

COLL

DIVISION OF COLLOID AND SURFACE CHEMISTRY

S. Tait and D. Miller, *Program Chairs*

SUNDAY MORNING

Moscone Center
Room 308, South Bldg.

Nano- and Microstructured Materials and Interfaces for Human Health

M. Lockett, A. Ross, *Organizers*
S. Claridge, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 . Withdrawn

8:40 . Clusters of catalytic nanocompartments support cascade reactions for bio-applications.
C.G. Palivan

9:10 . Biodegradable, self-assembled Polyphosphoester colloids for ^{31}P magnetic resonance imaging and theranostics. **T. Rheinberger**, F.R. Wurm, O. Koshkina

9:30 . More than magnetic isolation: Dynabeads as strong Raman reporters for simultaneous capture and identification of targets. **M. McDonald**, J. Lee, N. Mhlanga, J. Kang, R. Karnik, L. Tadesse

9:50 Intermission.

10:00 . Potential of phenylboronic acid-containing framboidal nanoparticles for drug delivery applications. **A.J. van der Vlies**, U. Hasegawa

10:20 . Withdrawn

10:40 . Interface molecular environment-dependent metal organic framework morphology growth control. **W. Liao**, P. Kar

11:10 . Designed colloidal nanoparticle for inhibiting amyloid aggregation. **N.R. Jana**

Moscone Center
Room 310, South Bldg

Structure, Properties, and Applications of Porous Liquids

T. M. Nenoff, *Organizer*
J. Rimsza, *Organizer, Presiding*
I. Borne, *Presiding*

8:00 . Porous liquids: From concept to real-world applications. **H. Mahdavi**, M. Hill, B.D. Freeman

8:40 . Withdrawn

9:00 . Thermodynamic driving forces for polymer infiltration of microporous water. **J.J. Calvin**, C. DelRe, D.P. Erdosy, H. Hong, J. Cho, J.A. Mason

9:20 . Water uptake kinetics of metal organic nanotubes: Influence of pore wall polarity. **V.S. Samarasiri**, T. Forbes

9:40 Intermission.

10:00 . Porous liquids as a new class of electrolytes. **P.K. Thallapally**, V. Murugesan, W. Wang, S. Shin, G. Lim, A. Hollas, B. Sivakumar, S.I. Johnson, J. Chun

10:40 . Porous liquids for energy-efficient separation processes. **S. James**

11:00 . Porous liquid formation from polymer-grafted Ni₂(m-dobdc) for improved H₂ storage kinetics. **G. Redwine**, W.A. Braunecker, T. Gennett

Moscone Center
Room 306, South Bldg.

Surface, Interface and Coating Materials

Synthesis and Fabrication

Z. Cao, S. Jiang, M. Ma, M. Qiao, X. Yong, *Organizers*
K. Song, *Organizer, Presiding*

8:00 . Precise control of surface morphology via nanostructured helical polypeptide brushes: Towards volatile organic compounds (VOC) sensing devices. **Y.R. Huang**, L. Padilla Salas, S. Hur, C.K. Ober

8:15 . Interfacial synthesis of transition metal oxides and sulfides on liquid metals for optically responsive hybrid nanomaterials. **W. Kong**, R. Chai, C. Tabor

8:30 . Silver nanoparticle synthesis and ink formulation for additive manufacturing. T. Kirscht, F. Liu, M. Marander, **S. Jiang**

9:10 Intermission.

9:20 . Well-defined molecular bottlebrushes: Synthesis and properties as a unimolecular nanoparticle. **Y. Chen**

10:00 . Tuning size, morphology, and magnetization of iron oxide nanoparticles by ionic liquids. **E. Cagli**, M.K. Kidder, B. Gurkan

10:15 . Functionalization of metal oxide nanoparticles with various ligands: Implications for devices and non-wettable surfaces. C.L. Wright, Y. Cozzens, **J.E. Whitten**

10:30 Intermission.

10:40 . Design amphiphilic Janus particles as coating additives for self-stratifying hydrophobic coatings. **Y. Li**, S. Jiang

11:20 . Self-ejection and pattern self-assembly via evaporative salt crystallization on super surfaces. **S. McBride**

11:35 . Strategic synthesis of conducting polymers and their nanocomposites for targeted applications. **N. Nuraje**, D. Kanzhigitova, M. Abutalip, G. Zhigerbayev, P. Askar, Y. Yeszhan, F. Nazir, T. Pham, S. Adilov, R. Luque

Moscone Center
Room 305, South Bldg.

Symposium in Honor of Prof. Nicholas D. Spencer

J. Batteas, M. Ruths, *Organizers*

R. M. Espinosa-Marzal, F. Mangolini, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 . From sulfur on Ag(111) to brushes on hydrogels: 45 years of putting things on top of other things. **N.D. Spencer**

8:55 . Understanding mechanically induced processes on surfaces. **W.T. Tysoe**

9:30 . Mechanism of zddp and zdp tribofilm formation. J. Zhang, J. Wong, **H.A. Spikes**

10:05 Intermission.

10:15 . Slippery business: Contact mechanics and frictional behavior of polymeric hydrogels. **R. Carpick**

10:50 . Lubrication mechanisms of charged hydrogels. **R.M. Espinosa-Marzal**, A. Deptula, M. Lee

11:25 . Hydrogel tribology to biology. A. Al Kindi, A. Chau, J. Rosas, D. Atkins, K. Ogbonna, J. Urueña, **A. Pitenis**

Moscone Center

Room 307, South Bldg.

ACS Award in Surface Chemistry 2023 - Symposium in honor of Joachim Sauer

Catalysis and Surfaces

D. Miller, *Organizer*

M. Delferro, *Presiding*

8:00 . Modular design of advanced catalytic materials using raspberry colloid templating approach. **J. Aizenberg**

8:30 . Understanding carbonyl group hydrogenation over transition metal catalysts in aqueous reaction environments. D. Sah sah, P. Komen, **A. Heyden**

9:00 . Metal on Metal oxides the challenge of interfaces. **N. Lopez**

9:30 . Microkinetic modeling of catalytic reactions to improve catalyst materials. **C.T. Campbell**

10:00 . Vibrational frequencies of CO bound to cerium oxide surfaces: A consistent theoretical description using density functional theory. **M. Ganduglia-Pirovano**, P. Lustemberg

10:30 . Catalytic performance descriptors: An atomic-scale perspective. **M. Mavrikakis**

11:00 . Free energy sampling of catalytic processes at operando conditions. **G. Piccini**

11:30 . Tailoring Brønsted acidity to drive selective hydrogenation and hydrogenolysis in mesoporous materials. **M. Neurock**, H. Nguyen, V. Maliekkal, J.A. Lercher

Moscone Center
Room 304, South Bldg.

Nanomaterials

Nanomaterials Synthesis

J. A. Hollingsworth, S. Hunyadi Murph, R. Nagarajan, D. L. Watkins, *Organizers*
C. M. Sims, *Organizer, Presiding*

8:00 . Aerosol CA-Ni-Ce nanoparticle cluster for efficient CO₂ utilization via calcium looping-integrated methane dry reforming. Z. Law, **D. Tsai**

8:20 . Solvothermal synthesis of soluble, surface modified metal oxide nanocrystals. C. Heinekamp, A. Sanz Arjona, A. Kavanagh, A. Regan, A. Bathe, **P.W. Dunne**

8:40 . Synthesis, purification, and characterization of carbon quantum dots from alternative carbon sources. R.E. Nemcek, **D.T. Miles**

9:00 . Synthesis of silver nanoparticles driven by photodissociation of glycerol in low pressure plasmas. **C. Xu**, J. Held, H. Andaraarachchi, U. Kortshagen

9:20 . Atomically precise gold cluster-chemistry with stibine-based ligands. **A. Das**

9:40 . Crucial roles of metal-ligand complex for uniform synthesis of various metal nanoclusters. **J. Kim**, J. Park

10:00 . Towards atomic precision in syntheses and structures of semiconductor nanoclusters. **C. Zeng**

10:20 . Investigating the reaction conditions of CdTe magic-sized clusters. **S.A. Mech**

10:40 . Phase control in the bottom-up synthesis of transition metal (M = Fe, Co, Ni) chalcogenides. **J. Espano**, J. Macdonald

11:00 . Finely tunable nanostructure of trimetallic nanoparticles via competing reduction pathways. **A.T. Dao**, H. Lee, D. Hanyu, H. Nakatani, H. Kasai, K. Kaneko

11:20 . Withdrawn

11:40 . Study of hydrogen silsesquioxane mechanism via environmental transmission electron microscopy and preparation of highly resonant Si@Au particles. **G.L. Drisko**, C. Cibaka-Ndaya, E. Opeyemi Idowu, K.M. O'Connor, J.G. Veinot, L. Roach, L. Roiban

Impact of PFAS on Environment and Health

Sponsored by ENVR, Cosponsored by COLL, GEOC and TOXI

SUNDAY AFTERNOON

Moscone Center
Room 307, South Bldg.

ACS Award in Surface Chemistry 2023 - Symposium in honor of Joachim Sauer

Materials and Characterization

D. Miller, *Organizer*
M. Neurock, *Presiding*

2:00 . Use of in situ, combined spectroscopies to understand a catalyst. **S. Bordiga**

2:30 . Understanding the role of lattice modes on the interfacial mobility of lithium ions at solid-state electrolyte surfaces. **M.W. ZUERCH**

3:00 . Surface action spectroscopy with inert gas messenger atoms. **H. Freund**

3:30 . Accurate free energy of adsorption of ethanol in H-MFI from anharmonic vibrations computed by DFT-MD simulations. **D. Galimberti**, D. Kumar, J. Sauer

4:00 . Prediction and analysis of hydrogen bonds in zeolite frameworks. **H. Koller**, C. Schroeder, M. Hansen, C. Lew, S.I. Zones

4:30 . σ -functionals applied to molecules and solids. **J.A. Paier**, S. Fauser, A. Görling

5:00 . How computing is changing the world. **A.K. Wilson**

Moscone Center
Room 305, South Bldg.

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*
S. Nath, *Presiding*

2:00 . Withdrawn

2:20 . Nanobubbles enhanced microbubbles flotation of fully hydrophilic freshly precipitated iron hydroxide. **M. Colic**

2:40 . Designing negative feedback loops in enzymatic coacervate droplets. **N. Modi**, K. Bishop, A. Obermeyer, S. Chen, I. N. A. Adjei

3:00 . Capturing Bubbles. B. Vandereydt, **S. Nath**, J. Lake, T. Joseph, K.K. Varanasi

3:30 Intermission.

3:50 . Ion specificity in the rheology of cellulose nanofibrils in the presence of salt. **R. Wattana**, C.O. Osuji

4:10 . Withdrawn

4:30 . Evaluation of binding interactions and altered activity of human serum albumin with microplastics by isothermal titration calorimetry. **J. Ahn**, M. Choi

4:50 . Multicomponent active diffusion. Y. Chiu, D. Evans, **A.K. Omar**

5:20 . Active capsule driven by collective motion of self-propelled particles. **H. Wu**, W. Xu, J. Aizenberg

Moscone Center
Room 308, South Bldg.

Nano- and Microstructured Materials and Interfaces for Human Health

S. Claridge, M. Lockett, *Organizers*
A. Ross, *Organizer, Presiding*

2:00 . Nano- and micro-structured aptamer-field-effect transistors on stiff and flexible substrates for implantable and wearable biomarker sensing. C. Zhao, **A.M. Andrews**

2:30 . DNA-based nanostructures as platforms for contrast agents for in vivo MRI analysis. **H. Clark**, K. Ma, M. Perera Gonzalez, C. Flask

3:00 . DNA origami directed virus capsid polymorphism. **M. Kostianen**

3:30 . Bimodal lateral-flow nanoaptasensor for the detection of carcinoembryonic antigen. **M.C. Licuona**, S.A. Alvarez, B.C. Galarreta, Y. Hernandez

3:50 . Nanoengineered carbon surfaces for improved neurochemical-electrode interfaces. **A.E. Ross**

4:20 Intermission.

4:30 . Targeted and controlled delivery of nitric oxide to cancer cells through hyaluronic acid-coated silica nanoparticles. **Q.E. Grayton**, T.T. Phan, M.H. Schoenfish

4:50 . DNA aptamer biointerfaces monitor small molecules for human health. A. Stuber, Y. Massoud, J. Hengsteler, **N. Nakatsuka**

5:20 . Shaping the materials and chemical microenvironment of an intestine-on-chip to create a physiologic system with multiple cell types. **N.L. Allbritton**

Moscone Center
Room 304, South Bldg.

Nanomaterials

Solar-to-Fuel & Nano-enabled Photocatalysis

J. A. Hollingsworth, S. Hunyadi Murph, R. Nagarajan, D. L. Watkins, *Organizers*
C. M. Sims, *Organizer, Presiding*

2:00 . Nanowire photoelectrochemistry. **P. Yang**

2:30 . Metal oxyhalide intergrowths as durable photocatalysts. **S.E. Skrabalak**

3:00 . Plasmonic nanoparticle electrodes for zero-carbon fuels. **P.K. Jain**

3:30 . Colloidal atomic layer deposition for the assembly of complex hybrid nanocrystal structures. **P.B. Green**, O. Segura Lecina, P.P. Albertini, A. Loiudice, R. Buonsanti

3:50 . Synthesis of anisotropic bimetallic nanoparticles and their applications as plasmonic photocatalysts. **T. Egan**, B. Sharma, G. Chen

4:10 . Aqueous synthesis of uniform Pt nanocrystals. **P. Chung**, A. Yang, C. Zhou, C. Lizandara-Pueyo, Y. Li, M. Cargnello

4:30 . Synthesis of water-soluble transition-metal doped ZnO nanocrystals with PEG-silane ligands. E. Buz, **K.R. Kittilstved**

4:50 . Reusable MoS₂ nanosheet-loaded hydrogel beads for multi-purpose water treatment. **D. Park**, C.O. Osuji

5:10 . TiO₂ inverse opal films with enhanced photocatalytic efficiency using a one-step precursor method. **O. Thüringer**, A. Wollbrink, M. Bäumer, T.M. Gesing

5:30 . Non-linear transient permeability in pH-responsive bicontinuous nanospheres. **W. van den Akker**, H. Wu, P. Welzen, H. Friedrich, L. Abdelmohsen, R. van Benthem, I. Voets, J. van Hest

Moscone Center
Room 310, South Bldg

Surface, Interface and Coating Materials

Theory, Simulation and Mechanism Study

Z. Cao, M. Ma, M. Qiao, K. Song, X. Yong, *Organizers*

S. Jiang, *Organizer, Presiding*

2:00 . Direct imaging and understanding of structural heterogeneity in polymer-based nanoparticles. **Q. Chen**

2:40 . Role of surface acid-base character in pyrrole autoxidation. **N. Paranamana**, J. Cook, M. Young

2:55 . Metallized DNA origami templates to access complex nanomaterial shapes. E. Jergens, A. Robbins, N. Roki, K. Huang, M. Shahhosseini, M.G. Poirier, C. Castro, **J.O. Winter**

3:10 Intermission.

