phenol at a Pt$_{50}$ nanoparticle supported on graphene: *Ab initio* molecular dynamics simulations. **M. Nguyen**, D.C. Cantu, V. Glezakou, R. Rousseau

Section H

Ernest N. Morial Convention Center
Room 204

Surface Chemistry

Nanoparticle & Liquid Surfaces

S. L. Tait, *Organizer*
A. L. Mifflin, L. Seballos, *Presiding*

2:00 144. Ligand ordering phase transitions in mixed ligand shells of CdSe/CdS quantum dots. **A. Balan**, J.H. Olshansky, P. Alivisatos

2:20 145. Role of ligand interactions in CdSe quantum dot ligand exchange dynamics. **E. O'Brien**, P. Alivisatos

2:40 146. Investigating molecular interactions on silver nanostructures using density functional theory and surface-enhanced Raman scattering. **L. Seballos**

3:10 147. Absolute, complex spectral measurement: Turning SFG (sum frequency generation) into an analytical technique. **M.J. Shultz**, P.J. Bisson, J.M. Marmolejos, J. Wang


4:00 149. Direct optical lithography of functional inorganic nanomaterials. **Y. Wang**, I. Fedin, H. Zhang, D. Talapin

4:20 150. Adsorption of water on kaolinite and montmorillonite surfaces, and its effect on CO$_2$ adsorption: DFT calculations. **R.A. Bennick**, M.D. Kilmer, **L. Tribe**
4:50 151. Surface interactions of the siderophore desferrioxamine-B with hematite/water interfaces studied using second harmonic and sum frequency generation spectroscopies. **A.L. Mifflin**

5:20 152. Jones-Ray effect reinterpreted: Surface tension minima of low ionic strength electrolyte solutions are caused by electric field induced water-water correlations. **H. Okur, Y. Chen, D. Wilkins, S. Roke**

**Section I**

Ernest N. Morial Convention Center
Room 205

**ACS Award in Surface Chemistry: Symposium in honor of Stacey F. Bent**

**Nanomaterials & Catalysis on the Nanoscale**

Cosponsored by WCC
H. Lee, *Organizer*
A. V. Teplyakov, *Organizer, Presiding*

2:00 153. Relative stabilities of reaction intermediates on group 1B metals: Effects of van der Waals interactions and bonding structure. **R.J. Madix**

2:30 154. Infrared spectroscopy of the water gas shift reaction over the Cu(111) surface under ambient pressure conditions. **C. Kruppe, M. Trenary**


3:30 156. Photoelectrochemical and electrochemical fuel production using low dimensional catalytic materials. **U. Sim**

4:00 Intermission.


4:45 158. Translation of fundamental studies of surface chemistry to catalytic function in nanoporous materials. **C.M. Friend**
5:15 159. Nanoparticle catalysis: Understanding the role of the surface and surface-passivation in creating stable, efficient and scalable devices.  S. Geyer

LGBTQ+ Graduate Student & Postdoctoral Scholar Research Symposium

Experimental & Computational Frontiers in Inorganic & Materials Chemistry

Sponsored by PROF, Cosponsored by ANYL‡, BIOL‡, BIOT, CHED, CMA, COLL, COMP‡, CWD, ENVR, INOR‡, MEDI‡, ORGN, PHYS‡, PMSE‡, POLY‡, PRES‡, WCC and YCC

Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry Research: A Symposium in Honor of David J. Wesolowski

Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

Elucidation of Mechanisms & Kinetics on Surfaces

Mechanisms at the Atomic Scale

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

Assembly & Colloidal Interactions of Cellulose Nanocrystals

Sponsored by CELL, Cosponsored by COLL

Physical Chemistry of Ionic Liquids

Functional Ionic Liquids & Applications
Magnetically Recoverable Catalysts

Sponsored by CATL, Cosponsored by COLL, ENFL and INOR

Polymer Colloids: Synthesis, Analysis, Modeling & Applications

Sponsored by POLY, Cosponsored by ANYL, COLL, COMP, I&EC and PMSE

SUNDAY EVENING

Section A

Ernest N. Morial Convention Center
Halls B2/C

Fundamental Research in Colloids, Surfaces & Nanomaterials

R. Nagarajan, Organizer

6:00 - 8:00

160. Interparticle hydrogen bonding influences the shear jamming of dense colloidal suspensions. N. James, E. Han, R. Lopez de la Crus, H. Jaeger


163. Understanding the galinstan oxide interface through interfacial tension and interfacial rheology for use in stretchable applications. **A. Koh**, R. Mrozek, G. Slipher

164. Quantitative analysis of temperature programmed desorption from complex surfaces: A machine learning approach to surface science. **A.C. Elder**, T.M. Orlando


166. Morphological transformations from supramolecular nanofibers to nanoribbons in self-assembly of conjugated block copolymers. **M. Wang**, L. Han, F. He

167. Super liquid repellent surfaces – non-wetting forces, cavity growth and coatings on biobased materials. **A. Swerin**

168. Eliminating intracellular *S. aureus* with its nanoparticle mimetic. **F. Gao**, L. Xu, **L. Yang**


170. Single-molecule fluorescence sheds light on coupled dye-nanoparticle systems. **T. Zuo**


173. Optically transparent ultramicroelectrode for studying local electrochemical events of single Au nanoparticle using combined methods of electrochemistry and dark field scattering microscopy. **Y. Ma**, A. Highsmith, S. Pan

175. Understanding the anticorrosive protective mechanisms of modified epoxy coatings with combined improved barrier, active feedback, self-healing and antimicrobial functionalities using advanced electrochemical and spectroscopic techniques. **D.I. Njoku**, M.m. Cui, H. Xiao, B. Shang, Y. Li


177. 2D materials grafted colloidal microparticles. **A.T. Liu**, P. Liu, M. Strano

178. Controllable hydrophobicity and transition temperatures of gold nanoparticles coated in 18-crown-6-C-SH moieties by taking advantage of the hole-side cation-diameter relationship. **A.P. Hill**

179. Temporally decoupled growth and loading of a protein cargo into polymersomes using cellulose paper. **A. Li**, A.B. Subramaniam

180. *In-situ* spectroscopic ellipsometry as a tool to characterize Cu-ligated mercaptoalkanoic acid multilayers. **A. Patron**, T.J. Mullen, C. Causey


182. Comparison of charge storage properties of prussian blue analogues containing copper and cobalt. **A. Rensmo**, J.R. Hampton


184. Chiral recognition of single amino acid surfactants leucine, isoleucine, and norleucine in the presence of diamine counterion with different chain lengths. **A. Benson**, F.H. Billiot, E. Billiot, K.F. Morris


188. Synthetic control over structural and optical properties of Cu(Zn)InS2/ZnS quantum dots studied at the single particle level. A. Nguyen, C.D. Heyes


190. Brightness optimization of NIR-to-NIR upconversion nanocrystals. A.M. Chov, S. May, A. Baride

191. Exploring interaction between thiolated liposomes and gold/gold coated magnetic nanoparticles. B. Acharya, V. Chikan

192. Spatial distribution of mixtures of electrolytes at the air-water interface for varying temperatures. B.L. Eggimann, J.I. Siepmann


194. Synthesis, aggregation behavior and enhanced oil recovery performance of an oligomeric nonionic surfactant. B. Qin

195. Extraction of lemon essential oils from lemon peels with food-grade surfactants and its antibacterial applications. L. Huang, B. Chen

196. Density functional theory study of cation adsorption at the capping sites of Keggin-type Al nanoclusters. B. Hudson, J.L. Bjorklund, J.W. Bennett, S.E. Mason

197. G-DNA cancer therapy: Intracellular trafficking in HeLa cells. B.J. Foster, K. Fichter

198. Plasmonic properties and applications of tunable aluminum nanocrescents. C. Coplan, M.M. Swartz, J.S. Shumaker-Parry

199. Systematic study on the gelation properties of simple alkanoic acid metal salts as low molecular mass gelators. C. Dill, S. Mathew, A.V. Mallia


201. Measuring energy transfer efficiency between Au and CdSe nanoparticles. D. Lara

203. Study of perfluorophosphonic acid surface modifications on zinc oxide nanoparticles. **D.N. Shoup**, R. Quinones

204. Degradable cellulose wet adhesives using reductant-responsive microgels. **D. Yang**, R.H. Pelton

205. Membrane expression of 5-HT1B receptors in N2a cells in response to SSRIs. **E.B. Nowak**, G.K. Illy, K. Fichter

206. Effect of hydroxide ion concentrations on the binding of montmorillonite to RNA surrogates. **E.P. Gordon**, L. Tribe


209. New class of nanocatalysts created by coupling of carbon nanotubes, functionalized silica and truncated silver nanoparticle. **B.P. Chauhan**, **G. Longia**, Q. Johnson, N. Eldabagh


211. Poly(vinyl alcohol) thin film dewetting on polydimethylsiloxane surfaces by directional drying. **H. Nguyen**, Y. Qi, K. Lim, W. Chen


216. Silicon-containing dendritic dyes with aggregation-induced emission as fluorescent probes. **H. Wang**, S. Feng, W. Yu


219. Increasing Zr(IV) ligand binding sites in hetero-metal substituted Well-Dawson polyoxometalates for CWA simulant decomposition. **S.L. Giles**, J. Lundin, P. Pehrsson, R. Balow, **J.H. Wynne**

220. Delafossite CuBO₂ nanoparticles as an efficient electrocatalyst for water splitting. **J. Pena**, S. Mohan, Y. Mao


224. Characterizing interactions between novel amphiphilic cellulose derivatives and bile salts using quartz crystal microbalance with dissipation monitoring (QCM-D) and surface plasmon resonance (SPR). **J. Zornjak**, D. Novo, K.J. Edgar, C. Fernandez Fraguas

225. Preparation of crystal-phase-heterostructured 4H/fcc Au@Pd core-shell nanorods for electrocatalytic ethanol oxidation. **J. Liu**, H. Zhang

227. Programing the microdynamics of an active particle: From linear to helical trajectories.  **J. Lee**, B. Bharti

228. Investigating the effects of controlled lateral confinement width and surface chemistry on surfactant adsorption onto silica using AFM.  **J. Hamon**, B.P. Grady, A. Striolo, R. Tabor


233. Formation of tethered lipid nanotubes on cellulose paper.  **J. Pazzi**, A.B. Subramaniam


237. Self-assembly, gelation studies and mechanotropic properties of molecular gels based on N-phenyloctadecanamides as gelators.  **K. Galinat**, E. Begovic, A.V. Mallia


239. STEP: Revolutionizing FRET measurement.  **K. Akers**

241. Preparation of monodisperse, supported nanoparticles with switchable surfactants. K. Bryant


243. Reliable synthesis of block copolymer templated bimetallic nanoparticles. L. Knight

244. Studies of single-site catalysts on powdered oxide support through self-assembly. L. Chen, J. McCann, S.L. Tait

245. Synthesis and Surface Activity of Gemini Surfactant N,N′-bis(octadecyl)-1,4-benzene dimethylpropionate acid. L. Zhao, H. Gong, J. Wang

246. Fluorescence detection of aggregation of chromonic dyes in the isotropic phase. L. Zhu, K.K. Karukstis


250. Salt mediated synthesis and catalytic activity of para-mercaptobenzoic acid capped monolayer protected gold clusters. R.E. Dufour, M.G. Rodriguez, C.L. Heinecke

251. Designing immobilized radicals to improve dynamic nuclear polarization-enhanced MRI at 6.5 mT. M.D. Lingwood, K.E. Maurey, G.A. Shaw, A.K. Sherman, M.S. Rosen
252. Aggregation of poly-(3-hexylthiophene) at solvent-solvent interfaces. M. Sapolsky, D.S. Boucher

253. Temperature-controlled nano-mite growth on fabricated plasmonic nanostructures. M.A. Ticknor, C.A. Lancaster, J.S. Shumaker-Parry

254. Loading of functional enzymes into giant liposomes using cellulose paper. A.B. Subramaniam, M. Xu

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

256. Design of new FMOC and pyrazole-derived nanoparticles for targeting tumorigenic cells. I.A. Banerjee, M. Hugo

257. Synthesis and characterization of Gd:InP/ZnS quantum dots for magnetic resonance imaging. M. Duszynski, M. Ellis, K. Fichter

258. Synthesis and characterization of poly(methacrylic acid) hydrogel fabricated with Ni nanoparticles and investigation of their adsorption and catalytic properties. M. Ajmal

259. Evaluation of spin-casting as a coating method to study dopamine adhesion. M. Le, W. Chen


261. Nanocomposites of plastic, Silicon polymer and noble metal nanoparticles. N. Ampomah, K. Moran, Q. Johnson, B.P. Chauhan

262. Electroless deposition of Nickel on organosilane nanostructures prepared with particle lithography: Characterization with atomic force microscopy combined with magnetic sample modulation. N. Kuruppu Arachchige, P.C. Chambers, A.M. Taylor, J.C. Garno

263. Effect of diamine counterion chain length and pH on the physical properties and chiral recognition ability of amino acid based macromolecular assemblies. N. Nguyen, F.H. Billiot, E. Billiot, K.F. Morris

264. Titania containing thin films for the detection of TATP and peroxide vapors. N.F. Materer, A.W. Apblett
265. P(NiPAM) microgels embedded in p(AAm) hydrogels as sensor. S. Demirci, D. Rees, N. Sahiner


267. Effect of silica interlayer on the plasmonic enhancement of photocatalytic activity. P. Srinoi, T. Lee, T. Lee


270. Colloidal synthesis of Fe, Mn and Fe-Mn alloy nanoparticles by rapid inductive heating technique. P. Sharma, N. Holliger, V. Chikan

271. Correlation between hybridization and electrochemical signal in stem-loop E-DNA sensors using single-molecule AFM. Q. Gu

272. Exploring the optical properties of gold nanomites on gold nanotriangles. R.C. Cocke, W. Scholl, J.S. Shumaker-Parry

273. Titanium dioxide-coated plasmonic gold-silver nanoshells. R. Medhi, T. Lee, T. Lee


276. Effect of water adsorption on clay mineral interfaces for enhanced gas recovery and CO$_2$ sequestration: First principles calculations. R.A. Bennick, L. Tribe

277. Design of Development Agent (DA) in latent fingerprint identification. P. Villarreal, I. Villavicencio, S. Liu, J. Liu

278. Selective detection of Pb(II) ion by using a nano material attached aryl-azo-histadine dye. S. Alamgir, A. Pramanik, P.C. Ray
279. Self-assembly of microscale objects using large, double-stranded DNA molecules. **S. Krerowicz, D.C. Schwartz**


281. Interfacial water structure next to zwitterionic lipids: A vibrational sum frequency spectroscopic study. **S. Pullanchery, T. Yang, P.S. Cremer**

282. Titania stabilized cuprous oxide photocatalyst for the reduction of carbon dioxide. **S. Alden, D.A. Rider**

283. Investigation of chiral recognition of dipeptide based micellar systems. **S. Tubbs, E. Billiot, K.F. Morris, F.H. Billiot**

284. Comparing electrochemical calculations and particle induced x-ray emission measurements of Prussian blue analogue deposits. **S.D. Joffre, J.R. Hampton**


286. Structural investigation on the mechanism of the endosomal escape by pH-sensitive Gemini surfactants. **S. Chang, Y. Chen**

287. Probing the interactions between small molecules and phospholipids at the biointerface. **S. Sun, A. Sendecki, S. Pullanchery, d. huang, T. Yang, P.S. Cremer**

288. Self-assembled monolayers derived from symmetric olefin-bridged bidentate adsorbates on gold. **S. Sakunkaewkasem, T. Lee, M.D. Marquez, O. Zenasni**

289. Study of the excited state processes of 1,3,6,8-Tetrakis(trimethylsilylethynyl)pyrene in monomer and aggregated state. **S. S, S. Sankararaman, P. Edamana**

290. Probing the interaction of enzyme and gold nanoparticles with various coatings. **S. Neupane, Y. Pan, Z. Yang**

292. Elucidating the time-dependent photoluminescence properties of colloidal carbon dots.  **T. Chu**, D. Gerrity, S. Chatterjee


297. Sulfur@Gold@Titanium dioxide yolk-shell nanoparticles for lithium-sulfur battery applications.  **T. Liu**, T. Lee


300. Magnetron sputtering of gold thin films under ambient conditions and manipulation of deposition.  **T.J. Adams**, B. Evans, C. Miller, I. Senevirathne

301. Synthesis and characterization of organosoluble Au₃₆(SPhCH₃)₂₄ nanomolecules.  **V. Ganeshraj**


303. Multicolor carbon dots based on solvatochromism.  **H. Wang**, P. Haydel, L. Earb, S. Wang, **W. Yu**

305. Multifunctional biochar for highly efficient capture, identification and removal of toxic metal ion and superbugs from water sample. **Y. Gao, A. Pramanik, P.C. Ray**

306. Organize gold nanoparticles by DNA origami cage. **Y. Zhang**


308. Effect of oil droplet size on stability of concentrated oil-in-water emulsion with unsaturated fat. **M. Shinada, Y. Watanabe**

309. Preparation of angle-independent color materials by applying Mie resonances. **Y. Naoi, Y. Takeoka, T. Seki**

310. Self-assembled polydopamine coatings via drop casting. **Y. Zhou, W. Chen**

311. Novel synthesis of bispectral obscurant smoke. **Z. Zander, D. Kuhn, A. Polk**

312. Pentamer substrate for reproducible surface enhanced raman spectroscopy. **Z. Petrek, U. Paez, T. Ye**

313. Reinforcing the anticorrosion property of epoxy coating by modified graphene oxide with urea–formaldehyde resin. **Z. Hongpeng, Y. Shao**

314. Developing a technique to determine the packing density of a lipid bilayer and exploring the effect of packing density on membrane fusion. **Z. Liu, Y. Chen**

315. Influences of surface chemistry and nanoscopic roughness on the frictional properties of MoS2 nanosheets. **Z. Liu, J. Batteas**

316. Applications of nanotechnology in bone tissue regeneration. **J. Santillan**

**MONDAY MORNING**

Ernest N. Morial Convention Center
Room 242

**ACS Award in Colloid Chemistry: Symposium in honor of Håkan Wennerström**
8:30 317. Controlling water evaporation through self-assembly. E. Sparr, K. Roger, D. Topgaard, H. Wennerström, D. Pham, S. Björklund

9:00 318. Self-assembly of block copolymers in ionic liquids: Mixed pluronic-structure, rheology and use as wearable electronics. N.J. Wagner, R. Chen, C. Lopez-Barron

9:30 319. Lowering of surface tension of water by surfactants: principles of molecular design. A. Kabalnov

10:00 Intermission.


10:40 321. Lipid materials processing: The emergence of super-swelled membrane single-crystals. C. Leal

11:10 322. Physicochemical code for protein interactions in live cells. M. Oliveberg

11:40 323. Protein aggregation and gelation – insight from combining scattering, rheology and computer simulations. A. Stradner

Section B

Ernest N. Morial Convention Center
Room 245

2018 Priestley Medalist: Symposium in honor of Geraldine Richmond

R. A. Walker, Organizer
S. Wren, Presiding

8:30 Introductory Remarks.