3:20 . Sliding or rolling? Characterizing single-particle contacts. **L. Isa**

4:00 . Molecular insights into redox-active polymer interfaces: Solvation and ion valency effects on metal oxyanion selectivity. **R. Candeago**, H. Wang, M. Nguyen, M. Doucet, V. Glezakou, J. Browning, X. Su

4:15 . Towards full mechanical description of a composite layer with corrugated interface using QCMD. I. Efimov, **K. Sedransk Campbell**

4:30 Intermission.

4:40 . Probing charged particle assembly at curved fluid interfaces via computational modeling and electrospray experiment. **X. Yong**

5:20 . Roughness and thickness dependence of surface energy of immiscible polymer blend films. **M.S. Ibrahim**, M. Geoghegan

5:35 . Withdrawn

Moscone Center
Room 306, South Bldg.

Symposium in Honor of Prof. Nicholas D. Spencer

R. M. Espinosa-Marzal, F. Mangolini, *Organizers*
J. Batteas, M. Ruths, *Organizers, Presiding*

2:00 . Biotribology of Tumor Invasion. **W.G. Sawyer**

2:35 . Elucidating the adhesion-lubrication paradox of articular cartilage. **D. Burris**, J. Benson, A. Moore

3:10 . Gradient Porous Membranes from Fungal Mycelium. **P. Nalam**, O. Wodo, M.S. Parasnis

3:45 Intermission.

3:55 . Breaching naturally occurring polymers and polymer brushes on the bacterial cell surface. **G.K. Ayappa**

4:30 . Biomimetic, nanotextured water interfaces: A new look at Langmuir films and their facile, tuneable nanopatterning properties. **M.W. Rutland**

5:05 . Degradation of hydrocarbon oils on precipitation-hardened steels for space applications. **W.H. Mak**, D. Miliate, A.J. Clough, P.P. Frantz, E.W. Leung, S.V. Didziulis, A. Martini

5:25 . Surface controls friction in lubricated contacts. **J. Cayer-Barrioz**

Agrochemical Formulations and Application Technology: Challenges and Innovation

Sponsored by AGRO, Cosponsored by AGFD and COLL

Impact of PFAS on Environment and Health

Sponsored by ENVR, Cosponsored by COLL, GEOC and TOXI

SUNDAY EVENING

Moscone Center
Hall F, South Bldg.

ACS Award in Surface Chemistry 2023 - Symposium in honor of Joachim Sauer

D. Miller, *Organizer*

7:00 . Fabrication of hyper-crosslinked polyamide nanofiltration membranes composed of aliphatic amines and terephthaloyl chloride for saline water desalination. U. Baig, **A. Waheed**

7:00 . Detection of breath acetone via Au-decorated V₂O₅ thin film/Ag nanoparticles. **B. Alghamdi**, Q. Drmosh, N. Alharbi, M. Aburuzaizah

7:00 . Effects of stoichiometry on the morphology and thermal stability of metal oxide clusters on metal surfaces. **J. Wang**, L. Shi, y. ma, M.G. White

Moscone Center
Hall F, South Bldg.

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*

7:00 . Manipulation of optical properties through temperature-responsive polymer photonic films. **Y. Jang**, H. Kwon, H. Song, K. Hwang, J. Lee

7:00 . Withdrawn

7:00 . Dye-sensitized microlens active colloids. **J. Chen**, J. Tang

7:00 . Surfactant adsorption and partitioning drives dewetting of sessile oil droplets in surfactant solution. **K. Kim**, W. Xue, L.D. Zarzar

7:00 . Withdrawn

7:00 . Gold-silver nanoshell functionalization and stabilization in non-aqueous solvents. **J. Magdon** , R. Medhi

7:00 . Nanotextured stainless steel for therapeutic protein and nucleic acid delivery. **T. Pho**, M.A. Janecka, J. Champion

7:00 . Site-specific conjugation of human IgG1 with peptides mediated by microbial transglutaminase (mTG) for adsorption to AuNPs. **K. Osei**, J.D. Driskell

7:00 . SERS: Based rapid vertical flow immunoassay for enhanced point of care diagnostics. **A. Amisshah**, E. Ebbah, R. Frimpong, J. Kim, J.D. Driskell

7:00 . Photophysical properties of Cy5 in presence of Graphene Oxide (GO) using steady-state and time resolved spectroscopical techniques. **N. Moro**, D. Kim, R. Nayak

7:00 . Double emulsions (W/O/O) for encapsulation of phase-changing materials. **E. Cruz**, E. Pentzer, S. Lak

7:00 . Effect of hydroxyl group position on the self-assembly, gelation, and photophysical properties of (hydroxyphenyl)alkanamides as low molecular mass gelators. **B. Fisher**, J. Miller, A. Mallia

7:00 . Lives of thermal Marangoni bubbles. **S. Nath**, G. Ricard, P. Jin, A. Bouillant, D. Quéré

7:00 . Anti-fouling property of polyvinylpyrrolidone in contact lens materials. **S. An**, J. Ahn, S. Lee, M. Choi

7:00 . Investigation of atmospheric moisture effect on the molecular behavior of isocyanate-based primer surface. **S. Zhang**, L. Hsu, A. Toolis, B. Li, J. Zhou, T. Lin, Z. Chen

Moscone Center
Hall F, South Bldg.

Biomaterials and Biointerfaces

E. S. Andreescu, C. P. Collier, S. Sinha Ray, *Organizers*

7:00 . Surface modified mesoporous silica nanoparticles for crossing the blood-brain-barrier. **P. Chen**

7:00 . Designing amphiphilic iron oxide nanoparticles for targeting amyloid protein fibrils. **S. Mandal**, M. Nguyen, T. Lee

7:00 . Investigation of drug–model cell membrane interactions using Raman spectroscopy. **W. Perla**, C. Poust, K. Ivanchenko, S. Lee

7:00 . Insights into dietary polyphenol interactions with lipid bilayers: Vibrational spectroscopy. **C. Poust**, W. Perla, K. Ivanchenko, S. Lee

7:00 . Probing the barrier properties of model membranes: The effects of plant polyphenols. **J. Gudyka**, J. Ceja Vega, S. Lee

7:00 . Understanding molecular interactions of model lipid bilayers by ATR-FTIR spectroscopic studies. **Z. Morocho**, K. Ivanchenko, S. Lee

7:00 . Electrical property investigation of model lipid membranes. **R. Porteus**, S. Lee

7:00 . Thermodynamic studies on phytochemical interactions with lipid membrane. **S. Silverberg**, C. Clarke, A. Hernandez Gamez, S. Lee

7:00 . Extraction and purification of phospholipids and neutral lipids from natural products using ethanol and vegetable oils. **H. Chung**, K. Lee, H. Kwon, S. Choe

7:00 . Label-free, hydrogel-based SPR biosensor for the detection of multivalent protein binding. **J. Teoh**, H. Yang, S. Jeon, E. Park, T. Eom, D. Yoo

7:00 . Designed chemical synthesis of bioresponsive nanoscale hydrogels. **T. Eom**, J. Teoh, S. Jeon, E. Park, D. Yoo

7:00 . Decoding the relationship between the size of nanoscale hydrogels and the induced SPR response during multivalent protein binding. **E. Park**, J. Teoh, T. Eom, S. Jeon, D. Yoo

7:00 . Hydrogel-based SPR biosensor for rapid detection of cancer biomarkers IL-2 and IL-2 α . **S. Jeon**, H. Yang, J. Teoh, E. Park, T. Eom, D. Yoo

7:00 . Investigations for the interactions of protein molecules with the ordered porous nanostructure substrates. **W. Qian**

7:00 . Sulfobetaine carboxymethyl chitosan-based antibacterial and antithrombotic coating for blood-contacting catheters. **D. Lee**, S. Park, B. Lee, J. Park, D. Choi

7:00 . Assessing the compositional variation of giant unilamellar vesicles via secondary ion mass spectrometry. **D.S. Grusky**, A. Bhattacharya, S.G. Boxer

7:00 . Control of melanin synthesis inside liquid droplets. **K. Barriales**, S. Kassem, T. Wang, S. Khandaker, A. Jain, R. Ulijn

7:00 . Effect of surface chemistry on enzyme adsorption: Acetylcholinesterase immobilized onto gold surfaces. **D. Madeksho**, J. Correira, L.J. Webb

7:00 . Effect of protein nanoparticle interaction on protein corona formation. **K. Halder**, S. Dasgupta

7:00 . Withdrawn

7:00 . Novel interaction of a DNA quadruplex with a Gemini surfactant. **R.D. Sheardy**, D. Aguilar, H. Nembaware, A. Ginegaw, A. Jordan, P. Justice

7:00 . Investigating DEC-based linker proteins to mediate Assembly of P22 virus-like particles (VLPs). **P. Medina**, R. Fukazawa, A. Lopez, G. Terashi, D. Kihara, M. Uchida

Moscone Center
Hall F, South Bldg.

Biosurfactants

A. Izmitli, A. D. Kanthe, D. Miller, K. J. Stebe, C. J. Tucker, *Organizers*

7:00 . Comparative study between Gramicidin biosurfactant extract obtained from *Aneurinibacillus aneurinilyticus* CECT 9939 and biosurfactant extract obtained from *Lactobacillus pentosus* cells. **J.M. Cruz**, K. Lvova, A. López-Prieto, X. Vecino, B. Pérez-Cid, A.B. Moldes

7:00 . Evaluation of the wettability character of a biosurfactant extract obtained from the microbial biomass of corn steep liquor. **A.B. Moldes**, A. López-Prieto, A. Martínez-Arcos, X. Vecino, J.M. Cruz

7:00 . Evaluation of microbial biomass from secondary streams of red wine and starch industries as sources of biosurfactants. **J.M. Cruz**, X. Vecino, B. Pérez-Cid, A.B. Moldes

7:00 . Sequence engineering of surfactants based on an intrinsically disordered protein domain. **K.J. Dolph**, A.I. Lall, J.M. Gleason, P. Huang, M.B. Francis

7:00 . Preparation and characterization of hybrid surfactants based on an intrinsically disordered protein domain. **A. Lall**, K.J. Dolph, P. Huang, M.B. Francis

7:00 . Synthesis and characterization of symmetric aspartic acid-based tripeptide surfactants. **R.C. Swonke**, A. Garcia, J. Harris, A. Symons, H. Parson, E. Billiot, F.H. Billiot, C. Azad, M.A. Olson

7:00 . Synthesis, purification, and characterization of novel bifurcated amino- acid based molecular assemblies. **A. Garcia**, E. Billiot, F.H. Billiot, R.C. Swonke

Moscone Center
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Colloidal Networks

Y. Colon, D. J. Milliron, T. Truskett, *Organizers*

7:00 . Light-driven micro/nanomotors based on conjugated polymers. **L. ZHANG**

7:00 . Electrospinning of PVA/Fe₃O₄ nanocomposite: correlation of rheological properties with nanofiber morphology. **N. Keshmiri**, H. Hosseini, A. Milani, M. Arjmand

7:00 . Microstructure and micro mechanical behavior of alginate/polyethylene oxide-poly(propylene oxide)-poly(ethylene oxide) hydrogels. **H. Zhu**, N. Gunawardhana, A. Holmes, N. Simprevil, S.T. Laughlin, S.R. Bhatia

Moscone Center
Hall F, South Bldg.

Fundamental Research in Colloids, Surfaces and Nanomaterials

S. Hunyadi Murph, J. Katsaras, U. Natarajan, *Organizers*

- 7:00** . Measurement of the propulsion dynamics of light-activated Janus particles via optical microscopy and optical tweezers. **K.I. Requejo Roque**, C. Canari, V. Jamali, R. Ruiz, A. Alivisatos, C. Bustamante
- 7:00** . Dual-propelled asymmetrical yolk-mesoporous shell polydopamine@SiO₂@Ag micromotor for efficient removal of organic pollutants from water. **X. Li**, Y. Luan
- 7:00** . Roles of amino acids as effective promoters for methane hydrate formation at room temperature. **P. Rangsunvigit**
- 7:00** . Oxygen-induced spin–spin coupling at quantum defects in ambient conditions: Monolayer CdSe as another classical model. **Y. Liu**, P. Jiang, J. Chen, K. Ting
- 7:00** . Mesoporous 2D semiconductors for photocatalytic applications. **Y. Liu**, T. Hsieh, D. XIAO, K. Ting
- 7:00** . Enhancing the surface wettability of polyetheretherketone (PEEK) with vacuum UV photo-oxidation. **G.A. Takacs**, R. Keeley, O. Omar, H. Heineman, M. Abdi, A. Andelija, M. Mehan, S. Gupta
- 7:00** . Generating multilayer polyelectrolyte coating libraries on protein nanoparticles for mucosal delivery. **S. Jenison**, T. Pho, J. Champion
- 7:00** . Investigation of nanoparticle supercrystals formation mechanism. **S. Lee**, J. Dey, j. kim, J. Jang, K. Jin, S. Choi
- 7:00** . Iron-based metal-organic frameworks on the COOH-functionalized 316L stainless-steel as drug delivery systems. **T. Hang**, F. Tian
- 7:00** . Operating conditions and defect effects on the grating diffraction structural color of self-assembled colloidal spheres. **C. Young**, **T. Liu**, **T.C. Moore**, **M.J. Solomon**, **S.C. Glotzer**
- 7:00** . Arrangements of elastomer particles on solid substrates using evaporation of water. **Y. Sasaki**, S. Hiroshige, M. Takizawa, Y. Nishizawa, T. Uchihashi, D. Suzuki
- 7:00** . Study the effect of plasmon excitation on surface versus bulk photoemission of solvated electrons into water. **S. Dutta**, A. Al-Zubeidi, S. Lee, C.F. Landes, S. Link
- 7:00** . Peptoid capping ligands for gold nanoparticles. **J. Petersen**, **H. Goldberg**, A.A. Fuller
- 7:00** . Nickel-gold composite electrodes for electrochemical glucose oxidation. **N. Shey**, E. Gillette
- 7:00** . Characterization of vertically stratified films produced from binary polymer-particle mixtures. **S. Fernando**, S.R. Bhatia

7:00 . Connecting ligand binding preferences between atomically precise nanoclusters and large nanoparticles. **T. Lou**, Z. Rhoden, B. Lear

7:00 . Effects of pH on DNA-carbon nanotube optical sensors of small molecule analytes investigated with molecular dynamics simulations. **S. Chakraborty**, L. Vukovic, A. Krasley, A. Beyene

7:00 . Thermal conductivity of active nanofluids based on different nanomotors under various lights and magnetic fields. **Y. DING**, J. Tang

7:00 . Ultra-high temperature sublimation and oxidation of HfC: A single nanoparticle mass spectrometry approach. **A.R. Burrows**, A.M. Friese, C. Lau, S.L. Anderson

7:00 . Light-mediated nitric oxide release for antibacterial applications. **C.R. Johnson**, M.H. Schoenfisch

7:00 . Understanding the mechanistic aspects of metal-doped titania catalysts for selective CO₂ photoreduction. **S. Singh**, R. Punia, K. Pant

7:00 . Adaptive surface coatings to control the stability of nanomaterials prone to surface oxidation and metal ion release. **A. Nagar**, M.R. Mackiewicz

7:00 . Synthesis of thick shelled gold nanorattles containing gold nanobipyramids for surface enhanced Raman scattering. **G.B. Cooper**, O.W. Vause, T. Hamlett, Y. Bao

7:00 . Synthesis of multi-shelled gold nanorattles containing gold nanobipyramids. **O.W. Vause**, G.B. Cooper, Y. Bao

7:00 . Rheological investigation of oil-in-water Pickering emulsions stabilized by graphene oxide for 3D printing. **E. Erfanian**, M. Kamkar

7:00 . Bioconjugation of 4-phenylbutyric acid (4-PBA) to gold nanoparticle. K. Bandyopadhyay, **N. Ebrahim**, A. Small, A. Nkrumah, Z. Zhang

7:00 . Withdrawn

7:00 . Exploring the effects of surfactant modification on zeolitic imidazolate framework-8 nanocrystals. **t. jongert**, I. Slowinski, F. Tian

Moscone Center
Hall F, South Bldg.

Mentoring Undergraduate Surface Science Research

A. Baber, L. B. Benz, E. V. Iski, G. Y. Stokes, *Organizers*

7:00 . Developing and characterizing ultrathin croconic acid thin films on gold substrates. E. Larrazabal, J. Uribe, K.R. Cousins, **R. Zhang**

7:00 . Generation of two dimensional arrays of copper nanoparticles on functionalized surfaces. **Y. Aljaber**, K. Bandyopadhyay

7:00 . Stability study of bifunctionalized gold nanoparticles in high ionic strength solutions: An emphasis on biosensor development. **A. DeMello**, Z. Petrek, T. Ye

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Nano- and Microstructured Materials and Interfaces for Human Health

S. Claridge, M. Lockett, A. Ross, *Organizers*

7:00 . Colloidally stable silica nanoparticles with high molecular antigens on their surface as carrier for an HIV-1 vaccine. **C. Barbey**, D. Peterhoff, R. Wagner, M. Breunig

7:00 . Bio-inspired hierarchical nanostructure tactile sensor for human health monitoring. **N. Hoang Minh**, K. Kim, D.H. Kang, Y. Yoo, J. Yoon

7:00 . Glutathione responsive self-reporting mineralized conductive hydrogel sensor with cancer-selective, controllable stretchability, and adhesiveness. **A. kim**, K. Roy, S.H. Subba, T. Kim, H. Jo, S. Park

7:00 . pH-responsive carbon dot-based controllable conductive hydrogel as pressure-strain sensor for detection of cancer. **T. Kim**, A. Robby, S.H. Subba, A. kim, H. Jo, S. Park

7:00 . Electrochemical and fluorescent-based conductive hydrogel biosensor to monitor acetylcholinesterase activity and inhibition. **H. Jo**, K. Seul Gi, S.H. Subba, A. kim, T. Kim, S. Park

7:00 . ROS-selective electroconductive hydrogel sensor with controlled mechanical and Nir regulated photothermal treatment. **S.H. Subba**, H. Jo, A. kim, T. Kim, H. Jo, S. Park

7:00 . Injectable nanoparticles for co-delivery of polyphenols and regenerative drug: A synergistic Strategy for bone tissue repair. **H. HAN**, K. Lee

7:00 . Self-assembled lipid nanoparticles for enhanced mRNA delivery. **H. Kim**, **M. Chung**

7:00 . In vitro wound healing activity of nitric oxide-releasing glycosaminoglycans. **S. Picciotti**, Q.E. Grayton, M.H. Schoenfish

7:00 . Nanoscale patterning of functional ligands on glass for equilibrium K_d measurements of multivalent biomolecular interactions. **E. Nava**, L. Williams, A. Singh, K.A. Nagubandi, J.C. Arango , C.J. Pintro, S. Claridge

7:00 . Detection of metastatic cells in blood by data analysis of surface captured cells. N. Mansur, M. Hasan, Y. Kim, **S.M. IQBAL**

7:00 . Photothermal attenuation of cancer cell stemness, chemoresistance and migration using CD44 targeted MoS₂ nanosheets. **J. Liu, S. Smith, C. Wang**

7:00 . Interfacial hydration layer engineering of immuno-iron oxide nanoparticles for enhanced specificity in magnetic separation of pathogenic bacteria. **D. Kang**, Y. Kim, H. Adra, K. sangmin, L. Dahee

7:00 . Tuning the Ce³⁺/Ce⁴⁺ ratio in multifunctional CeO₂ nanozymes for low-cost healthcare applications. **S. Sarkar**, A. Kulkarni, R. Srivastava

7:00 . Tubular nanoclay as a ‘mothership’ carrier for the selective delivery of antimicrobials. **O. Prinz Setter**, A. Gilboa, I. Snoyman, G. Shalash, E. Segal

7:00 . Influence of biofunctionalization on dielectrophoretic particle trapping. **A. Duarte**, C. Thome, W. Shields

7:00 . Sub-1nm boron layers on high-pressure high-temperature nanodiamonds. **K. Govindaraju**, N. Martin, M. Estanilla, H. Yamada, M. Ma, A. Washington, A. Thac Dang Vu, D. Labunsky, V. Altoe, D. Nordlund, S. Lee, A. Wolcott

7:00 . Thioether-containing polymeric micelles with fine-tuned oxidation sensitivities for cancer-selective drug delivery. **U. Hasegawa**, A.J. van der Vlies

7:00 . Nitric oxide-releasing liposomes for intracellular M. abscessus infection. **S.G. Nagy**, M.H. Schoenfish

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Nanohybrid Materials for Diverse Applications

N. Feliu Torres, A. Mews, W. J. Parak, *Organizers*

7:00 . Dual stimuli-responsive gadolinium oxide-decorated graphene oxide-based smart fluids. **H. Gwon, S. Lee**

7:00 . Gold nanoparticles as radiosensitisers in head and neck squamous carcinoma cells. **D. Traynor, M. Fabbri, S. Rannard, N. Liptrott, J. Parsons, M. Giardiello**

7:00 . Clustering superparamagnetic iron oxide nanoparticles and their effect on magnetic particle imaging (MPI) signal generation. **E. Ureña Horno, D. Gray, R. Batty, J. Leaver, L. O'Brien, M. Giardiello**

7:00 . Tuning polymer composition leads to activity-stability tradeoff in enzyme-polymer conjugates. **E. BISIRRI, T. Wright, D.K. Schwartz, J. Kaar**

7:00 . Development of conductive ink materials for the thermoforming process of in-mold electronics (IME) application. **Y. Kim, H. Kim, J. Kim, K. Lee, Y. Kim, B. Ju, M. Oh**

7:00 . On-demand direct printing of chemosensors. **I. Becerril-Castro, I. Calderon, J. Ockova, M. Liebel, N. Van Hulst, V. Giannini, R. Alvarez-Puebla**

7:00 . Near infrared upconversion nanoparticle: Polymer dot nanohybrid materials for antibacterial applications. **A. Ikeji, X. Wu, A. Putta**

7:00 . Electroconductive silver nanoparticle composite films for sensing ammonia vapor. **M.V. Liyanage, G. Chumanov**

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Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, R. Nagarajan, C. M. Sims, D. L. Watkins, *Organizers*

7:00 . Predictive control of pH-responsive silica nanoparticle Assembly with solid binding proteins: Manipulating cluster size and reversibility by genetic and solution Engineering. **Y. Cai, X. Qi, J. Boese, B. Hellner, J. Pfaendtner, J. Chun, C. Mundy, F. Baneyx**

7:00 . Materials by design: “Molecules” from nanoparticle “atoms”. **A. Mathew, D. Hofmann, R. Nagarajan**

7:00 . Implant-assisted delivery strategy for safe and efficient transport of nanoformulations into solid tumors. **S. Panikkanvalappil**

- 7:00** . Sustainable energy production and decarbonization through nanoparticle-assisted enhanced oil recovery. **Y. Shukla, G. Pandey**, M. Nadezhda
- 7:00** . Use of sulfo-NHS/EDC coupling reactions to generate diamond-gold conjugates for plasmonic enhancement. **S. Teddy**, N. Martin, D. Cox, R. Kawamura, N. Sugal, V. Altoe, R. Barbosa, Y. Schneider, D. Nordlund, S. Lee, A. Wolcott
- 7:00** . Breaking symmetry in the growth of model colloidal nanocrystals. **S. Oaks-Leaf**, D. Limmer
- 7:00** . Withdrawn
- 7:00** . Understanding the orientation and binding of N-heterocyclic carbenes on gold surfaces using SERS. **R. Thimes**, A. Santos, G. Kaur, L. Jensen, D. Jenkins, J.P. Camden
- 7:00** . One-pot synthesis of noble metal nanoparticles mediated by polyhydroxy fullerenes. **Y. Xu**, V. Krishna
- 7:00** . Cationic polymer coating increases the catalytic activity of gold nanoparticles towards anionic substrates. **N. Langer**
- 7:00** . Solution properties of monodisperse poly(acrylic acid) particles made by radical precipitation polymerization. **K. Sakurai**
- 7:00** . Visualizing surface interactions between gold nanoparticles and fluorescent molecules by polarization-resolved optical microscopy. **B.M. Paranzino**, S. Sridhar, K.A. Willets
- 7:00** . Nanoparticle-protein interactions: impact of protein corona formation on the interfacial and thermoresponsive properties of acrylamide-based nanogels. **F. Traldi**, P. Liu, A. Zorbakhsh, M. Resmini
- 7:00** . How crystals grow on a surface: Using a QCMD approach with Kelvin-Voigt analysis. I. Efimov, E. Hadjittofis, **K. Sedransk Campbell**
- 7:00** . Organic functionalization of pristine and defective monolayer graphene to control biofilm growth. **M. UDDIN**, G. Sereda
- 7:00** . Doping heteroatoms to carbon nanodots: the effects on structure, optoelectronic property, radical scavenging, and oxidative stress in cells. **J. Wei**, M. Azami, Z. Ji, D. Arvapalli, J. Bang
- 7:00** . Characterization of strain environments in graphene oxide using Raman spectroscopy. **A. Whalen**, N. Sugak, J. Girard, L. Pfefferle
- 7:00** . Chloride ligands on DNA-stabilized silver nanoclusters. A. Gonzalez Rosell, S. Malola, **R. Guha**, N. Arevalos, M.E. Goulet, M. Matus, E. Haapaniemi, B. Katz, T. Vosch, J. Kondo, H. Hakkinen, S. Copp

7:00 . Withdrawn

7:00 . Effects of single-, dual-, and multi-heteroatom doping on photodynamic antimicrobial activities of carbon dots. S. Sagbas, S. Demirci, M. Sahiner, A. Akcali, **N. Sahiner**

7:00 . Anisotropic gold nanostar metamaterials. **s. feng**, B. Povilus, T. Chang, s. yang

7:00 . Characterization of solvothermal growth of metal-organic framework colloids using gas-phase electrophoresis: Applications in CO₂ capture. P. Hsieh, Z. Law, C. Lin, **D. Tsai**

7:00 . Developing synthesis of ZnSe/InP/ZnS core-shell-shell quantum dots for paired agent imaging in NIR-I window. **A. Patel**, A.M. Dennis

7:00 . Esterification reaction-mediated gold nanoparticle monolayer assembly on a silicon substrate. **J. Jang**, J. Dey, S. Lee, j. kim, s. mun, S. Choi