8:35 324. Flipping out (or in) over lipids. J.C. Conboy
9:05 325. In your face: Adventures in computational vibrational sum-frequency spectroscopy.  N.A. Valley

9:35 Intermission.

9:55 326. Oh, the places you’ll go: Chemical structure, organizations and reactivity in asymmetric environments.  R.A. Walker


10:55 328. Making the rounds: Molecular characterization of surfactant stabilized nanoemulsion surfaces.  G.L. Richmond

Section C
Ernest N. Morial Convention Center
R07

Biomembrane Synthesis, Structure, Mechanics & Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, Organizers
D. L. Daleke, D. Y. Sasaki, Presiding

8:30 329. Photo-induced pinocytosis for artificial cell feeding.  D. Konetski, D. Zhang, C. Bowman

8:50 330. In situ determination of membrane protein orientation.  Z. Chen

9:20 331. Cellulose paper assembles vesicles from fatty acids and amphiphilic block copolymers.  A.B. Subramaniam, A. Li, J. Pazzi, M. Xu


Section D

Ernest N. Morial Convention Center
R06

Chemistry of Molecular Electronics

Molecular-Scale Electronics

Cosponsored by PHYS
M. S. Inkpen, G. C. Solomon, L. Venkataraman, *Organizers, Presiding*

8:30 337. New molecules for single-molecule electronics in break junction devices. **M.R. Bryce**

9:00 338. Photovoltaic response observed in thin molecular bilayer rectifiers with symmetric carbon contacts. **S.R. Smith**, R.L. McCreery


10:10 341. Quantum interference based single-molecule insulators. **L. Venkataraman**

10:30 Intermission.

10:40 342. Single-molecule electronic components based on molecular design. **H. van der Zant**

11:30 344. Solution processable nanocarbon hybrids for single-molecule investigations. **M. Palma**


Section E

Ernest N. Morial Convention Center
R08

**Colloidal Nanoparticle Synthesis & Assembly**

Financially supported by Henan University and King Abdullah University of Science and Technology
M. Cai, H. Fan, Y. Han, *Organizers*
F. Bai, *Organizer, Presiding*
H. Fan, *Presiding*

8:30 346. Colloidal synthesis of nanomaterials: challenges and opportunities. A. Hazarika, V. Srivastava, H. Zhang, **D. Talapin**

9:00 347. Programmable nanoparticle systems: designed architectures, controlled processes and regulated functions. **O. Gang**


9:50 349. Perspectives in nanoscale chemistry. **A. Vartanian**

10:10 Intermission.

10:30 350. Synthesis and assembly of plasmonic metal oxide nanocrystals. **D.J. Milliron**

11:00 351. Synthesis and optical interaction in janus au-silica-quantum dot hybrid nanostructures. **Y. Luo, J. Zhao**
11:30 352. Geometric influence on photoelectrocatalytic properties of assembled ZnO nanonetwork. **Y. Mao**

11:50 353. Computational survey of counterions and capping groups in Al nanoclusters. **S.E. Mason**, B. Hudson, J.L. Bjorklund, J.W. Bennett


Section F

Ernest N. Morial Convention Center
R09

**Fundamental Studies of Mechanochemical & Tribochemical Processes at Interfaces**

J. D. Batteas, W. T. Tysoe, *Organizers*
R. M. Espinosa-Marzal, *Organizer, Presiding*


9:00 356. Tribology of biomimetic patterned polymer textures as skin coating models. R. Jin, X. Xu, C. Cazeneuve, J.C. Chang, **M. Ruths**, G.S. Luengo

9:20 357. Anomalous potential dependent friction on Au (111) measured by AFM. **L. Pashazanusi**, N. Pesika

9:40 358. Nanofriction and surface nanomechanical properties of cotton (*Gossypium hirsutum* L.) fibers as studied with contact mode and force-distance curve-based AFM. **F. Hosseinali**, J.A. Thomasson, J.D. Batteas

10:00 359. What does mucin do for the cornea? *In vitro* measurements of mucin structure on an epithelial monolayer. **T. Angelini**

10:30 Intermission.


11:35 362. Size-dependent pseudo-elasticity in gold nanocrystals. L. Hanson, X. Gu, C. Eisler, M. Koc, P. Alivisatos


Section G

Ernest N. Morial Convention Center
Room 203

Nanomaterials

Novel Synthesis & Nanostructures

J. A. Hollingsworth, R. Nagarajan, Organizers
J. Macdonald, Presiding

8:30 364. Indium phosphide quantum shells tunable through visible and near infrared. A.M. Dennis

9:00 365. Indium phosphide clusters as precursors to novel nanoscale phases. B.M. Cossairt, M. Friedfeld, J. Stein, A. Ritchhart

9:30 366. Nanosheets and emulsion systems. H.V. Kumar, C.D. Liyanage, T. Francis, D.H. Adamson


10:10 368. Development of sequence-dependent structure/function relationships for peptide-enabled nanomaterials. N. Bedford
10:30 369. Nanoparticle chemistry in solution observed by time-resolved 3D TEM. B. Kim, J. Heo, J. Kim, J. Park

10:50 370. Crystal structure of Faradaurate-279: Au_{279}(SPh-tBu)_{84} nanomolecules. N. Sakthivel, S. Theivendran, V. Ganeshraj, A.G. Oliver, A. Antonysamy

11:10 371. Core size interconversions of gold nanomolecules: Au_{30}(S-tBu)_{18} and Au_{36}(SPhX)_{24}. T.C. Jones, A. Antonysamy, S. Theivendran, L. Sementa, A. Fortunelli

11:30 372. Imidazolium ionic liquids as multifunctional solvents, ligands, and reducing agents for noble metal deposition onto well-defined heterostructures, and the effect of synthetic history on catalytic performance. M.D. Ballentine, M. Garcia, L.J. Hill

Section H

Ernest N. Morial Convention Center
Room 204

Surface Chemistry

Molecules on Surfaces

S. L. Tait, Organizer
J. R. Hampton, B. Schuler, Presiding

8:30 373. Molecular coupling between organic molecules and metal. H. Pengcheng, X. Lu, Z. Chen


9:40 376. Electrical and optical studies of porphyrin-based two-dimensional metal-organic frameworks. K. Ishihara, F. Tian

10:20 Intermission.

10:40 378. Characterization of electrogendrated hexacyanoferrate thin films for battery applications. S.D. Joffre, A. Rensmo, **J.R. Hampton**


Section I

Ernest N. Morial Convention Center
Room 205

**ACS Award in Surface Chemistry: Symposium in honor of Stacey F. Bent**

Surface Modification & Function

Cosponsored by WCC
A. V. Teplyakov, Organizer
H. Lee, Organizer, Presiding

8:30 382. Electrochemical sensor of CO2 based on surface modified halloysite nanotubes. **C. Prasittichai**

9:00 383. Functionalizing silicon surfaces: mechanistic connections between molecules and interfaces. **J.M. Buriak**, M. Hu, T. Hauger
9:30 384. Probing organic reactions at surfaces using DART-MS. **H. Zuilhof**

10:00 Intermission.

10:15 385. Fe-based modification of graphite felt surfaces for electrochemical treatment of aqueous contaminants. **M. Kong**

10:45 386. Metal contacts in silicon solar cells: Role of surface science. **K. Roelofs**


**Elucidation of Mechanisms & Kinetics on Surfaces**

**Theory**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

**Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry Research: A Symposium in Honor of David J. Wesolowski**

Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

**Assembly & Colloidal Interactions of Cellulose Nanocrystals**

Sponsored by CELL, Cosponsored by COLL

**Physical Chemistry of Ionic Liquids**

**Electrochemistry and Electrochemical Interfaces**
Polymer Colloids: Synthesis, Analysis, Modeling & Applications
Sponsored by POLY, Cosponsored by ANYL, COLL, COMP, I&EC and PMSE

MONDAY AFTERNOON

Section A

Ernest N. Morial Convention Center
Room 242

ACS Award in Colloid Chemistry: Symposium in honor of Håkan Wennerström

U. Olsson, N. J. Wagner, Organizers
C. Leal, A. Stradner, Presiding

2:00 388. Thermoresponsive colloidal molecules with tunable directional interactions. P. Schurtenberger

2:30 389. Colloidal and macromolecular complexes at fluid-fluid interfaces and impact on mechanical properties. M.L. Davidson, S.M. Kirby, L. Walker


3:30 Intermission.

4:00 391. Structure and dynamics of nanoparticles in polymeric fluids. R. Poling-Skutvik, R. Krishnamoorti, J. Conrad

4:30 392. Cascade processes in “artificial cells” triggered by light, chemicals, or enzymes. S.R. Raghavan, K.C. DeMella
5:00 393. Herpesvirus infectivity facilitated by internal DNA pressure and capsid stability.  A. Evilevitch

Section B

Ernest N. Morial Convention Center
Room 245

2018 Priestley Medalist: Symposium in honor of Geraldine Richmond

R. A. Walker, Organizer
N. A. Valley, Presiding

2:00 394. Impact of atmospheric aerosols and clouds on hydrocarbon chemistry.  J.S. Francisco

2:30 395. From the field to the lab: Atmospheric organics in urban air and at the air-water interface.  S. Wren, G.L. Richmond, J. Brook, B. Gordon, K. Hayden, J. Liggio, G. Lu, C. Mihele, R. Mittermeir, N.A. Valley, J. Wentzell

3:00 396. Towards predictive separations using 4D super-resolution microscopy.  C.F. Landes

3:30 Intermission.