7:00 . Distance-dependent enhancement of singlet oxygen generation using far-red light and plasmonic silica- and polyelectrolyte-coated gold nanorods. **S. Catingan**, Z. Amara, A.H. Moores

7:00 . Transfection of unmodified microRNA using gold-silver nanoshells as delivery vehicles. **S. Maparathne**, S. Rankothgedera, P.H. Gunaratne, T. Lee

7:00 . Surface functionalization of 2D nanolayered transition metal dichalcogenides for tunable electronic and optical properties. **Q.M. Tran**, T. Lee

7:00 . Polyurethane shape-memory polymers with embedded Au-Ag nanoshells for triggerable structural transformations. **R. Islam**, T. Lee

7:00 . Tailoring size, shape, and crystallinity of iron oxide nanoparticles for comprehensive study of nano-magnetism and explore their potential applications. **M. Nguyen**, S. Mandal, M. Fuller, L. Deng, C. Chu, T. Lee

7:00 . Bacterial photothermal ablation using gold-silver nanoshell-modified polydimethylsiloxane films. **m. omidiyan**, C. Cai, T. Lee

7:00 . Preparation and morphological studies of magnetic iron oxides nanocomposites and its potentials as adsorbents and photocatalysts for organic dyes. **P.A. Ajibade**, T.B. Mbuyazi

7:00 . BaTiO₃/PVDF composites for sensing and energy-harvesting applications. **J. Lee**, N. Kim, J. Ryou, T. Lee

7:00 . Manganese Desert Rose nanoparticles with Fusionred capping ligands. T.O. Stratton, S. Langlois, N. Goldie, **C.F. Monson**

7:00 . Bimetallic nanoshell-coated ITO for smart windows. **P. Tajalli**, R. Medhi, P. Srinoui, Y. Yao, T. Lee

7:00 . Heterogeneous component Au-Pt-Au nanorings with intertwined triple-rings: Synthesis and vibrational characterization of Co with surface-enhanced Raman scattering (SERS). **S. Lee**, S. Park

7:00 . Synthesis of green multishell InP quantum dots with thick outer shell using P(DEA)₃ as P precursor. S. Kim, M. Oh, Y. Kim, **J. Kim**

7:00 . Quantum dot light emitting diode with a strongly correlated insulator as inorganic hole transport layer. **H. Kim**, Y. Kim, Y. Kim, J. Kim, H. Yang, K. Lee, K. Lee, **M. Oh**

7:00 . Core size-dependent absorption characteristics of highly bright green ternary ZnSeTe quantum dot emitters. **S. Yoon**, Y. Kim, Y. Kim, S. Park, Y. Kim, S. Park, J. Kim, H. Yang

7:00 . Green-emissive Ag-In-Ga-S quantum dots as alternatives to InP counterparts. **Y. Kim**, Y. Kong, S. Park, H. Kim, D. Jo, G. Park, J. Kim, H. Yang

7:00 . Environment-benign blue quantum dot electroluminescence toward high-efficiency, long-operational lifetime. **Y. Kim**, S. Yoon, H. Kim, D. Jo, H. Yang, H. Yeo, J. Kim, H. Yang

7:00 . Unveiling 3D reconstruction of Au nanoplate: Geometrical curvature control through simultaneous formation of concave and convex shapes. **J. Kim**, S. Park

7:00 . MOF-based architectures towards higher activity oxygen reduction reaction catalysts. **A. Epshteyn**, W.A. Maza, B. Greenberg, J.A. Ridenour, H. Ashberry, B. Hudak, O.A. Baturina, B. Feygelson, B. Chaloux

7:00 . Extracting structure-optical property relationships in nanocubes using MATLAB and COMSOL. **V.G. Kyveryga**, M. Faris, B. Roman, D.J. Milliron

7:00 . Amine-group engineering of UIO-68 towards sorption of nerve-agent simulant. **H. Li**, S. Dhar, Z. Soilis, L. Towers, E. Jang, N.L. Rosi, E. Borguet

7:00 . Room temperature synthesis of composite thin films with embedded Cs₂AgIn_(0.1)Bi_(0.9)Cl₆ lead-free double perovskite nanocrystals with long term water stability, wide range pH tolerance, and high quantum yield. **S. BAYER**, S. Nagl

7:00 . Confined gold nano-octahedra in cubic nanoframe. **M. Oh**, S. Park

7:00 . Alkalide-assisted direct electron injection for the noninvasive n-type doping of graphene. **S. Park**, C. Lee

- 7:00** . Nanogels for drug delivery: Effect of synthetic methodology on the structure and properties of pNIPAm. A. Vdovchenko, M. Freeley, **F. Traldi**, A. Pierce, R. O'Reilly, M. Resmini
- 7:00** . Synthesis of anisotropic Au@Pt nanohexapods by selective facet blocking and etching. **W. Park**, S. Park
- 7:00** . Tribological properties of spherical polyelectrolyte brushes. Y. Duan, J. Guo, M. Wang, L. Cao, L. Li, **X. Guo**
- 7:00** . Role of synthesis conditions in the power-dependent fluorescence intermittency of CuInS₂/ZnSeS quantum dots: Injection vs one-pot shelling. **H. Kaur**, C.D. Heyes
- 7:00** . Templated assembly of P22 virus-like particles (VLPs) around gold nanoparticles. **A. Clark**, R. Fukazawa, J. Gutierrez, D. Echeveria, R. Espinoza, S.C. Nguyen, M. Uchida
- 7:00** . Tuning of optical properties and phase behavior of quantum dot-stabilized blue phase liquid crystals. **U.N. Tohgha**, E.P. Crenshaw, M. McConney, K. Lee, N.P. Godman
- 7:00** . Cation exchange and shelling in ternary CuInS₂ and quaternary CuIn(Zn)S₂ quantum dots: Structural and optical properties. **J.C. Morales Orocu**, C.D. Heyes
- 7:00** . Measurement of intracellular viscosity of living cells through Fourier transform surface plasmon resonance (FTSPR). **S. Lee**, S. Park
- 7:00** . Generation of diamond-gold nanoparticle assembles with Sulfo-NHS/EDC coupling for enhancement of nitrogen-vacancy center fluorescence. **D. Cox**, **N. Martin**, **S. Teddy**, **R. Kawamura**, **N. Sugal**, V. Altoe, R. Barbosa, Y. Schneider, D. Nordlund, S. Lee, A. Wolcott
- 7:00** . Evaporation-induced self-assembly hierarchical nanostructure coating on fabric: antifouling and photodynamic disinfection for personal protective equipment. **D. Lee**, B. Lee, S. Park, S. Lee, J. Shin, J. Park, J. Jung, D. Choi
- 7:00** . Near-infrared emitting polymer dots for laser-based imaging applications. **K. Mendis**, Z. Rosenzweig
- 7:00** . Probing the electronic properties of plasmonic nanoparticles using terahertz time-domain spectroscopy. **J. Luu**, M.R. Sher, M.L. Personick
- 7:00** . Influence of hydroxylation, hydration and doping of TiO₂(110) on the adsorption and decomposition of Sarin. A DFT study. Y. Cardona Quintero, **R. Nagarajan**
- 7:00** . Determining 3D atomic structure of nanoparticles with graphene liquid-cell TEM: A workflow for 3D reconstruction. **K. Dongjun**, J. Park

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Nanoscience and Nanotechnology for Defense and Security

R. Nagarajan, *Organizer*

7:00 . Composites of novel one-dimensional titanium dioxide lepidocrocite nanofilaments with common polymeric and elastomeric materials. **A. Walter**, M. Carey, M. Barsoum

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Surface, Interface and Coating Materials

Z. Cao, S. Jiang, M. Ma, M. Qiao, K. Song, X. Yong, *Organizers*

7:00 . Effect of surface modification of CaCO₃ nanoparticles by a silane coupling agent methyltrimethoxysilane on the stability of foam and emulsion. J. Lee, J. Lee, **J. Lim**

7:00 . Powder surface coating technology using magnetron sputtering. **S. Hwang**, D. Jung, B. Kim, H. Kim, S. Lim, H. Lee

7:00 . Passive film on austenitic stainless steels in organic acid and hydrogen peroxide solution. **R. Jung**

7:00 . Particle size controlled chiral structural color of monodisperse cholesteric liquid crystals particles. **J. HE**, Y. Takeoka

7:00 . Humidity effects on pure and doped perovskite thin films analyzed by Kelvin probe force microscopy. K. Huang, Y. Chang, P. Lin, K. Hsu, D. Beck, **S. Hsieh**

7:00 . Will it stick? Developing non-toxic coatings to prevent biofouling. **J. Daddona**, W. Chouyok, T. LeFevre, S. Akins, G. Bonheyo, R.S. Addleman, C. Larimer

7:00 . Hydrophobic-barrier-assisted formation of vertically layered metal electrodes within a single sheet of paper for a foldable radio frequency energy harvesting system. I. Oh, E. Park, S. Lim, **S. Chang**

7:00 . Dopamine functionalized graphene oxide as an effective corrosion inhibitor against carbon steel corrosion in oilfield acidizing and sweet corrosive environments. **K. Haruna**, T.A. Saleh

7:00 . Engineering ZIF-8 thin films for corrosion protection of metal surfaces. **p. najmi**, M. Arjmand

7:00 . Porous SnO₂ gas sensor properties fabricated by thermal evaporation equipment. **D. Jung**, S. Hwang, S. Son, J. Han, H. Lee

7:00 . Metal texture color realization technology using metal alloy sputtering. **B. Kim**, D. Jung, S. Hwang, H. Kim, J. Park, H. Lee

7:00 . Density functional theory study on the interaction between organic acid and stainless steel in passivation reaction. **J. Kim**, H. Lim, W. Koh, S. Oh, R. Jung, H. Kim

7:00 . Reversible antifouling bilayers: A green and reusable approach to marine biofouling prevention. **J. KANG**, K. Lee

7:00 . Simple fabrication of o-carboxymethyl chitosan hydrogel-based nanostructure for antimicrobial and antithrombotic surface of blood contacting medical devices. **S. Park**, D. Lee, J. Shin, S. Lee, J. Jung, D. Choi

7:00 . Facile immobilization of Grubbs catalyst on biochar for a greener and reusable heterogenous olefin metathesis catalyst. **M. Dale**, A. Riahi, B. Berrington, R. LaDouceur

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Surface Chemistry

S. Claridge, A. V. Teplyakov, L. Tribe, X. Zhou, *Organizers*

7:00 . Withdrawn

7:00 . Applications of machine learning to predict the surface functionalization of amorphous silica. **S.M. Godahewa**, W.H. Thompson

7:00 . Visualization of fluoride deposits on the surface of bovine enamel after mouthrinse treatment. C. Tester, G.W. Kagel, C. Ketyer, **S. Knox**, R. Gambogi

7:00 . Withdrawn

7:00 . Atomic layer coating on solid myoglobin formulation powder surfaces and its effect on protein stability. **C. Barros**, M. Alfaro, C. Costello, F. Wang, K. Sapre, S. Chiruvolu, J. Connolly, E. Topp

7:00 . Structural study of self-assembled monolayer with both terminal amino and carboxyl groups constructed on TiO₂(110) single-crystal surface. **M. Takahari**, T. Goto, S. Yoshimoto, T. Kondo

7:00 . Development of carbene-based and thiol-based adsorbates for modifying gold surfaces and gold nanoparticles. **R. Tigrak**, T. Lee

7:00 . How to chemically modify a diamond nanoprobe in 3 easy steps: Oxidation, bromination and amination. **T. Cheung, J. Drew, N. Susendran, A. Lakshmi, M. Qasim**, C. Stokes, G. Drew, S. Sainio, S. Lee, D. Nordlund, A. Wolcott

7:00 . Functionalization of silicon with tunable bilayered molecular system for subsequent photopatterning and phosphorus-based dopant attachment. **P. Raffaele**, G.T. Wang, A. Shestopalov

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Symposium in Honor of Prof. Nicholas D. Spencer

J. Batteas, R. M. Espinosa-Marzal, F. Mangolini, M. Ruths, *Organizers*

7:00 . Leveraging electrostatic interactions of dynamic physical gels for responsive surfaces. **A. Deptula**, R.M. Espinosa-Marzal

7:00 . Intrinsic and extrinsic tunability of double network hydrogel lubricity. **M. Lee**, R.M. Espinosa-Marzal

7:00 . Structure and potential drug delivery application of polymer/phospholipid hybrid vesicle system. **K. Sun**

7:00 . Water in the electrical double layer of ionic liquids on graphene. **Q. Zheng**, Z.A. Goodwin, V. Gopalakrishnan, A.G. Hoane, M. Han, R. Zhang, N. Hawthorne, J. Batteas, A.A. Gewirth, R.M. Espinosa-Marzal

7:00 . Effects of temperature on nanoscale friction of calcite. **B. Fu**, R.M. Espinosa-Marzal

7:00 . Reliable incorporation of graphene surfaces into the surface forces apparatus. **G. Greenwood**, Y. Lee, S. Nam, R.M. Espinosa-Marzal

7:00 . Behavior of salt-in-ionic-liquid electrolytes under nanoconfinement. **X. Zhang**, R.M. Espinosa-Marzal

MONDAY MORNING

Moscone Center
Room 306, South Bldg.

Biomaterials and Biointerfaces

C. P. Collier, S. Sinha Ray, *Organizers*
E. S. Andreescu, *Organizer, Presiding*

8:00 . Withdrawn

8:20 . 3D printable aqueous two-phase system with tunable pore structure for tissue engineering. **W. Richtering**, G. Ben Messaoud, E. Stefanopoulou, H. Fischer, S. Aveic, R. Salazar Ortiz

8:40 . Engineering low complexity domains of natural proteins for designing novel molecular materials. **L. Li**, S. Charlotte, T. Schneider, G.G. Marcos, P. Arosio, M. Salvalaglio

9:00 . Mapping the impact of missense mutations on dysferlin C2A-lipid binding modes with vibrational sum-frequency spectroscopy. **A. Carpenter**, P. Khuu, E.S. Kwok, S.J. Roeters, T. Weidner, C. Johnson, J.E. Baio

9:20 Intermission.

9:30 . Effect of phospholipid structure on the acoustic cavitation of functionalized mesoporous silica nanoparticles. **T.B. Alina**, H.B. Kirkpatrick, T.R. Ausec, E.N. Mueller, W. Shields, J.N. Cha, A.P. Goodwin

9:50 . Highly electroconductive PEDOT: PSS platforms for electrical stimulation studies of neural-differentiating iPSCs. **F. Garrudo**, L. Resina, D.E. Nogueira, C.A. Rodrigues, C. Aleman, J.M. Cabral, F.C. Ferreira, J. Morgado

10:10 . Combined effect of bioactive cues and electrical stimulation on MSC osteogenic differentiation. **F. Garrudo**, J.C. Silva, P. Marcelino, J. Meneses, F. Barbosa, M. Carvalho, J.M. Cabral, P. Pascoal-Faria, J. Morgado, D. Vashishth, F.C. Ferreira

10:30 . Ligand density of nanoconstructs affects receptor dimerization. **Y.L. Wu**

10:50 . Optimization of microwave-assisted extraction for the purification of cyclotides and studies on self-assembly and aggregation. **J. Suazo**, B. Fisher, D. Kem, J. Cooper, S. Mwangela, N.Y. Forlemu, S. Tangirala, A. Mallia

11:10 . Conformational stability of bovine serum albumin as a result of interactions with gold surface. **B. Jachimska**, P. Komorek, M. Szota, K. Rakowski

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Room 305, South Bldg.

Surface, Interface and Coating Materials

Dynamics and New Assembly Structures

Z. Cao, S. Jiang, M. Ma, M. Qiao, K. Song, *Organizers*
X. Yong, *Organizer, Presiding*

8:00 . Influence of layer by layer stacking pattern on the properties of two-dimensional covalent organic frameworks. **S. MAITI**

8:15 . Continuous nano-thin coating formation by silk fibroin self-assembly. **C. Wigham**, T. Fink, H. O'Donnell, M. Sorci, P. O'Reilly, S. Park, R.H. Zha

8:30 . Controlling anisotropic colloidal interactions and assembly at fluid interfaces with particle roughness and external fields. **P.J. Beltramo**

9:10 Intermission.

9:20 . Designing & controlling Assembly of interfacial colloidal materials. **M.A. Bevan**

10:00 . Self-assembled monolayers of Alkanethiols on SiO₂. **A. Bhattacharyya**, W. Nawaj, S. Dadashi, B. Simiyu, E. Borguet

10:15 . Fast evaporation of water droplets from porous hydrophilic coatings. **W.A. Ducker**

10:30 Intermission.

10:40 . Use of ultra-low-frequency Raman spectroscopy to monitor kinetic processes of polymers. **R.V. Chimenti**, A.M. Lehman-Chong, J.T. Carriere, J.F. Stanzione, S.E. Lofland

11:20 . Spray-based assembly of nanoporous and amine-reactive polymer coatings. **W. Breining**, H. Agarwal, C. Lundberg, D.M. Lynn

11:35 . Polystyrene (PS) microspheres and silica nanoparticle (SiNP)-assembled polyacrylonitrile (PAN) nanofibrous membrane for highly efficient oil-in-water emulsion separation. **J. Lee**, H. Lee

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Room 307, South Bldg.

ACS Award in Surface Chemistry 2023 - Symposium in honor of Joachim Sauer

Catalysis and Surfaces

D. Miller, *Organizer*

A. Bhan, *Presiding*

8:00 . Cu-based catalysts for alkane partial oxidation reactions. **U. Olsbye**

8:30 . Surface chemistry meets astrochemistry at the interstellar grains. **P. Ugliengo**, A.R. Germain, L. Tinacci, V. Bariosco, c. ceccarelli

9:00 . Experimental and theoretical studies adsorption and catalysis on isolated Titanol groups supported on silica. **A.T. Bell**

9:30 . Tuning the electrochemical activity of layered metal oxides for high temperature oxygen electrocatalysis: Effect of surface structure and composition. **E. Nikolla**

10:00 . Chemical recycling and upcycling of polyolefin waste. **M. Delferro**

10:30 . Synthetic methods to tune active site distribution in MFI zeolite catalysts for regioselective methylation of toluene to para-xylene. S. Ezenwa, A.J. Hoffman, H. Montalvo-Castro, M. Schmidthorst, B. Chmelka, D. Jan, D. Hibbitts, **R. Gounder**

11:00 . Understanding the impact of confined space for sorption and catalysis. **J.A. Lercher**, R. Zhao, S. Kim, M. Lee, Y. Liu

11:30 . Designing selective dilute alloy catalysts. **C.M. Friend**

Moscone Center
Room 308, South Bldg.

Nano- and Microstructured Materials and Interfaces for Human Health

S. Claridge, A. Ross, *Organizers*

M. Lockett, *Organizer, Presiding*

8:00 . Drop microfluidic technologies for health: in-drop assembly of antioxidant crystals for senescence control and exosome engineering and drop microfluidics-based single virus genomics. R.C. Miller, T. Cowell, H. Kong, **H. Han**

8:30 . 3D-printed modular and scalable microfluidics to investigate ECM's roles in modulating cell metabolome. **C. Chen**, J. Terrell, C. Jones

9:00 . Through the looking glass: nano and micro-textured materials to better visualize cells in 3D culture configurations. **M.R. Lockett**

9:30 . Controlling nanoscale materials function and chemistry for human health. **P.S. Weiss**

10:00 Intermission.

10:10 . Optical properties of nanomaterials on highly curved surfaces: towards monitoring metabolites near cells and tissues. **J. Masson**

10:40 . Advancing label-free live-cell monitoring using intelligent Raman spectroscopy and plasmonic particles: Milestones and implications for clinical translation. **L. Tadesse**, B. Ogunlade, F. Safir, A. Essawi, J. Dionne

11:10 . Expanding the scope of monolayer interfaces for nucleic acid-based biosensing: N-heterocyclic carbenes on gold. **N. Arroyo Curras**

11:40 . Withdrawn

Moscone Center
Room 304, South Bldg.

Nanomaterials

Novel Materials based on Nanoscale Engineering

J. A. Hollingsworth, S. Hunyadi Murph, C. M. Sims, D. L. Watkins, *Organizers*
R. Nagarajan, *Organizer, Presiding*

8:00 . Analyzing the roles of structure, size, shape, and chemical composition in assessing the catalytic activity of anisotropic nanowire motifs. **S.S. Wong**

8:30 . Reconfigurable nanoscale materials with prescribed and switchable States. **O. Gang**

9:00 . Beyond-moore energy-efficient electronics with 2D vdW materials and devices. **K. Banerjee**

9:30 . Engineering non-noble metal nanoparticle arrays for emerging optoelectronics. **R.S. Goldman**

10:00 . Bright, fast, and durable scintillation from quantum shells. **B. Diroll**, B. Guzelturk, M. Zamkov

10:20 . Enhanced property tunability of doubly-doped semiconductor quantum dots using the cluster seed method. K. Tomczak, M. Palmi, E. Kim, **P. Snee**

10:40 . Accelerated discovery of ligand molecules for perovskite nanocrystals via machine learning guided high-throughput experiments. **M. Kim**, Q. Ai, S. Bueno, J. Schrier, E. Chan

11:00 . Suppression of Auger recombination in semiconductor quantum shells. **M. Zamkov**

11:20 . Safe by design of nanomaterials: Benefits of coordinating interdisciplinary case studies and moving towards a product oriented SDB approach. **A. Masion**, J. Rose, M. Auffan, C. de Garidel Thoron

Moscone Center
Room 310, South Bldg

Symposium in Honor of Prof. Nicholas D. Spencer

J. Batteas, M. Ruths, *Organizers*

R. M. Espinosa-Marzal, F. Mangolini, *Organizers, Presiding*

8:00 . Role of molecular deformation in shear-activated chemical reactions: Atomistic simulations. **A. Martini**, F. Bhuiyan, Y. Li, S.H. Kim

8:35 . Molecular structure & surface chemistry dependence of shear-activated chemical reactions: Experimental study with cyclic organic molecules. **S.H. Kim**, Y. Li, F. Bhuiyan, A. Martini

9:10 . Mechanochemistry of platinum and platinum-gold nanocrystalline alloys. **J. Curry**, T.F. Babuska, C. Edwards, F. Mangolini, D. Adams, M. Dugger, J. Killgore, F. Delrio

9:35 . Understanding the role of environment on the tribology of molybdenum disulfide. **M. Chandross**, S. Bobbitt, J. Curry, T. Ohta, F. Delrio, T.F. Babuska, M. Dugger

10:00 . Tribocorrosion of wrought and am stainless steels: Understanding and overcoming wear-enhanced corrosion. M. Parker, C. Chervin, A. Birnbaum, A. Rawlings, J. Steuben, D. Horton, **K.J. Wahl**

10:35 . Microstructural evolution of severe wear in self-mated steels measured in-situ during sliding. **S. Berkebile**, N. Murthy, S. Walck, C. Lorenzo Martin, D. Bachnacki, T. Culverhouse, Z. Jernigan, J. Park, P. Kenesei, O. Ajayi, F. Ahmed Koly, A. Bhattacharjee, D. Burris

11:00 . Optimization of tribological coatings for low friction environments through predictive machine learning models. **D.J. Vogel**, T.F. Babuska, S.R. Larson, J. Curry, M. Dugger

11:25 . 2D Ising Model for the Auto Amplification of Enantiomeric Excess on Achiral Surfaces. **A.J. Gellman**

Virtual Only
Virtual Session

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, Z. Niroobakhsh, *Organizers*
U. Natarajan, *Organizer, Presiding*

10:00 Introductory Remarks.

10:05 . Medium-controlled aggregative growth as a key step in mesoporous silica and organosilica nanoparticle formation. **I. Zharov**

10:25 . Studying the interactions between silicone emulsions and cationic polymers in the presence of surfactants by capillary electrophoresis. **M. Jing**, D. Miller, G. Faux

10:45 . Hairy cellulose nanocrystal-enabled scale-resistant water-in-oil Pickering emulsions. **S. Yeh**, A. Sheikhi

11:05 . Developing a pH-triggered release mechanism for surfactant-silica nanocomposites. V. Vigliotta, C. Vita, A. Carsten, B. Parr, **M. Hurley**

MONDAY AFTERNOON

Moscone Center
Room 307, South Bldg.

ACS Award in Surface Chemistry 2023 - Symposium in honor of Joachim Sauer

Materials and Characterization

D. Miller, *Organizer*
L. Gagliardi, *Presiding*

2:00 . Withdrawn

2:30 . MD simulations with chemical accuracy – alkane reactivity in acidic zeolites. **F. Berger**,
M. Rybicki, J. Sauer

3:00 . Practical and efficient implementation of density functional embedding theory. **M. Sierka**,
M. Sharma

3:30 . Interfacial fluxionality in electrocatalysis: The ever-changing nature of the active site. Z.
Zhang, T. Masubuchi, S.L. Anderson, **A. Alexandrova**

4:00 . Structure sensitive enantioselectivity on surfaces: Tartaric acid on all surfaces vicinal to
Cu(100). **A.J. Gellman**, C. Fernandez-Caban

4:30 . Spin-forbidden processes and molecular magnetism: Theory and applications. **A. Krylov**

5:00 . MOF water harvesting in Death Valley. W. Song, Z. Zheng, A.H. Alawadhi, **O.M. Yaghi**

Moscone Center
Room 306, South Bldg.

Biomaterials and Biointerfaces

E. S. Andreescu, S. Sinha Ray, *Organizers*
C. P. Collier, *Organizer, Presiding*

2:00 . Intranasal delivery of surface modified protein nanoparticle improved immune responses.
T. Pho, J. Champion

2:20 . Strategies to improve doxorubicin loading capacity of functional amphiphilic
polycaprolactones. **M.C. Stefan**, M.C. Biewer, A. Bhadrans, H. Polara, G. Babanyinah, T. Shah

2:40 . Copper oxide antimicrobial coatings: Effect of porosity and mechanism of action. **W.A.**
Ducker, S. Behzadinasab, M. Williams, M. Aktuglu, J. Falkinham

3:00 . Adsorption of hemoglobin to gold nanoparticles: role of capping ligand on conjugate
assembly and protein structure. K. Lee, E. Oh, M. Stewart, S. Diaz, O.K. Nag, **J. Delehanty**

3:20 Intermission.

3:30 . Structural characterization of protein-polymer complexes by atomic force microscopy and cryo-electron microscopy methods. **R. Hlushko**, V.M. Prabhu, A.K. Andrianov

3:50 . DNA nanostructure physiochemical structures affect protein corona formation in human serum. **R. Coreas**, J. Huzar, G. Tikhomirov, M. Landry

4:10 . Quantifying channel dynamics and permeability for bacterial microcompartment shell proteins through molecular simulation. **S. Raza**, J.V. Vermaas

4:30 . In-situ detection of gold colloid aggregates amyloid formations within the hippocampus of the Alzheimer's disease rat. **K. Yokoyama**

4:50 . Lipases-mediated destabilization of drug delivery systems. **M.A. Ilies**

Moscone Center
Room 304, South Bldg.