4:20 398. Maximizing efficiency – practical approaches to linking titration (and other methods) with NIR spectroscopy.  A. Hopkins

4:50 399. Unraveling chemical processes from a metrology perspective.  P. Chu

Section C

Ernest N. Morial Convention Center
R07

Biomembrane Synthesis, Structure, Mechanics & Dynamics
2:00 400. Interactions between charged nanoparticles and giant vesicles fabricated from inverted-headgroup lipids. **L. Wang, N. Malmstadt**

2:20 401. Adenosine receptor 2A phase segregation behavior depends on its ligand binding state. **N. Malmstadt**

2:50 402. Measurement of flippase activity in individual red blood cells. **M. Hosek, D.L. Daleke**


3:50 404. Imaging membrane-interacting peptides via a fluorescent amino acid. **F. Gai**

4:20 405. Time-resolved imaging of molecular transport through living cell membrane. **H. Dai**

4:50 406. Ytterbium ions strongly inhibit lipid flip-flop. **V. Cheng, D. Wang, J.C. Conboy**

Section D

Ernest N. Morial Convention Center
R06

Chemistry of Molecular Electronics

Molecular-Scale Electronics

Cosponsored by PHYS
M. S. Inkpen, G. C. Solomon, L. Venkataraman, **Organizers, Presiding**

2:00 407. Towards self-assembled single-molecule electronic devices. **K. Møth-Poulsen**
2:30 408. Tuning the polarity of charge carriers using electron deficient thiophenes. J. Low, B. Capozzi, J. Cui, S. Wei, L. Venkataraman, L.M. Campos


3:40 411. Large-area molecular electronic devices employing graphene materials as soft top-contacts. K. Nørgaard

4:10 Intermission.

4:20 412. Carbon electrode-molecule junctions: A reliable platform for molecular electronics. X. Guo


Section E

Ernest N. Morial Convention Center
R08

Colloidal Nanoparticle Synthesis & Assembly

Financially supported by Henan University and King Abdullah University of Science and Technology
M. Cai, H. Fan, Y. Han, Organizers
F. Bai, Organizer, Presiding
H. Fan, Presiding

2:00 415. Bismuth oxide thin films. S.E. Rodil, C.L. Gomez, O. Depablos-Rivera, J.C. Medina

3:00 417. Role of planar defects during the synthesis of stellated plasmonic nanocrystals. J.D. Smith, K.M. Koczkur, J.A. Burkhart, S.E. Skrabalak

3:20 Intermission.

3:30 418. Reconfigurable plasmonic nanoparticle assemblies. D.S. Ginger

4:00 419. In situ observation of nucleation and growth of nanocrystals. H. Weller

4:30 420. Postsynthetic surface treatments for essentially trap-free CsPbBr3 colloidal nanocrystals. B.A. Koscher, J.K. Swabeck, N. Bronstein, P. Alivisatos

4:50 421. Modeling of nanoparticle superlattices self-assembly at liquid-air interfaces. L. Vukovic

5:10 422. Facile fabrication of spiky gold-carbon black nanoshells for efficient surface-enhanced Raman scattering. A. Abbasi, T. Küster, A. Bose, G.D. Bothun

Section F

Ernest N. Morial Convention Center
R09

Fundamental Studies of Mechanochemical & Tribochemical Processes at Interfaces

J. D. Batteas, R. M. Espinosa-Marzal, W. T. Tysoe, Organizers
J. R. Felts, Presiding

2:00 423. Friction regimes of water-lubricated diamond (111): Role of interfacial ether groups and tribo-induced aromatic surface reconstructions. M. Moseler

2:30 424. Examination of bonding using molecular dynamics and in-situ nanoindentation. J.A. Harrison

3:00 425. Titania lubrication using oil-ionic liquid mixtures. H. Li, P. Cooper, A. Somers, M.W. Rutland, P. Howlett, R. Atkin
3:20 426. Boundary lubrication studied by resonance shear measurement. K. Kurihara, M. Mizukami, M. Kasuya


4:00 Intermission.


4:45 429. Tribochemical reactions in nanoscale lubrication and wear. R. Carpick


5:45 Concluding Remarks.

Section G

Ernest N. Morial Convention Center
Room 203

Nanomaterials

Nanocrystal Assembly

J. A. Hollingsworth, R. Nagarajan, Organizers
J. Vela, Presiding

2:00 431. New chalcogenide aerogel compositions from covalent crosslinking + ion-exchange. I. Hewavitharana, S. Brock


3:00 433. Pressure-induced nanoparticle assemblies. H. Fan


4:50 438. Comparing the rheo-optics of aqueous sulfonated cellulose nanocrystal and model cholesteric dispersions. **M.M. Noor**, P. Saha, M. Pospisil, M.J. Green, V.A. Davis


Section H

Ernest N. Morial Convention Center
Room 204

**Surface Chemistry**

**Reactions at Surfaces**

S. L. Tait, *Organizer*
R. Barbosa, J. De Roo, *Presiding*

2:00 440. Preparing and modifying Fischer-Tropsch catalysts through metal oxalate route. **R. Barbosa**, Y. Xiang, N. Kruse


3:40 Intermission.


Section I

Ernest N. Morial Convention Center
Room 205

**ACS Award in Surface Chemistry: Symposium in honor of Stacey F. Bent**

**Interfaces & Assembly: From Molecular Understanding to 3D Materials**

Cosponsored by WCC
H. Lee, A. V. Teplyakov, *Organizers*
A. L. Harris, *Presiding*

2:00 446. Hybrid interfaces via organic chemistry on semiconductors. L. Pecher, **R. Tonner**

2:30 447. Lateral interactions between organic molecules on solids: Recent examples from functionalization of the Ge(100)-2×1 surface. **B. Shong**

3:00 448. Surface chemical choreography of vapor-liquid-solid semiconductor nanowire synthesis. **M. Filler**

3:30 449. III-Nitride nanostructures for photonics and beyond. **G.T. Wang**

4:00 Intermission.

4:15 450. Molecular design and chemical modification of semiconductor surfaces. **A.V. Teplyakov**
4:45 451. Tailoring aerogels for energy storage and sensing applications. M.A. Worsley


Elucidation of Mechanisms & Kinetics on Surfaces
Surface Science
Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

LGBTQ+ Graduate Student & Postdoctoral Scholar Research Symposium
Sponsored by PROF, Cosponsored by ANYL, BIOL, BIOT, CHED, CMA, COLL, COMP, CWD, ENV, INOR, MEDI, ORGN, PHYS, PMSE, POLY, WCC and YCC

Assembly & Colloidal Interactions of Cellulose Nanocrystals
Sponsored by CELL, Cosponsored by COLL

Physical Chemistry of Ionic Liquids

Electrochemistry and Electrochemical Interfaces
Sponsored by PHYS, Cosponsored by COLL

Magnetically Recoverable Catalysts
Sponsored by CATL, Cosponsored by COLL, ENFL and INOR
Polymer Colloids: Synthesis, Analysis, Modeling & Applications

Sponsored by POLY, Cosponsored by ANYL, COLL, COMP, I&EC and PMSE

MONDAY EVENING

Section A

Ernest N. Morial Convention Center
Halls D/E

Sci-Mix

R. Nagarajan, Organizer

8:00 - 10:00


566. See subsequent listings.

TUESDAY MORNING

Section A

Ernest N. Morial Convention Center
Room 242

ACS Award in Colloid Chemistry: Symposium in honor of Håkan Wennerström

U. Olsson, N. J. Wagner, Organizers
S. Bhatia, E. Sparr, Presiding

8:30 453. Hydration repulsion between polar surfaces and lipid membranes: Insights from solvent-explicit molecular dynamics simulations. **E. Schneck**, M. Kanduc, B. Kowalik, A. Schlaich, R. Netz

9:00 454. Molecular thermodynamic modeling of interactions between alpha-helical peptides and lipid bilayer membranes. **R. Nagarajan**

9:30 455. Double layer forces and the dielectric approximation. **L. Pegado**, B. Jönsson, H. Wennerström

10:00 456. Self-regulation and amplification of ion permeation. **H. Moehwald**, J. Duhamet, M. Pleines, T. Zemb

10:30 Intermission.

10:40 457. Surface forces measurement for materials science. **K. Kurihara**

11:10 458. From polymeric to oligomeric stabilization of colloidal spheres. **J. Bergenholdt**

11:40 459. Nanoporous polymer sponges. **R. Strey**

Section B

Ernest N. Morial Convention Center
Room 245

**Biomaterials & Biointerfaces**

**DNA at Materials Interfaces**

V. Gordon, Organizer
A. P. Goodwin, Organizer, Presiding

8:30 460. Molecular simulation of single nucleotides moving through nanoslits composed of self-assembled monolayers terminated with various chemical groups. **X. Tong**, **B. Novak**, D. Moldovan
8:50 461. Charge-reversal nanocarriers for cancer gene delivery. Y. Shen

9:10 462. Self-assembled spherical nucleic acids from oligonucleotide-polymer conjugates for drug delivery and immunotherapy. K. Zhang


9:50 Intermission.

10:10 464. Combining peptide arrays and mass spectrometry for high throughput experiments. M. Mrksich


11:00 466. Reagentless DNA bioconjugation to metal surfaces. A.L. Furst, M.B. Francis

11:30 467. Evidence for DNA as a biomimetic template in calcium phosphate mineralization. A.E. Gerdon

Section C

Ernest N. Morial Convention Center
R07

Biomembrane Synthesis, Structure, Mechanics & Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, Organizers
K. Gawrisch, N. Malmstadt, Presiding

8:30 468. Cargo release mechanics of lipid bilayer coated mesoporous silica nanoparticles. D.Y. Sasaki, C. Dolstra, A. Noureddine, J. Brinker

9:00 469. Nanometric gap structure for selective biosensing created with patterned lipid bilayer, silicone elastomer, and silica nanoparticles. K. Morigaki, M. Tanabe, R. Komatsu, K. Ando

9:30 470. Probing ion and small molecule drug interactions with lipid membranes. P.S. Cremer, S. Sun, S. Pullanchery
10:00 471. Compressible simulation model for lipid bilayer membranes: Faithful treatment of surface tension at the continuum level. **F.L. Brown**

10:30 472. Recent advances in the *in situ* synthesis of phospholipid membranes. **N.K. Devaraj**

11:00 473. Membrane fusion mediated intracellular delivery of lipid bilayer coated mesoporous silica nanoparticles. **A. Kros**

11:30 474. Mechanisms of broad-spectrum antiviral activities of membrane-active molecules targeting enveloped viruses. **A.N. Parikh**

Section D

Ernest N. Morial Convention Center
R06

**Chemistry of Molecular Electronics**

**Monolayers: Tunneling & Function**

Cosponsored by PHYS
M. S. Inkpen, G. C. Solomon, L. Venkataraman, *Organizers, Presiding*

8:30 475. Extracting quantitative information from molecular junction i-v characteristics using a compact analytical model. **C. Frisbie**


10:10 Intermission.


11:50 483. Directional plasmon launching from large-area molecular tunnelling junctions. **C.A. Nijhuis**

Section E

Ernest N. Morial Convention Center
R08

**Colloidal Nanoparticle Synthesis & Assembly**

Financially supported by Henan University and King Abdullah University of Science and Technology

F. Bai, H. Fan, Y. Han, *Organizers*
M. Cai, *Organizer, Presiding*
H. Fan, *Presiding*

8:30 484. Engineering colloidal semiconducting heteronanorods for solar energy conversion. **S. Yu**

9:00 485. Direct imaging of single nanoparticle reaction dynamics using *in-situ* liquid cell electron microscopy. **X. Ye**

9:30 486. Shape-changing and motile colloidal assemblies: Sequence-encoded microbots and colloidal origami from patchy magnetic cubes. **O.D. Velev**, K. Han, C. Shields, G.P. López

10:10 Intermission.

10:30 488. Silicon nanocrystals. **B.A. Korgel**


11:30 490. Tunable amorphous photonic materials with pigmentary colloidal nanostructures. **Y. Han**, J. Han, E. Lee, A. Pascall, J. Kuntz, M.A. Worsley

11:50 491. Building blocks for the assembly of nanostructures. **T. Gschneidtner**

12:10 492. Direct assembly of nanoparticle arrays by electrophoretic deposition. **P. Mulvaney**

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Section F

Ernest N. Morial Convention Center
R09

**Solubility of Colloids in Different Solvents**

N. Feliu, *Organizer*
L. Liz Marzan, W. Parak, *Organizers, Presiding*

8:30 493. Designing nanoparticles for ultrasensitive biosensing. **M. Stevens**

8:55 494. Sedimentation of nanocrystals in different solvents studied by analytical ultracentrifugation. **P. Mulvaney**

9:20 495. Gold nanorods: Can we still do better? **L. Liz Marzan**

9:45 496. Tableting nanoparticle reagents to simplify diagnostic processes. **W. Chan**

10:10 497. Synergizing nanoproperties for effective cancer nanomedicine. **Y. Shen**
10:35 498. Scanning probe block copolymer lithography as a route to combinatorial nanoscience. C.A. Mirkin

11:00 499. Hedgehog particles. N. Kotov


12:15 502. Controllable hydrophobicity of gold nanoparticles coated with 18-CROWN-6-C-SH. A.P. Hill, M. Brust

Section G

Ernest N. Morial Convention Center
Room 203

Nanomaterials

Novel Synthesis & Nanostructures

J. A. Hollingsworth, R. Nagarajan, Organizers
A. B. Greytak, Presiding

8:30 503. Experimental and computational development of single source precursors to Sn-Ge nanocrystals. J. Vela, M.A. White, H. Andaraarachchi

9:00 504. Phase control in the synthesis of metal sulfide nanocrystals. J. Macdonald, J. Rhodes, A.D. Leach

9:30 505. Multicomponent hollow transition metal oxide nanoparticles: Structure-property correlation. E. Shevchenko

10:00 506. Hierarchical chirality in inorganic nanocrystals and their superstructures. P. Wang, S. Yu, M. Ouyang

10:20 507. Chemically tunable 2-dimensional layered silicon telluride, Si₂Te₃. K.J. Koski

11:00 509. Precise size control of CsPbX₃ perovskite quantum dots via thermodynamically controlled synthesis. **Y. Dong**, T. Qiao, **D.H. Son**

11:20 510. Blue electrogenerated chemiluminescence from halide perovskite nanocrystals. **Y. Wusimanjiang**, V. Arau, J. Yadav, S. Pan


Section H

Ernest N. Morial Convention Center
Room 204

**Recent Advances in Particulate & Colloid Materials for Biomedical Applications**

M. A. Quadir, *Organizer*
B. Rasulev, A. S. Voronov, *Organizers, Presiding*


8:55 513. Recent advances in the use of colloidal Gold nanoparticles in cancer therapy. **D. Chithrani**

9:20 514. Multiple therapeutic objectives from single colloidal assemblies. **G.D. Bothun**


10:10 Intermission.

10:25 516. Thermal stabilization of enzymes with biocompatible stiff polymer brush ligands. **S. Minko**

11:15 518. Hybrid nanoparticles as an alternative to conventional antibiotics.  G. Ferreres Cabanes, A. Bassegoda, T. Tzanov


11:55 520. Hybrid nanoantibacterials for controlling bacterial infections and spread of drug resistance.  K. Ivanova, J. Hoyo, A. Ivanova, S. Perez Rafael, T. Tzanov

Section I

Ernest N. Morial Convention Center
Room 205

ACS Award in Surface Chemistry: Symposium in honor of Stacey F. Bent

Atomic-Layer Deposition & its Applications

Cosponsored by WCC
H. Lee, Organizer
A. V. Teplyakov, Organizer, Presiding

8:30 521. New approaches for area-selective atomic layer deposition of oxides.  A. Mackus

9:00 522. Approaches to atomic-scale engineering through selective processes.  K. Nardi, N. Draeger, D. Hausmann, D. Smith

9:30 523. Gas phase routes to solid catalyst materials.  P.C. Stair

10:00 524. Challenges for selective atomic layer deposition.  Y.J. Chabal, R. Rahman, J. Klesko, A. Dangerfield

10:30 Intermission.

10:45 525. Adsorption calorimetry during atomic-layer deposition (ALD) and when growing model catalysts.  C.T. Campbell

11:15 526. Zintl template formation and function during atomic layer deposition growth of crystalline perovskites on Ge (001) and crystalline oxides on GaN(0001).  J.G. Ekerdt
11:45 527. Atomic layer deposition on T-shirts. H. Lee

Elucidation of Mechanisms & Kinetics on Surfaces

Surface Mechanisms

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

GSSPC: Finding Our Place at the Bottom

Symposium in honor of Richard Feynman

Sponsored by CHED, Cosponsored by ANYL‡, COLL‡, ENVR‡, INOR, PMSE‡ and PRES‡

Physical Chemistry of Ionic Liquids

Computation, Theory & Simulation

Sponsored by PHYS, Cosponsored by COLL‡

Polymer Colloids: Synthesis, Analysis, Modeling & Applications

Sponsored by POLY, Cosponsored by ANYL, COLL, COMP, I&EC and PMSE

TUESDAY AFTERNOON

Section A

Ernest N. Morial Convention Center
Room 242
ACS Award Lectures

Cosponsored by CATL‡
R. Nagarajan, Organizer
E. Borguet, Presiding

2:00 Introduction of Awardee.

2:10 528. Award Address (ACS Award in Colloid Chemistry sponsored by the Colgate-Palmolive Company): Colloidal stability in the living cell. H. Wennerström, M. Oliveberg, E. Vallina, J. Danielsson

3:00 Introduction of Awardee.

3:10 529. Award Address (ACS Award in Surface Chemistry sponsored by the ACS Division of Colloid and Surface Chemistry): Molecular functionalization of surfaces: An evolution from fundamentals to applications. S.F. Bent

GSSPC: Finding Our Place at the Bottom

Symposium in honor of Richard Feynman

Sponsored by CHED, Cosponsored by ANYL‡, COLL‡, INOR, PHYS‡, PMSE‡ and PRES‡

WCC Rising Star Award Symposium

Sponsored by WCC, Cosponsored by BIOT, CHED, COLL, INOR and PROF

Elucidation of Mechanisms & Kinetics on Surfaces

Surface Mechanisms
Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

Functional Structures from Wood-Based Materials

Fibers & Filaments

Sponsored by CELL, Cosponsored by COLL

Adaptive Nanogels

Sponsored by POLY, Cosponsored by COLL

Polymer Colloids: Synthesis, Analysis, Modeling & Applications

Sponsored by POLY, Cosponsored by ANYL, COLL, COMP, I&EC and PMSE

TUESDAY EVENING

Adaptive Nanogels

Sponsored by POLY, Cosponsored by COLL

WEDNESDAY MORNING

Ernest N. Morial Convention Center
Room 242

Section A
Basic Research in Colloids, Surfactants & Nanomaterials

Colloids

R. Nagarajan, Organizer
B. Bharti, Presiding


9:30 533. Investigating mono- and divalent cation induced aggregation of gold nanoparticles in aqueous environments via surface-enhanced Raman spectroscopy. M. Chan, W. Leng, P.J. Vikesland

9:50 534. Programming non-linear active motion of colloids by designing surface force distribution. J. Lee, B. Bharti