Structure, Properties, and Applications of Porous Liquids

T. M. Nenoff, *Organizer*
J. Rimsza, *Organizer, Presiding*
P. K. Thallapally, *Presiding*

2:00 . From porous organic cages to porous liquids: Translating porosity from the solid to liquid state. **R. Greenaway**

2:40 . Solvent-MOF interactions in type 3 porous liquids: Effect on pore accessibility and CO₂ adsorption. **M. Hurlock**, M. Christian, J. Rimsza, T.M. Nenoff

3:00 . Solvation structure and CO₂ capture mechanisms in a simulated ZIF-8 based porous liquids. **M. Christian**, M. Hurlock, T.M. Nenoff, J. Rimsza

3:20 Intermission.

3:40 . Thermodynamic evidence for type II porous liquids. **I. Borne**, K. Saigal, C.W. Jones, R.P. Lively

4:00 . Solvation effects on the structure and properties of CC13 porous organic cages in porous liquids. **J. Rimsza**, T.M. Nenoff

4:20 . Molecular simulation of CO₂ solubility prediction for Type II porous liquid. **C. Chang**, L. Lu, R.P. Lively, D. Sholl

4:40 . Expansion and compression of porous organic cages for gas capture. **J. Rimsza**, S. Duwal, H. Root

Moscone Center
Room 305, South Bldg.

Surface, Interface and Coating Materials

Smart and Responsive Material

S. Jiang, M. Ma, M. Qiao, K. Song, X. Yong, *Organizers*
Z. Cao, *Organizer, Presiding*

2:00 . Polyacrylamide copolymers for improving protein formulation and preventing biofouling on medical devices. **E.A. Appel**

2:40 . Polymer gels with meso- and macro-porosity for efficient removal of organic molecules and liquids. **P. Gotad**, S.C. Jana, T. Miyoshi, M. Tsige, N. Kafle, A. Mokarizadeh

2:55 . Color-changing paints enabled by photoresponsive combinations of bio-inspired colorants and semiconductors. C.L. Martin, K.R. Flynn, T. Kim, S.K. Nikolic, L. Deravi, **D.J. Wilson**

3:10 Intermission.

3:20 . Reconfigurable Nanooptics and smart chromogenic sensors enabled by multi-stimuli-responsive shape memory polymers. **P. Jiang**

4:00 . Stretchable, biocompatible, and self-healable ionogel coated wearable textiles for continuous physiological monitoring. **X. Sun**, K. Le, F.K. Ko, F. Jiang

4:15 . Micropatterned hydrogel-elastomer hybrids for flexible wet-style superhydrophobic antifogging coatings. **H. Kim**, H. Lee

4:30 Intermission.

4:40 . Strain-programmable hopping diffusion in hydrogels. **S. Lin**

5:20 . Bionic smart marine antifouling coating with coumarin reversible chemical bonds. **Z. Tong**, Q. Zhang, X. Zhan, Y. Hou, J. Hu

5:35 . Exploring the magnetoelectric effect in biopolymer-based nanocomposites with magnetically controlled antimicrobial activity. **J. Moreira**

Moscone Center
Room 310, South Bldg

Symposium in Honor of Prof. Nicholas D. Spencer

R. M. Espinosa-Marzal, F. Mangolini, *Organizers*
J. Batteas, M. Ruths, *Organizers, Presiding*

2:00 . Nature of the electrical double layer on suspended graphene electrodes. **M. Salmeron**

2:35 . About molecular layering in slit pores: a personal historic perspective with some persistent open questions. **M. Heuberger**

3:10 . Effects of sliding speed on frictional aging of silica contacts. **K. Baral**, J. McClimon, D. Goldsby, I. Szlufarska, R. Carpick

3:30 . Influence of the electric field effect on friction of single layer graphene. **G. Greenwood**, J. Kim, S. Nahid, Y. Lee, S. Nam, R.M. Espinosa-Marzal

3:50 Intermission.

4:00 . Graft copolymers at surfaces for tuning physicochemical and tribological properties of materials. **E. Benetti**

4:35 . Programmable biomimetic light-harvesting systems based on strong coupling of dye-functionalised polymer brushes to plasmon modes. **G.J. Leggett**

5:10 . Journey between rheology and tribology with Nic Spencer as a guide. **L. Isa**

5:45 Concluding Remarks.

Moscone Center
Room 308, South Bldg.

Nano- and Microstructured Materials and Interfaces for Human Health

M. Lockett, A. Ross, *Organizers*
S. Claridge, *Organizer, Presiding*

2:00 . Designing antimicrobial materials by controlling protein-surface interactions at the nano and micro scale. **M. Lingenfelder**

2:30 . Hypersurface photolithography: Nanoscale control over organic interfaces for biomedical and materials applications. **A.B. Braunschweig**

3:00 . Designing nanometer-scale chemical and mechanical environments on hydrogel surfaces for regenerative medicine. **S. Claridge**

3:30 . Understanding vision through lens crystallin proteins. **L. Deravi**

4:00 Intermission.

4:10 . Glycomimetic Nanomaterials for controlling stem cell fate. **K. Godula**

4:40 . Ganglioside functionalized, virus mimicking nanoparticles as carriers for antiretrovirals and CAR T cell stimulation. **B.M. Reinhard**

5:10 . Cyclic peptide - polymer nanotubes as drug delivery vectors. **S. Perrier**

5:40 . Inkjet printing of nanometer-scale functional patterns on 2D crystalline and amorphous soft materials. **J.C. Arango** , C.J. Pintro, A. Singh, S. Claridge

Virtual Only

Virtual Session

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*

12:00 . Microwave-assisted PEG block copolymer synthesis for fluorine free foams. **L. Brown**, G.C. Daniels, K. Hinnant, B. Giordano

12:00 . Withdrawn

12:00 . Study on the foam performance of wormlike micelle based on long-chain surfactants. **Q. Niu**, Q. Lv, Z. Dong

12:00 . Quantifying mechanical properties of methacrylate-based copolymers using atomic force microscopy. **R.P. Ramasinghe**, D. Demase, U.I. Premadasa, K.A. Cimat

Virtual Only
Virtual Session

Biomaterials and Biointerfaces

E. S. Andreescu, C. P. Collier, S. Sinha Ray, *Organizers*

12:00 . Dendritic self-assembled structures from anticancer pentapeptides. **L. Resina**, K. El Hauadi, T. Esteves, F.C. Ferreira, M.M. Pérez-Madriral, C. Aleman

12:00 . Exploring the binding interactions with superoxide dismutase enzyme mutants and newly designed peptide conjugates. **C.N. Phan**, B.G. Goncalves, M.E. Murray, M.A. Biggs, **I.A. Banerjee**

Virtual Only
Virtual Session

Colloidal Networks

Colloidal Networks

Y. Colon, D. J. Milliron, T. Truskett, *Organizers*

12:00 . Nano-emulsion hydrogel-based polymeric films for sublingual and buccal drug delivery. **Y. yang**

Virtual Only
Virtual Session

Fundamental Research in Colloids, Surfaces and Nanomaterials

S. Hunyadi Murph, J. Katsaras, U. Natarajan, *Organizers*

12:00 . Synthesis of graphene oxide and its characterization. **R.K. Vishwakarma**

12:00 . Fibrillation of Human Serum Albumin (HSA) and a study of its interaction with acidic and basic amino acid capped gold nanoparticles. **S. CHAKI**, S. Dasgupta

Virtual Only
Virtual Session

Nano- and Microstructured Materials and Interfaces for Human Health

S. Claridge, M. Lockett, A. Ross, *Organizers*

12:00 . Dual-responsive drug delivery systems: harnessing phase change materials and metal-organic frameworks. **P. Lu**, W. Wei, M. Wildy, K. Xu

Virtual Only
Virtual Session

Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, R. Nagarajan, C. M. Sims, D. L. Watkins, *Organizers*

12:00 . Ultrasound-excitabile aggregation-induced emission dye for enhanced sonodynamic therapy of tumor. **W. Zeng**

12:00 .

Antimicrobial activity of the green synthesized Advanced core-shell nanoparticles
. **A. Albeladi**, M. Malik, S.A. AlThabaiti

12:00 . Facile synthesis of Multimetallic nanomaterials as efficient antimicrobial agents. **A. Alshehri**, M. Malik, L. Alharbi

12:00 . Novel visible light-sensitized nanocomposite PS@PDA-TiO₂: Broadened photocatalytic response region and enhanced photocatalytic performances. **X. Zhao**, P. Wang, Y. Zhang, Y. Chen, J. Li, J. Ma, Q. Sun

12:00 . Reactivity of oxide based mesoporous nanoparticles: An in situ FT-IR study. **D.K. Paul**

12:00 . Solid quantum dot films for improved waveguiding in LSC applications. **S. Froggatt**

12:00 . Exploring the solid-state optical characteristics of size-tunable silicon nanocrystals via high temperature synthesis. **G. Spence**, D. Pate, Ü. Özgür, I.U. Arachchige

12:00 . High temperature synthesis of $\text{Si}_{1-x}\text{Ge}_x$ nanocrystals with tunable band gaps and compositions. **G. Spence**, D. Pate, Ü. Özgür, I.U. Arachchige

Virtual Only
Virtual Session

Surface, Interface and Coating Materials

Z. Cao, S. Jiang, M. Ma, M. Qiao, K. Song, X. Yong, *Organizers*

12:00 . Mechanism of $(\text{NH}_4)_2\text{SO}_4$ on the co-electrodeposition of Fe-Co alloys. **Y. Wu**

12:00 . Eco-friendly marine antifouling coating consisting of cellulose nanocrystals with bioinspired micromorphology. **Y. Duan**, J. Wu, W. Qi, R. Su

12:00 . Effect of electrophoresis conditions on nano hydroxyapatite film morphology. **A.N. Kahaduwa**, N. Fernando, D. Jayasundara

Virtual Only
Virtual Session

Surface Chemistry

S. Claridge, A. V. Teplyakov, L. Tribe, X. Zhou, *Organizers*

12:00 . Growth of silver on Si(001) by controlling the substrate temperature. **X. Huang**, A. Hoffman, K. Huang

12:00 . Measurement of carbon dioxide hydrate film thickening in a microfluidic device. **L.A. Wadsworth**, R.L. Hartman, C.A. Koh

12:00 . How the facet edge controls the overall co oxidation in nanoporous gold: Combined atomistic characterization/DFT study of residual AG distribution and catalytic activity. **P. A**

12:00 . Nitrogen terminated hydrogenated Diamond(111) surfaces studied by density functional theory. **Y. Zheng**, A. Hoffman, K. Huang

12:00 . Theory and simulations of charge regulation of colloidal particles in electrolyte solutions. **A. Bakhshandeh**

12:00 . Silica-modified Pt/TiO₂ catalysts: strategic modulation of oxide on Pt metal wrapping in SMSI effect. **Z. Hou**, Y. Zhu, **X. Lin**

MONDAY EVENING

Moscone Center
Hall F, South Bldg.

COLL Sci-Mix

8:00 . Measuring electric fields at the air/water interface using vibrational stark probes. **K.D. Judd**, S. Parsons, D. Eremin, J. Dawlaty

8:00 . Scalable route to monodisperse colloidal Ni_xCo_{3-x}S₄ nanoparticles using amino acids. **T. Meyer**

8:00 . Withdrawn

8:00 . Challenges in method development & particle analysis of biomaterials. **S. Race**, Z. Guo, H. Ning

8:00 . Pressure and composition effects on nanoparticle ligand-solvent interactions. S. Salas Sanabria, **L. Hanson**

8:00 . Gold-silver nanoshell functionalization and stabilization in non-aqueous solvents. **J. Magdon** , R. Medhi

8:00 . Double emulsions (W/O/O) for encapsulation of phase-changing materials. **E. Cruz**, E. Pentzer, S. Lak

8:00 . Lives of thermal Marangoni bubbles. **S. Nath**, G. Ricard, P. Jin, A. Bouillant, D. Quéré

8:00 . Designing amphiphilic iron oxide nanoparticles for targeting amyloid protein fibrils. **S. Mandal**, M. Nguyen, T. Lee

8:00 . Control of melanin synthesis inside liquid droplets. **K. Barriales**, S. Kassem, T. Wang, S. Khandaker, A. Jain, R. Ulijn

8:00 . On route to synthesis of hierarchical Y zeolite catalysts with larger mesopores. **X. Li**, A. Kuperman, A.S. Katz

- 8:00** . Tuning the parameters of DNA-based nanothermometry to better understand surface-tethered DNA melting. **A. Crawford**, P.A. Reinhardt, K.A. Willets
- 8:00** . Influencing the self-assembly of nanocubes through “hard” and “soft” roundness. **P.F. Pieters**, E. Vargo, Y. Qian, A. Alivisatos, T. Xu
- 8:00** . Tailoring size, shape, and crystallinity of iron oxide nanoparticles for comprehensive study of nano-magnetism and explore their potential applications. **M. Nguyen**, S. Mandal, M. Fuller, L. Deng, C. Chu, T. Lee
- 8:00** . Heterogeneous component Au-Pt-Au nanorings with intertwined triple-rings: Synthesis and vibrational characterization of Co with surface-enhanced Raman scattering (SERS). **S. Lee**, S. Park
- 8:00** . Room temperature synthesis of composite thin films with embedded $\text{Cs}_2\text{AgIn}_{(0.1)}\text{Bi}_{(0.9)}\text{Cl}_6$ lead-free double perovskite nanocrystals with long term water stability, wide range pH tolerance, and high quantum yield. **S. BAYER**, S. Nagl
- 8:00** . Cationic polymer coating increases the catalytic activity of gold nanoparticles towards anionic substrates. **N. Langer**
- 8:00** . Amine-group engineering of UIO-68 towards sorption of nerve-agent simulant. **H. Li**, S. Dhar, Z. Soilis, L. Towers, E. Jang, N.L. Rosi, E. Borguet
- 8:00** . Cation exchange and shelling in ternary CuInS_2 and quaternary $\text{CuIn}(\text{Zn})\text{S}_2$ quantum dots: Structural and optical properties. **J.C. Morales Orocu**, C.D. Heyes
- 8:00** . Breaking symmetry in the growth of model colloidal nanocrystals. **S. Oaks-Leaf**, D. Limmer
- 8:00** . Exploring the temperature: Dependent hydrogen bonding network in metal organic nanotubes with varying pore wall polarity. **T.H. Jahinge**, T. Forbes
- 8:00** . Greasy cations also strongly bind to neutral macromolecules in aqueous solutions. U.E. Ertekin, E. Issever, **H. Okur**
- 8:00** . Linker-dependent charge transfer in covalently bound MoS_2 -zinc phthalocyanine heterojunctions. **C. Hemmingsen**, C.T. Eckdahl, R. López Arteaga, S. Kim, N. Georgieva, L. Kuo, M.C. Hersam, E.A. Weiss, J.A. Kalow
- 8:00** . Expanding the library of functional amines reacted on nano-diamond surfaces using a bromide intermediate. **C. Stokes**, T. Cheung, J. Drew, N. Susendran, A. Lakshmi, M. Qasim, G. Drew, S. Sainio, S. Lee, D. Nordlund, A. Wolcott
- 8:00** . Applications of machine learning to predict the surface functionalization of amorphous silica. **S.M. Godahewa**, W.H. Thompson