10:30 536. Computational approach to evaluation of Hamaker constants. K. Hongo, R. Maezono

10:50 537. Colloidal stabilization of silica and iron oxide nanoparticles in highly concentrated divalent salts. C. Dandamudi, G. Beniah, J. Lee, B.A. Lyon, J. Han, K.D. Pennell, N.A. Lynd, K.P. Johnston

11:10 538. Nanocellular foaming of PLLA spherulites in supercritical CO2: Control of cell morphology by spherulitic structure. J. Li, X. Liao, J. Yang, Q. Jiang, G. Li

11:50 540. Composition change at the stern layer of the electrolyte-silica interface leads to false potentiometric titration interpretation of surface charge density. A. Goel, M.A. Brown

12:10 541. Numerical study of the dynamics of oil-in-water droplet formation in a coaxial micro-channel. C. Deng, H. Wang, W. Huang

Section B

Ernest N. Morial Convention Center
Room 245

Biomaterials & Biointerfaces

Interactions of Biomolecules & Lipids

V. Gordon, Organizer
A. P. Goodwin, Organizer, Presiding

8:30 542. Probing nanolipoprotein particle interactions with supported lipid bilayers at the nanoscale. A.T. Dang, M. Coleman, T. Kuhl

8:50 543. Stimulatory effect of phosphatidylglycerol micelle tubes on α-synuclein aggregation. Z. Jiang, J.D. Flynn, J.C. Lee


9:40 545. Interactions of phospholipids and proteins dictate vaporization of fluorocarbon droplets for ultrasound imaging. R. Chattaraj, A.P. Goodwin

10:10 Intermission.

10:30 546. Janus particles induce defects in supported lipid bilayers. K. Lee, Y. Yu

10:50 547. Integration of bio-membrane in synthetic nanoparticle for diagnosis and therapy. S. Aryal, T. Nguyen, A. Pitchaimani

11:20 548. Characterization of the binding of vesicles, viruses and cells to biomimetic lipid bilayers. M. Verheijden, D. Di Iorio, G. Koçer, J. Huskens, P. Jonkheijm
11:40 549. Nanoscopic rotational tracking reveals binding dynamics of cell membrane-camouflaged nanoparticles on lipid membranes. **Y. Yu, Y. Gao, Y. Yu**

12:00 550. Attachment of *Alcanivorax borkumensis* to oil-in-water emulsion droplets stabilized by different dispersants. **A. Abbasi, G.D. Bothun, A. Bose**

Section C

Ernest N. Morial Convention Center
R07

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

J. Katsaras, S. Muralidharan, A. N. Parikh, *Organizers*
M. Nieh, *Organizer, Presiding*
J. Nickels, A. Vaish, *Presiding*

8:30 551. GPCR ligand residence times obtained by all-atom simulation. **L. Chen, E. Lyman**

8:50 552. Multi-component lipid bilayer membranes on GO: Domain distribution and fluidity evaluation. **R. Tero, Y. Okomoto, S. Saito**


10:20 555. Effects of incorporating channel forming peptides on the thermal fluctuations in lipid bilayers. **M. Nagao, E.G. Kelley, P. Butler**


11:20 557. Composition and physical properties of living membranes. **I. Levental, J. Lorent, K. Levental**

11:50 558. Structural basis of hydrophilic-polymer-modified lipid domains in supported lipid bilayer and their physical properties. **Y. Kakimoto, R. Tero**
12:10 559. QCM-D study of formation of five-component supported lipid bilayer incorporating cholesterol, sphingomyelin, and ganglioside. **E. Kamaloo, R. Nagarajan, T.A. Camesano**

Section D

Ernest N. Morial Convention Center
R06

**Fundamentals & Applications of Emulsions at Nonstandard Conditions**

L. Chen, H. Katepalli, R. Moglia, *Organizers, Presiding*

8:30 560. Coalescence and spontaneous emulsification in the presence of asphaltenes. **G.G. Fuller, S. Bochner, M. Merola, D. Vlassopoulos**


9:35 562. Microtensiometer platform for characterization of fluid-fluid interfaces through sudden changes in environment. **L. Walker**

10:00 563. Hollow microspheres using interfacial trapping of pristine graphene sheets. **C.D. Liyanage, D.H. Adamson**


11:40 567. Schizophrenic diblock copolymer functionalized nanoparticles as temperature responsive Pickering emulsifiers. H. Katepalli, M. Ranka, D. Blankschtein, T. Hatton

Ernest N. Morial Convention Center
R08

Colloidal Nanoparticle Synthesis & Assembly

Financially supported by Henan University and King Abdullah University of Science and Technology
M. Cai, H. Fan, Y. Han, Organizers
F. Bai, Organizer, Presiding
Y. Jiang, Presiding

8:30 568. Structure influence on the mechanical properties of self-assembled nanoparticle systems. X. Lin

9:00 569. Novel approaches to nanoparticle size control through continuous growth. D. Huber

9:30 570. Epitaxially grown particle superlattices via DNA-programmed assembly on lithographic templates. R. Macfarlane


10:10 Intermission.

10:30 572. Developing hierarchical hybrid polymer-enzyme structures for biomass conversions. T. Li, G. Babnigg, J. Johnson

11:00 573. Liquid evaporation-driven assembly of 3-D architected structures by low-dimensional deformable nanomaterials. B. Xu

11:30 574. Atomistic modeling of nanoparticle self-assembly: dynamics, interactions and structures. P. Kral

12:10 576. Investigation of conduction electrons wave function delocalization at the metal nanoparticle–organic ligand interface in solid state.  **T. Habarakada Liyanage**, R. Sardar

Section F

Ernest N. Morial Convention Center
R09

**Solubility of Colloids in Different Solvents**

L. Liz Marzan, *Organizer*
N. Feliu, W. Parak, *Organizers, Presiding*

8:30 577. Solubility adjustment of nanocrystals for their use in nanocomposites and in biological environment.  **H. Weller**


9:20 579. Directing gold nanoparticles into biological membranes by fine tuning their dispersibility.  **M. Brust**

9:45 580. Surface-Enhanced Raman Scattering (SERS) classification of *K-Ras* point mutations.  **L. Guerrini**

10:10 581. Understanding the interaction of nanoparticles and cells: Potential cytotoxicity associated with the uptake of nanoparticles by cells.  **N. Feliu**, W. Parak

10:35 582. Degradation of particles effects their colloidal properties.  **W. Parak**

11:00 583. Microfluidics and metabolic dying in liquid biopsy.  **R.A. Alvarez-Puebla**

11:25 584. Molybdenum disulfide (MoS$_2$)/graphene oxide (GO) nanocomposites show favorable lung targeting and enhanced drug loading/tumor-killing efficacy with desirable biocompatibility.  **S. Liu**
11:50 585. Beauty of metal-organic framework bulk chemistry combined with the fascinating world of nanoparticles. **S. Wuttke**


Section G

Ernest N. Morial Convention Center
Room 203

**Nanomaterials**

**Nanocomposite Applications: From Plasmonics & Electronics to Biology**

J. A. Hollingsworth, R. Nagarajan, **Organizers**
G. Davies, **Presiding**

8:30 588. Nanostructured plasmonic surfaces for diagnostics and chemistry. **H. Moehwald**, G. Zhang

8:50 589. Monitoring plasmonic photocatalysis at the single molecule level with surface-enhanced Raman spectroscopy. **J.L. Brooks**, R.R. Frontiera

9:10 590. Colloidal, nanoelectronic state machines based on 2D materials for aerosolizable electronics. **V. Koman**, P. Liu, D. Kozawa, A. Liu, A. Cottrill, M. Strano

9:30 591. Effect of particle distance in magnetic properties of superparamagnetic iron oxide nanoparticle and its application in contrast enhance magnetic resonance imaging. **T. Nguyen**, A. Pitchaimani, C. Ferrel, S. Aryal


10:30 594. Local-mapping and photothermal tumor treatment using galectin-1 targeting nanomaterials. S.V. Jenkins, R.P. Dings, J. Chen, R.J. Griffin

10:50 595. Selenium-containing polymer@metal-organic frameworks nanocomposites as an efficient multi-responsive drug delivery system. W. Zhou, W. zhang, W. Huang, F. Huo


11:30 597. Ultrasound and enzymes for surface functionalization of medical textiles and devices with antimicrobial nanoparticles. T. Tzanov, K. Ivanova

Section H

Ernest N. Morial Convention Center
Room 204

Recent Advances in Particulate & Colloid Materials for Biomedical Applications

A. S. Voronov, Organizer
M. A. Quadir, B. Rasulev, Organizers, Presiding

8:30 598. Self-dispersing and stimuli-responsive polyurethane dispersions. H. Gupta, J. Texter

8:55 599. Synthesis and cell attachment study of hybrid molecular brushes with chitosan backbone as potential materials for wound healing. M. Chawathe, S. Jonnalagadda, A. Sidorenko


10:10  Intermission.


10:50  603. Quantum chemical study on binding of selected amino acids with graphene.  T. Dinadayalane, D.A. Daggag, J. Lazare, T. Dorlus

11:15  604. Controlled surface modifications of polyester fibers by using Hansen solubility parameters.  G. Sun, M. Tamizifar

11:40  605. Janus nanoparticles for T-cell activation: Clustering ligands to enhance stimulation.  K. Lee, Y. Yu


Section I

Ernest N. Morial Convention Center
Room 205

Surface Chemistry

Polymers & Hydrophobic Surfaces

S. L. Tait, Organizer
J. Ngunjiri, C. Rosu, Presiding


9:40 610. Wrinkled polymer interfaces: Tuning morphologies in ultrathin polymer brush surfaces via postpolymerization modification and soft lithography techniques. C. Reese, B. Thompson, P. Logan, D.L. Patton

10:00 Intermission.