8:00 . Measurement of the propulsion dynamics of light-activated Janus particles via optical microscopy and optical tweezers. **K.I. Requejo Roque**, C. Canari, V. Jamali, R. Ruiz, A. Alivisatos, C. Bustamante

8:00 . Dual-propelled asymmetrical yolk-mesoporous shell polydopamine@SiO₂@Ag micromotor for efficient removal of organic pollutants from water. **X. Li**, Y. Luan

8:00 . Generating multilayer polyelectrolyte coating libraries on protein nanoparticles for mucosal delivery. **S. Jenison**, T. Pho, J. Champion

8:00 . Light-mediated nitric oxide release for antibacterial applications. **C.R. Johnson**, M.H. Schoenfish

8:00 . Adaptive surface coatings to control the stability of nanomaterials prone to surface oxidation and metal ion release. **A. Nagar**, M.R. Mackiewicz

8:00 . Synthesis of thick shelled gold nanorattles containing gold nanobipyramids for surface enhanced Raman scattering. **G.B. Cooper**, O.W. Vause, T. Hamlett, Y. Bao

8:00 . Towards full mechanical description of a composite layer with corrugated interface using QCMD. I. Efimov, **K. Sedransk Campbell**

8:00 . Metallized DNA origami templates to access complex nanomaterial shapes. E. Jergens, A. Robbins, N. Roki, K. Huang, M. Shahhosseini, M.G. Poirier, C. Castro, **J.O. Winter**

8:00 . Water uptake, corrosion protection and mechanical properties of epoxy composite coatings. **A. S S**, S. Parida

8:00 . Divalent cation bridging to marine monolayers facilitates polysaccharide interfacial co-adsorption. **K.A. Carter Fenk**, M. Fiamingo, J. Kim, A. Dommer, R.E. Amaro, H.C. Allen

8:00 . Nanocelluloses research at a primarily undergraduate institution: Insights, challenges and rewards. **R. Sunasee**

8:00 . Interfaces and catalysis for electrochemical applications. **J. Lattimer**, D.J. Strasser, M. Kastelic, S. Zhong, M. Pupucevski, S.A. McCatty, T. Zhang

8:00 . Dot-in-a-rod semiconductor nanoparticles attached to metal nanoparticles: Synthesis and Characterization. **M.I. Dittmar**, S. Hentschel, C. Strelow, T. Kipp, A. Mews

8:00 . Fabrication of robust mof-based hybrid nanofibrous aerogels using vapor phase deposition. **M. Ahmad Ebrahim**, V. Rahmanian, T. Pirzada, S.A. Khan

8:00 . Near infrared upconversion nanoparticle: Polymer dot nanohybrid materials for antibacterial applications. **A. Ikeji**, X. Wu, **A. Putta**

8:00 . Photocatalytic properties of novel one-dimensional titanium dioxide lepidocrocite nanofilaments. **A. Walter**, G. Schwenk, J. Cope, K. Sudhakar, M. Hassig, A. Mininni, M. Barsoum

8:00 . Elucidation of structure-property relationships for organophosphate sorbents based on metal-organic frameworks. **D. Corbin**, T.C. Cao, C.J. Breshike, M.R. Papantonakis, V.K. Nguyen, R.A. McGill

8:00 . Molecular simulation of activation reaction mechanisms in MOF-808. **A. Hinkle**, I. Jordanov, M.A. Browe, S. Garibay

8:00 . Building the viscosity of mild surfactant mixtures containing biosurfactants for applications in personal cleansers. **N. Li**, H. Shen, S. Wu, A. Potanin

8:00 . Preparation and characterization of hybrid surfactants based on an intrinsically disordered protein domain. **A. Lall**, K.J. Dolph, P. Huang, M.B. Francis

8:00 . Synthesis and characterization of symmetric aspartic acid-based tripeptide surfactants. **R.C. Swonke**, A. Garcia, J. Harris, A. Symons, H. Parson, E. Billiot, F.H. Billiot, C. Azad, M.A. Olson

8:00 . Biodegradable, self-assembled Polyphosphoester colloids for ³¹P magnetic resonance imaging and theranostics. **T. Rheinberger**, F.R. Wurm, O. Koshkina

8:00 . Targeted and controlled delivery of nitric oxide to cancer cells through hyaluronic acid-coated silica nanoparticles. **Q.E. Grayton**, T.T. Phan, M.H. Schoenfisch

8:00 . Bimodal lateral-flow nanoaptasensor for the detection of carcinoembryonic antigen. **M.C. Licuona**, S.A. Alvarez, B.C. Galarreta, Y. Hernandez

8:00 . Advancing label-free live-cell monitoring using intelligent Raman spectroscopy and plasmonic particles: Milestones and implications for clinical translation. **L. Tadesse**, B. Ogunlade, F. Safir, A. Essawi, J. Dionne

8:00 . Colloidally stable silica nanoparticles with high molecular antigens on their surface as carrier for an HIV-1 vaccine. **C. Barbey**, D. Peterhoff, R. Wagner, M. Breunig

8:00 . Influence of biofunctionalization on dielectrophoretic particle trapping. **A. Duarte**, C. Thome, W. Shields

8:00 . Aggregation process of amyloid beta 1-40 coated gold nano-colloids. **K. Yokoyama**

8:00 . Biomimetic, nanotextured water interfaces: A new look at Langmuir films and their facile, tuneable nanopatterning properties. **M.W. Rutland**

8:00 . Elucidating the adhesion-lubrication paradox of articular cartilage. **D. Burris**, J. Benson, A. Moore

8:00 . Leveraging electrostatic interactions of dynamic physical gels for responsive surfaces. **A. Deptula**, R.M. Espinosa-Marzal

8:00 . Reliable incorporation of graphene surfaces into the surface forces apparatus. **G. Greenwood**, Y. Lee, S. Nam, R.M. Espinosa-Marzal

8:00 . Effects of temperature on nanoscale friction of calcite. **B. Fu**, R.M. Espinosa-Marzal

8:00 . Solvent-MOF interactions in type 3 porous liquids: Effect on pore accessibility and CO₂ adsorption. **M. Hurlock**, M. Christian, J. Rimsza, T.M. Nenoff

8:00 . Thermodynamic evidence for type II porous liquids. **I. Borne**, K. Saigal, C.W. Jones, R.P. Lively

Virtual Only
Virtual Session

COLL Sci-Mix

8:00 . Highly electroconductive PEDOT: PSS platforms for electrical stimulation studies of neural-differentiating iPSCs. **F. Garrudo**, L. Resina, D.E. Nogueira, C.A. Rodrigues, C. Aleman, J.M. Cabral, F.C. Ferreira, J. Morgado

8:00 . Conformational stability of bovine serum albumin as a result of interactions with gold surface. **B. Jachimska**, P. Komorek, M. Szota, K. Rakowski

8:00 . Responsive nanoporous materials from “hairy” nanoparticles. **I. Zharov**

8:00 . Withdrawn

8:00 . Silica-modified Pt/TiO₂ catalysts: strategic modulation of oxide on Pt metal wrapping in SMSI effect. **Z. Hou**, Y. Zhu, **X. Lin**

8:00 . Theory and simulations of charge regulation of colloidal particles in electrolyte solutions. **A. Bakhshandeh**

8:00 . Percolation in networks of liquid diodes. C. Sammartino, Y. Shokef, **B. Pinchasik**

8:00 . Antibacterial waterborne polyurethane/calixarene-stabilized silver nanocomposite coatings. A. Mohammadi, M. Eslamiyeh, **S. Beigi-Boroujeni**

8:00 . Effect of electrophoresis conditions on nano hydroxyapatite film morphology. **A.N. Kahaduwa**, N. Fernando, D. Jayasundara

8:00 . Dual-responsive drug delivery systems: harnessing phase change materials and metal-organic frameworks. **P. Lu**, W. Wei, M. Wildy, K. Xu

TUESDAY MORNING

Moscone Center
Room 307, South Bldg.

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*
Y. Lapitsky, *Presiding*

8:00 . Responsive nanocarriers: Delivery platform for oil-water and oil-solid interfaces. **A. Alsmacil**, M. Hammami, A. Enotiadis, M. Kanj, E.P. Giannelis

8:20 . Preparation of processable and adhesive coacervates through polyelectrolyte/unsaturated fatty acid complexation. J.C. Benalcazar Bassante, J.G. Levendis, M.R. Coleman, J.G. Lawrence, **Y. Lapitsky**

8:50 . Thermodynamics of structured liquids. **G. Bordia**, T.P. Russell, A. Omar

9:10 . Optical measurements of large-area liquid-liquid interfaces in layered liquid sheet jets. **D.J. Hoffman**, S. Devlin, H. Bechtel, D.A. Huyke, J. Santiago, D. DePonte, R.J. Saykally, J. Koralek

9:40 Intermission.

10:00 . Complex electrokinetic particle trajectories enabled by intricate metallic patches. **K.M. Kreienbrink**, C.W. Shields IV

10:20 . Measuring electric fields at the air/water interface using vibrational stark probes. **K.D. Judd**, S. Parsons, D. Eremin, J. Dawlaty

10:50 . Calcium sulfate nucleation at the oil-water interface. **Y. Wang**, Y. Zhu, Y. Jun

11:10 . Molecular dynamic study of chlorine solvation in squalene liquid: Does the addition of oxygenated molecules change solvation free energy?. **L. Cohen**, A. Dodin, D. Limmer, K.R. Wilson

11:30 . Magnetic field and chirality to control spin polarization in materials and its impact on oxygen evolution reaction. **S. Sreenivasan**

Moscone Center
Room 308, South Bldg.

Biosurfactants

Pharma & Other

A. Izmitli, D. Miller, K. J. Stebe, C. J. Tucker, *Organizers*
A. D. Kanthe, *Organizer, Presiding*

8:00 . Knowledge-driven approach to surfactant selection & optimization for biologic formulations. **A.D. Kanthe**, M. Barros, J. Valente

8:30 . Withdrawn

9:00 . Lipid nanoparticles for overcoming biological barriers to RNA delivery. **M.J. Mitchell**

9:30 . Structure of polymer-capped gold nanorods binding to model phospholipid monolayers. **B. Lin**

10:00 . Promising green solvents for the production of Gramicidin S biosurfactant extract from *Aneurinibacillus aneurinilyticus* isolated from corn steep liquor. **A.B. Moldes**, K. Lvova, X. Vecino, B. Pérez-Cid, J.M. Cruz

10:30 . Sustainable and green derivatization of cellulose under heterogeneous slurry and homogeneous solution conditions. **J. Kim, N. Rackstraw**, T. Weinstein, P.J. Dauenhauer, T.M. Reineke, B. Reiner, Y. Li, S. Hagenhoff, K. Ogawa, L. Leal

11:00 . Learning the shapes: Self-assembling cellobiose-based glycolipids into mesoscale network materials. **S. Das**, T.M. Reineke

Moscone Center
Room 306, South Bldg.

Mentoring Undergraduate Surface Science Research

Characterizing Organic Surfaces

A. Baber, L. B. Benz, G. Y. Stokes, *Organizers*
E. V. Iski, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Undergraduate research: From laser pointers to ultrafast lasers. **E. Borguet**

8:30 . Molecular behavior at liquid/liquid and solid/liquid colloidal soft interfaces. **M. Subir**

8:50 . Undergraduate Research's role in unveiling physical, chemical, and mechanical properties of polymer surfaces and interfaces using multiple surface characterization techniques. **K.A. Cimatu**, E. Harasin, A. Chamberlain, U. Erasquin, R.P. Ramasinghe, D. Demase, T. Ambagaspitiya, Y. Huang, M. Burdick

9:10 . Adsorption of molecules to environmental interfaces with density functional theory. **L. Tribe**

9:30 . Undergraduate investigations of environmental and biological interfaces using vibrational sum-frequency spectroscopy. **A. Carpenter**

9:50 Intermission.

10:10 . Divalent cation bridging to marine monolayers facilitates polysaccharide interfacial co-adsorption. **K.A. Carter Fenk**, M. Fiamingo, J. Kim, A. Dommer, R.E. Amaro, H.C. Allen

10:30 . Biophysical effects of bioactive molecules on self-assembled model membranes. **S. Lee**

10:50 . Influence of nanoparticle surface chemistry on In Situ sliding behavior of hydrogels. G. Gleeson, C. Bovia, M. Platz, **M.B. Elinski**

11:10 . 2D IR to determine effect of water on conformation of flexible eight membered ring. **A.M. Casas**, V. Wen, W. Fu, M. Leveille, J. Lu, N. Ge

11:30 . Core-intermediate-interface model for water layers in reverse micelles. **A.K. Sharma**

11:50 Concluding Remarks.

Moscone Center
Room 301, South Bldg.