10:20 611. Facile approach to large-scale and three-dimensional pore-forming on polymeric objects. W. Sun, J. Zhu, Z. Yin

10:40 612. Polymer CORALs with single and double response. Z. Friar, P.B. Moore, A. Sidorenko

11:10 613. Materials for moisture harvesting above dew point temperature. J. Song, K. Yeung

11:30 614. Surface plasmon & visible light for polymer functionalization of mesoporous silica films. N. Herzog, A. Andrieu-Brunse

Elucidation of Mechanisms & Kinetics on Surfaces

Surface Kinetics

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

Functional Structures from Wood-Based Materials

Paper & Fibrils

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Physical Chemistry of Ionic Liquids

Structure
Biobased Gels & Porous Materials

Functionalised Nanocellulose Gels

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Adaptive Nanogels

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Polymer Colloids: Synthesis, Analysis, Modeling & Applications

Sponsored by POLY, Cosponsored by ANYL, COLL, COMP, I&EC and PMSE

WEDNESDAY AFTERNOON

Section A

Ernest N. Morial Convention Center
Room 242

Basic Research in Colloids, Surfactants & Nanomaterials

Applications

R. Nagarajan, Organizer
M. A. Ilies, Presiding
2:00 615. Multifunctional carbon dots for tracking and eradication of drug resistant superbugs. P.C. Ray


2:40 617. Machine learning to better understand hard surface cleaning formulations. N.S. Brown, A. Ryan

3:00 618. Advancements in latent fingerprint development. P. Villarreal, I. Villavicencio, S. Liu, J.L. Liu


4:00 621. Novel nanomaterials for water purification: Synthesis, characterization and application of functionalized SWCNTs. A. Sahu, K. Blackburn, M. Qumhiyeh, K. Durkin, J.C. Poler

4:20 622. Role of polymers on fragrance retention, release and sensory perception from surfactant-rich rinse-off cosmetics. M.S. Vethamuthu


5:00 624. Functionalization of graphene materials for corrosion protection in 2K epoxy and urethane coating systems. M. Wunch, S. Mahmood, D. Yang


Section B

Ernest N. Morial Convention Center
Room 245

Biomaterials & BioInterfaces

Biomolecular Adhesion to Surfaces
V. Gordon, *Organizer*
A. P. Goodwin, *Organizer, Presiding*

2:00 626. Exploring the influence of amino acid structure on interactions between peptides and hematite surfaces. **J.A. Dunn**, N.N. Casillas Ituarte, S. Lower, B.H. Lower

2:20 627. Forthcoming renaissance for calcium phosphate nanoparticles in biomedicine. **V. Uskokovic**

2:40 628. Sunblock based on bioadhesive nanoparticles. **Y. Deng**


3:20 Intermission.

3:40 630. Solution-phase zwitterionic polymers destabilize proteins compared to polyethylene glycol. **L. Kisley**, M. Gruebele, D.E. Leckband

4:00 631. Biointerfacial phenomena in mussel-inspired polymers. **P. Delparastan**, K. Malollari, **P.B. Messersmith**

4:30 632. Connecting protein structure, function, and interfacial dynamics with single-molecule methods. **J. Kaar**


Section C

Ernest N. Morial Convention Center
R07

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

S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*
2:00 635. Membrane phase separation enhances liposomal delivery of chemotherapeutics. Z. Imam, M. Mendicino, J. Stachowiak


4:50 641. Dynamic profiling of lipid molecules at picosecond time scale. D. Bolmatov, M. Zhernenkov

Section D

Ernest N. Morial Convention Center
R06

Sol-Gel in Nanotechnology: Theory, Synthesis, Characterization & Applications

B. P. Chauhan, Organizer, Presiding

2:00 642. Polyimide aerogel coatings for carbon nanotube wire insulation. H. Guo, O. Dewey, M. Meador, L.S. McCorkle, M. Pasquali

2:30 643. Scaffolded nanocomposites of aminosilane-stabilized metal-core nanoparticles and carbon nanotubes. B.P. Chauhan, I. Kang, K. Yeh, Q. Johnson
3:00 644. Predicting surface area in green synthesis of sol-gel materials. **B.K. Peterson**, M. Afeworki, D.C. Calabro, Q. Li, S. Weston

3:30 645. 3D graphene oxide sol-gel assembly: effects of ammonia and nanosheet morphology on gel properties and their use as structural electrodes for energy storage. D. Parviz, **S. Shah**, M.G. Odom, W. Sun, D. Kulhanek, M.J. Green

4:00 646. Thermoresponsive coatings on mesoporous-shelled hollow particles serve as gates for controlled release. **Y. Su**, V.T. John


Ernest N. Morial Convention Center
R08

**Colloidal Nanoparticle Synthesis & Assembly**

Financially supported by Henan University and King Abdullah University of Science and Technology
M. Cai, H. Fan, Y. Han, **Organizers**
F. Bai, **Organizer, Presiding**
Y. Jiang, **Presiding**


3:40 Intermission.


4:30 655. Switchable surfactants for the preparation of monodisperse, sinter-resistant supported nanoparticles. K. Bryant

4:50 656. Tuning gold nanoparticle assemblies with a family of azobenzene peptide conjugates. Y. Zhou, A. Merg, N.L. Rosi

5:10 657. Photoactivated release from polydopamine nanotubes. Y. Sun, E.W. Davis

Section F

Ernest N. Morial Convention Center
R09

Basic Research in Colloids, Surfactants & Nanomaterials

Gels & Responsive Colloids

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

2:00 658. Supermolecular hydrogel prepared form thymine-containing artificial nucleolipid: Study of assembly and lyotropic mesophases. D. Zhang


3:00 660. High-speed AFM reveals detail understanding in adsorption of soft hydrogel microspheres onto solid substrate in aqueous solution. S. Matsui, T. Uchihashi, D. Suzuki
3:20 661. Effect of surface functional groups on electric stimuli-responsive behavior of polyacrylonitrile dispersed colloid. T. Do, Y. Ko

3:40 662. Gelation studies and thixotropic properties of molecular gels based on ammonium alkanoates as low molecular mass gelators. A.V. Mallia, B. Matei, F. Sultan

4:00 663. Advances in stimuli-responsive properties of functional microbial glycolipids. N. Baccile

Section G
Ernest N. Morial Convention Center
Room 203

Basic Research in Colloids, Surfactants & Nanomaterials
Nanoparticle Synthesis & Assembly

R. Nagarajan, Organizer
M. L. Personick, Presiding

2:00 664. Solid-shelled microemulsion with capabilities of confinement-induced release for improving permeability of reservoirs. L. Hao, L. Zhang, M. Akbulut


2:40 666. Composition controllable synthesis of PtCu nanodendrites with efficient electrocatalytic activity for methanol oxidation induced by high index surface and electronic interaction. L. Lu

3:00 667. Strong sensitized phosphorescence in Mn-doped CsPbBr₃ perovskite nanocrystals. D. Parobek, D. Son


3:40 669. Silica hallow particles prepared by encapsulation of water droplets with perhydropolysilazane in hydrophobic solvents. K. Kuramochi, H. Kiyosawa, R. Saito
4:00 670. Strong exciton-plasmon coupling in silver nanowire nanocavities. G. Beane, B. Brown, P. Johns, T. Devkota, G.V. Hartland


4:40 672. Coupling competitive surface interactions: A synthetic route to enhanced grain boundaries at the exterior of multiply twinned palladium nanoparticles. M.E. King, M.L. Personick

5:00 673. Pamitoyl-co-enzyme-A colloidal nanoparticles for transcriptional chemo-biologics therapy. S.K. Misra

5:20 674. Rapid fabrication of hollow $\alpha$-Fe$_2$O$_3$ particles with applications to enhanced photo-fenton reactions. Y. Zhang, Y. Su, J. He, G. McPherson, V.T. John

Section H
Ernest N. Morial Convention Center
Room 204

Recent Advances in Particulate & Colloid Materials for Biomedical Applications

A. S. Voronov, Organizer
M. A. Quadir, B. Rasulev, Organizers, Presiding

2:00 675. Understanding protein uptake properties of ionically crosslinked micro- and nanogels. Y. Cai, Y. Lapitsky

2:20 676. Antibacterial and antibiofilm layer-by-layer decorated nanoparticles. A. Ivanova, K. Ivanova, J. Hoyo, T.J. Heinze, T. Tzanov


3:00 678. Stimuli-responsive zwitterionic microgels. A. Pich

3:40 Intermission.


5:15 684. Exploiting Le Chatelier’s principle for a one-pot synthesis of nontoxic HHogGNPs with the sharpest nanoscopic features suitable for tunable plasmon spectroscopy and high throughput SERS sensing. M. Bhattacharya

Section I

Ernest N. Morial Convention Center
Room 205

Surface Chemistry

Adsorption at Surfaces

S. L. Tait, Organizer
C. Carbonell Fernandez, T. J. Mullen, Presiding

2:00 685. Expanding the molecular-ruler process though the solution and vapor deposition of alkanethiol molecules. T.J. Mullen


3:40 Intermission.


Functional Structures from Wood-Based Materials

Films & Low-Density Composites

Sponsored by CELL, Cosponsored by COLL

Physical Chemistry of Ionic Liquids

Transport & Dynamics

Sponsored by PHYS, Cosponsored by COLL‡

Biobased Gels & Porous Materials

Cellulose & Non-Cellulose Gels: Synthesis, Properties, Applications

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Adaptive Nanogels
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Polymer Colloids: Synthesis, Analysis, Modeling & Applications
Sponsored by POLY, Cosponsored by ANYL, COLL, COMP, I&EC and PMSE

WEDNESDAY EVENING

Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry Research: A Symposium in Honor of David J. Wesolowski
Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

THURSDAY MORNING

Section A

Ernest N. Morial Convention Center
Room 242

Basic Research in Colloids, Surfactants & Nanomaterials
Surfaces & Interfaces

R. Nagarajan, Organizer
R. Quinones, Presiding

8:30 692. Low electric and magnetic field induced transient spin dynamics of sanguinarine on single domain nanosurface. S. Das Chakraborty
8:50 693. Chemical mapping of the evolving material interface of particles in liquids. X. Yu

9:10 694. Study of polymorphism using patterned self-assembled monolayers approach on metal substrates. R. Quinones

9:30 695. Balancing multiple orthogonal functions simultaneously on a single surface. T. Lawton, J. Uzarski, S. Filocamo


10:30 698. Solvent-dependent ligand structure and conformation on gold and silver nanoparticles. P.P. De Silva, D. Zhang


11:30 701. Surfactant-free graphene exfoliation study between solvent interfaces. T. Hui, D.H. Adamson

11:50 702. Slippery liquid-immobilized film with high thermal and chemical stability. S. Shiratori, Y. Tsuge

Section B

Ernest N. Morial Convention Center
Room 245

Biomaterials & Biointerfaces

Advances in Biomaterials

V. Gordon, Organizer

8:50 704. Cellulose biointerface for paper diagnostics.  **V. Raghuwanshi**, Z. Huang, N. Yeow, C. Garvey, R. Tabor, **G. Garnier**

9:10 705. Surface design of sulfonated-supramolecular substrates for tethering bone morphogenetic protein 2.  **Y. Arisaka**, N. Yui

9:30 706. Blood-vessel-like polymer tubes that can morph their diameter and shape in response to stimuli.  **S.R. Raghavan**, B. Zarket


10:10 Intermission.


11:30 711. Self-assembled zwitterionic polymer-curcumin conjugates: Potent nano-inhibitors against amyloid β-protein fibrillogenesis and cytotoxicity.  **G. Zhao**, X. Dong, **Y. Sun**

11:50 Concluding Remarks.

Section C

Ernest N. Morial Convention Center
R07

**Biomembrane Synthesis, Structure, Mechanics & Dynamics**
8:30  712. Characterizing metallomembranes using vibrational sum frequency spectroscopy.  S. Pullanchery, S. Sun, M.F. Poyton, P.S. Cremer


9:10  714. Probing the interaction between antimicrobial peptides and biomembranes using small angle scattering techniques.  J.E. Nielsen, V. Bjørnstad, R. Lund


10:10 717. In situ methods for tuning membrane structure and lipid mobility in polyacrylic acid-cushioned supported lipid bilayers.  A.T. Dang, T. Kuhl

10:30 718. Membrane thickness-mediated protein-protein interactions in multicomponent lipid systems.  E. Ho, M. Haataja

10:50 719. Investigating the dynamics of phosphatidylinositol lipids in supported bilayers.  S. Sun, D.R. Melendez, C. Liu, T. Yang, P.S. Cremer


11:30 721. Enzymatic strategies of de novo phospholipid membrane formation.  A. Bhattacharya, N.K. Devaraj


Section D
R. Nagarajan, Organizer
S. Roke, Presiding

8:30 723. Talking heads: A conversation between co-surfactant head groups at the oil-water interface.  **R. Ciszewski**, B. Muller, G.L. Richmond


9:30 726. Molecule dynamics simulations of the fluorinated and fluorine-free surfactant monolayers at air-water and heptane-water interfaces.  **X. Zhuang**, R. Ananth


10:30 729. Transition of unilamellar cationic liposomes to bilamellar structures through the depletion effect.  **Y. Zhang**, J.S. Arora, J. He, V.T. John


11:30 732. Self-assembled monolayers derived from unsymmetrical spiroalkanedithiols having hydrophobic and hydrophilic tailgroups. R. Ghanbaripour, T. Lee

11:50 733. Composition–driven structural transitions from vesicles to bicelles to micells using phospholipid and nonionic surfactant mixtures. I. Mkam Tsengam, M. Omarova, S.R. Raghavan, G.D. Bothun, A. Mccormick, V.T. John

Section E

Ernest N. Morial Convention Center
R08

Colloidal Nanoparticle Synthesis & Assembly

Financially supported by Henan University and King Abdullah University of Science and Technology
M. Cai, H. Fan, Y. Han, Organizers
F. Bai, Organizer, Presiding
Y. Jiang, Presiding

8:30 734. Combination of atomic layer deposition and self-assembly of colloidal nanoparticles for high-performance gas separation membranes. Y. Jiang, C. Fan, G. Jiang, Z. Wang, Y. Gao, Y. Tian, H. Zhang

8:50 735. Phase transferable polymer encapsulated bimetallic nanoparticles. S. Street, M. Confer


9:50 738. Singly dispersed gold nanoshell-bearing cellulose nanocrystals with tailorable plasmon resonance. N. Semenikhin, N. Kadasala, R.J. Moon, J.W. Perry, K.H. Sandhage

10:10 739. Synthesis of high performance anisotropic SmCo₅ nanomagnets by reduction of Co-Sm(OH)₃ assembly. B. Shen, S. Sun
10:30 740. Low-temperature solution synthesis of titanium nitride nanoparticles. A.J. Kuehne


Section F

Ernest N. Morial Convention Center
R09

Basic Research in Colloids, Surfactants & Nanomaterials

Biointerfaces

R. Nagarajan, Organizer
M. R. Mackiewicz, Presiding


9:10 748. Understanding fine textures in touch — the role of fingerprints in modulating sliding friction on surfaces and haptic devices. **C. Dhong, D.J. Lipomi**


10:30 752. Interactions of gold nanoparticles and skin. **A. Kanaras, R. Fernandes**

10:50 753. Nanoparticle-coated surfaces provide quantifiable insight into thermal and radiation effects. **S.V. Jenkins, R.P. Dings, M. Borrelli, R.J. Griffin**


12:10 757. Protein-induced gold nanoparticle aggregation probed by label-free second harmonic light scattering. **K. Mishra, P.K. Das**

Section G

Ernest N. Morial Convention Center
Room 203

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

**Nanomaterials**
8:30 758. Unusual p-n heterostructured water-borne nanoparticles exhibiting superior charge separation ability. Y. Kim, B. Lee


9:50 762. Beyond the near-field: Enhancing the efficiency of upconversion-luminescence nanomaterials using the diffractive and reflective properties of structured metal surfaces. P.S. May, A. Baride, M.T. Berry, S. Smith

10:10 763. Pressure dependence of excited state dynamics in CdSe/CdS heterostructure nanocrystals. L. Hanson, C.W. Li, P. Alivisatos


10:50 765. Synthesis of Au38(SCH2CH2Ph)24, Au36(SPhBu)24, and Au30(StBu)18 nanomolecules and structural selectivity. M. Rambukwella, A. Dass

11:10 766. Reactive Ag+ adsorption onto gold. S. Athukorale, D. Zhang

11:30 767. Modeling the photon avalanche upconversion mechanism in Tm3+, Yb3+ co-doped β-NaYF4 nanocrystals. M. Hossan, M. Berry, S. May


12:10 769. Photo-induced electron transfer from amino acids to nitrogen functionalized graphene quantum dots. S. Mukherjee, P. Edamana, A. Chadha
Recent Advances in Particulate & Colloid Materials for Biomedical Applications

A. S. Voronov, Organizer
M. A. Quadir, B. Rasulev, Organizers, Presiding


8:50 771. Active antioxidizing polymeric particles for on-demand pressure-driven molecular release. Y. Seo, J. Leong, J. Teo, J.W. Mitchell, M.U. Gillette, B. Han, J. Lee, H. Kong

9:10 772. CuInS2/ZnS quantum dot based probe for monitoring the acetylation of mitochondrial proteins. C. Wang, E. Weiss


10:10 Intermission.

10:25 775. Hybrid nanoparticles of a conjugated polymer and iron oxide nanocrystals for simultaneous photothermal, photoacoustic and magnetic effects. J. Park, D. Pham, E. Kang, S. Kim


11:45 779. Gold-nanoparticle-assisted homocysteine enrichment and ratiometric quantification. **A. Olukoya, D. Zhang**

12:05 780. Radiofrequency and near-infrared responsive core-shell nanoparticles formed by lipid templating. **A. Pan, G.D. Bothun**

Section I

Ernest N. Morial Convention Center
Room 205

**Surface Chemistry**

**Carbon Surfaces & Environmental Adsorption**

S. L. Tait, *Organizer*
L. C. Henderson, L. A. Velarde, *Presiding*

8:30 781. Modifying the surface of carbon fiber for fiber-to-matrix adhesion. **L.C. Henderson, L. Servinis, J. Randall, C. Arnold**

9:00 782. Surface modification of sp² hybridized carbon nanomaterials via an inverse electron demand Diels-Alder reaction. **J. Zhu, R. Lennox**


9:40 784. Composite nanomaterials for water purification: Sustainable high-capacity rapid removal of small molecule DBP precursors. **J.C. Poler, A. Sahu, K. Durkin, K. Blackburn**

10:20 Intermission.


11:00 787. Revealing the complexities of hydroxyacetone at the air-water via vibrational sum frequency spectroscopy and computational methodologies. **B. Gordon**, F.G. Moore, L.F. Scatena, N.A. Valley, S. Wren, G.L. Richmond

11:20 788. Native urban films’ spatial and chemical heterogeneity reported by microscopy and SIMS analysis. **J.S. Grant**, S.K. Shaw


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