Nanohybrid Materials for Diverse Applications

N. Feliu Torres, A. Mews, *Organizers*
W. J. Parak, *Organizer, Presiding*

8:00 . Evaluating the catalytic efficiency of the matrix metalloproteinase (MMP-14) using AuNP-peptide conjugates. Z. Jin, N. Dridi, Q.A. Sang, **H.M. Mattoussi**

8:20 . Magnetically separable photocatalysts with switchable reactivity: Smart, recyclable materials for photocatalytic reactions. **R. Li**, J. Heuer, T. Kuckhoff, K. Landfester, C.T. Ferguson

8:40 . Enhanced delivery of nanomedicines by Au nanoparticles. **A.T. Dao**, T. Liu, H. Nakatani, R. Suzuki, Y. Koseki, H. Kasai

9:00 . Plasmonic metal organic frameworks as molecular sieves for optical sensing and catalysis. **R. Alvarez-Puebla**

9:20 . Enzymatic release of indocyanine green and rhodamine 6G ionic chemotherapeutic agent from human serum albumin nanoparticles. **D. Bwambok**, D. Anum, T. Alonge

9:40 . Lipoprotein hitchhiking self-assembled peptide nanostructures for colorectal cancer therapy. **K. Bonic**, M. Dai, B. Kingston, M. Stewart, R. Armstrong, X. Li, J. Fischer, A. Yildirim

10:00 . Single exosome profiling with gold nanoparticles for early cancer detection. **X. Huang**, K. Amrhein, M. Taylor, R. Wilson, Y. Wang, T. Hoang

10:20 . Mineral-based nanocomposite hydrogels for drug delivery, tissue engineering and 3D printing applications. **A. Paul**

10:40 . Steps towards mapping the protein corona around endocytosed nanoparticles. N. Feliu, **W.J. Parak**

Moscone Center
Room 312, South Bldg.

Nanomaterials

Functional Nanomaterials to Nanocrystal Superlattices

S. Hunyadi Murph, R. Nagarajan, C. M. Sims, D. L. Watkins, *Organizers*
J. A. Hollingsworth, *Organizer, Presiding*

8:00 . Template-controlled nucleation and growth of nanoparticle superlattices. **T. Hueckel**, D.J. Lewis, A. Mertiri, D.J. Carter, R. Macfarlane

8:20 . Promoting solution-phase superlattices of CsPbBr₃ nanocrystals. **N. Mireles Villegas**, M. Sheldon

8:40 . Assessing a colloidal synthesis routes toward different phases in the Cr-(Ge)-Te system. D. Parobek, J. Watt, **S. Ivanov**

9:00 . Semiconducting colloidal nanoplatelets as soft matter. **B. Abecassis**

9:20 . Ex-situ monitoring of the cation exchange on individual semiconductor nanowires. **D. Lengle**, M. Schwarz, C. Strelow, T. Kipp, A. Mews

9:40 . Controlling particle deposition patterns and density on 2D surfaces using solvent surface tension, viscosity, and evaporation rate. **L. Roach**, D. Gonzalez-Rodriguez, J. Gao, E. Laurichesse, A. Castro Grijalba, R. Oda, V. Schmitt, E. Pouget, M. Treguer-Delapierre, G.L. Drisko

10:00 . Toward nanocrystal superlattices with fully delocalized charge transport. **M. Law**

10:30 . Tuning the mechanical properties of nanoparticle assemblies: The role of organic and inorganic ligands. **E. Shevchenko**, P. Banerjee, A. Jeong, S. Seifert, V. Prakapenka, S. Chariton, D. Talapin, B. Lee

11:00 . Measuring and modulating photoinduced charge transfer from quantum dots. **B.M. Cossairt**, M. Homer, F. Eagle

Moscone Center
Room 305, South Bldg.

Surface, Interface and Coating Materials

Functional surface and coatings

Z. Cao, S. Jiang, M. Qiao, K. Song, X. Yong, *Organizers*
M. Ma, *Organizer, Presiding*

8:00 . Synergistic assembly of MoS₂ nanosheets and covalent organic frameworks for anti-corrosion coatings. **p. najmi**, M. Arjmand

8:15 . Functional zwitterionic hydrogel-based coating for marine anti-fouling applications. **B. Song**, W. Wang, Z. Cao

8:30 . Artificial cell-like polymersomes: From spatiotemporal control of biochemical reactions to cell-cell communications. **H. Lee**

9:10 Intermission.

9:20 . Novel ice-shedding surfaces. **A. Tuteja**

10:00 . Engineering interfaces and coatings with tough adhesive hydrogels. **J. Li**

10:40 Intermission.

10:50 . Protective nanocoatings from polyelectrolytes: Flame retardancy, super gas barrier, and heat shielding. **J.C. Grunlan**, T.J. Kolibaba, H. Chiang, N.A. Vest, D. Rodriguez-Melendez, D.L. Smith, C. Long

11:30 . Withdrawn

Moscone Center
Room 304, South Bldg.

Surface Chemistry

S. Claridge, A. V. Teplyakov, X. Zhou, *Organizers*
L. Tribe, *Organizer, Presiding*

8:00 . Surface chemistry of metal atomic layer deposition (ALD). **F. Zaera**

8:30 . Vapor-phase halogenation of hydrogen-terminated silicon(100) using N-halogen-succinimides. **P. Raffaele**, A. Shestopalov

8:50 . Chemical profiles of the surface oxides in state of the art superconducting circuits. **M. Liu**

9:10 . Training next generation surface chemists - from research to hands-on molecular modeling approaches. **A. Oza**, K. Dahlquist, C.N. Brock, S.D. Elliott, M.D. Halls, M. Rauch

9:30 Intermission.

9:50 . Refaciting and reduction of ceria with carbon monoxide. **L. Caulfield**, E. Sauter, A. Nefedov, C. Woell

10:10 . Ni nanocatalyst derived from LDHs based catalyst towards highly efficient CO₂ hydrogenation. **G. Cui**

10:30 . ReaxFF simulations of particle-induced low speed pre-ignition (LSPI) by calcium and magnesium nanoparticles. **C. Burger**, Z. Sun, J. Gao, Y. Ju

10:50 . Adsorption and thermal evolution of nitrogen species on pristine and hydrogenated diamond surfaces by N₂ plasma. **K. Huang**

11:20 . Surface modifications of hydrophobic InSe nanosheets for biological applications. **S. Sengupta**, S.B. Ambade, T.L. O'Keefe, A. Gavin, C.L. Haynes, E.E. Carlson, Z. Rosenzweig

Moscone Center
Room 310, South Bldg

Colloidal Networks

Y. Colon, D. J. Milliron, T. Truskett, *Organizers*
C. Ofosu, *Presiding*

8:00 Introductory remarks.

8:10 . Nanocolloidal gels based on latex nanoparticles. **S.M. Morozova**, T.G. Statsenko, E.O. Ryabchenko, A. Gevorkian, V. Adibnia, M. Lozhkin, A. Kireynov, E. Kumacheva

8:30 . Stress build-up under constant strain in soft glassy materials. V. Kumar, G.H. McKinley, **Y.M. Joshi**

8:50 . Generalized rheological memory based on recoverable strain and its relation to nanoscale structure. K. Kamani, Y. Shim, J. Griebler, S. Narayanan, Q. Zhang, R. Leheny, J. Harden, **S. Rogers**

9:20 . Network percolation of bidisperse colloidal gels. R. Waheibi, **L. Hsiao**

9:50 . Inducing and tuning power-law rheology in transient DNA nanostar networks through dynamically modulated valence. **N. Conrad**, D. Fygenon, O. Saleh

10:10 Intermission.

10:30 . Evaluating kinetics of network restructuring in colloidal gels using serial creep divergence rheology. E. Nikoumanesh, **R. Poling-Skutvik**

11:00 . Is rigidity percolation the precursor of colloidal gelation?. **R. Castaneda Priego**

11:30 . Exploring topological alterations in vitrimers: The role of bond exchange dynamics and defects. H. Pandya, **F. Khabaz**

TUESDAY AFTERNOON

Moscone Center
Room 310, South Bldg

Biomaterials and Biointerfaces

E. S. Andreescu, S. Sinha Ray, *Organizers*
C. P. Collier, *Organizer, Presiding*

2:00 . 4D printed polymers for the next-generation deployable implants. **K. Chatterjee**

2:20 . Delivering charged hydrophilic therapeutics using hydrophobic ion pairing without nanocarriers. **M. Seeler**, M. Gray, J. Champion

2:40 . Multi-responsive nanogels for theranostics of tumors. **A. Pich**

3:00 . Conjugation of IL-33 to microporous annealed particle scaffolds initiates a type 2 immune response. **C. Roosa**, S. Lempke, R. Hannan, J. Sturek, S. Ewald, D. Griffin

3:20 Intermission.

3:30 . Self-assembling coatings to protect microbes from processing stressors. **G. Fan**, A.L. Furst

3:50 . Developing a biodegradable polyurethane platform for varying therapeutic time frames. **M.A. Elkhodiry**, J. Pothupitiya, V. Mishin, A. Stahl, S. Radzinski, C. Costello, D. Preddie, S. reed

4:10 . Withdrawn

4:30 . New approaches for fighting antimicrobial resistance based on electroactive stimuli-responsive materials. **M.M. Fernandes**

Moscone Center
Room 312, South Bldg.

Langmuir Lectures and ACS Applied Materials and Interfaces Award Lecture

D. Miller, *Organizer, Presiding*

2:00 Introductory Remarks .

2:10 . High-throughput materials discovery with nanomaterial megalibraries. **C.A. Mirkin**

3:00 . New tools and old models to image and understand the interfacial dynamics governing separations at the single analyte limit. **C.F. Landes**

3:50 . Diverse and unique droplets assembled from liquid crystalline oligomers and composites. **S. Yang**

Moscone Center
Room 307, South Bldg.

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*
S. D. Banziger, *Presiding*

2:00 . Temperature-induced phase separation in hydrogel microcapsules for controlled encapsulation and release. **J. Lee**, H. Lee

2:20 . Biodegradable lipid-based smart polymeric micelles for anticancer drug delivery. **H. Wang**, A. Ullah

2:40 . Elastomeric microparticles for shape-encoded analytical assays. **L.A. Radosevich**, C. Thome, W. Shields

3:00 . Impact of uniform facets on the thermodynamics of ligand exchanges on colloidal quantum dots. **A. Brewer**, J.J. Calvin, P. Alivisatos

3:20 . Solid Formulations in Agriculture. **S.D. Banziger**

3:50 Intermission.

4:10 . Recyclable and self-driven Magnetocleaners for scalable micro/nanoplastics removal from non-marine waters. **C. Wu**, J. Tang

4:30 . Stability of colloidal activated carbon (Plumestop[®] Liquid Activated Carbon[™]): Single and combined effects of aqueous geochemical parameters. **E. Ndubueze**, H. Boparai, B. Sleep

4:50 . Polymeric coating for tunable self-thermophoretic nanomotor. **H. Yaxin**, J. Tang

5:10 . Withdrawn

5:30 . Deposition enhancement of spray droplets on hydrophobic substrates through combinations of surfactant/oil/polymer. **V. Prasad**, S. Anderson, C. Nelson, J. Chrominski

Moscone Center
Room 308, South Bldg.

Biosurfactants

Peptides

A. Izmitli, A. D. Kanthe, D. Miller, C. J. Tucker, *Organizers*
K. J. Stebe, *Organizer, Presiding*

2:00 . Design of bioactive supramolecular assemblies with amphiphilic peptides. **S.I. Stupp**

2:30 . Surfactant peptides at the air-aqueous interface for foam fractionation recovery of rare earth elements. **C. Maldarelli**, K.J. Stebe, R.S. Tu, M.L. Schlossman, J. Petersson, L. Ortuno Macias, S.A. Crane, Y. Wang, R.J. Messinger, M. Olvera De La Cruz, J. Marmorstein

3:00 . Surface rheology of peptide surfactants (PEPS) for rare earth element recovery. S.A. Crane, J. Deng, M. Molaei, N. Chisholm, L. Ortuno Macias, J. Marmorstein, Y. Wang, F. Jiménez-Ángeles, P. Sun, M.L. Schlossman, C. Maldarelli, R.S. Tu, M. Olvera De La Cruz, E. Petersson, I.J. Dmochowski, **K.J. Stebe**

3:30 . Molecular dynamics study of the interfacial adsorption of peptide surfactants for lanthanide ions recovery. **F. Jimenez Angeles**, L. Ortuno Macias, Y. Wang, S.A. Crane, R.S. Tu, C. Maldarelli, M. Olvera de la Cruz, K.J. Stebe

4:00 Intermission.

4:10 . EXAFS measurements of the complexation of rare earth ions to LBT peptide surfactants at the water surface. **B. Sapkota**, E.A. Binter, A. Ruckel, P. Sun, D.J. Walwark, W. Bu, S.A. Crane, L. Ortuno Macias, K.J. Stebe, C. Maldarelli, R.S. Tu, M.L. Schlossman

4:40 . Interfacial dynamics of peptides and proteins air-water interfaces. A.D. Kanthe, W. Bu, M.K. Bera, C. Maldarelli, **R.S. Tu**

5:10 . Effect of molecular architecture on the structure at the interface of bioinspired nonionic surface-active polypeptoids. **M. Roguski**, M.L. Davidson, L. Walker

Moscone Center
Room 301, South Bldg.

Colloidal Networks

Y. Colon, D. J. Milliron, T. Truskett, *Organizers*
Z. Sherman, *Presiding*

2:00 . Dexterous magnetic microrobots from the directed assembly of defined prismatic subunits. **K.M. Kreienbrink**, K.E. Hawkins, C.C. Kemper, C.W. Shields IV

2:20 . Implications of bonding motifs for phase behavior, network percolation, and dynamics of linker-mediated colloidal networks. **T.A. Wilcoxson**, T. Kwon, M.P. Howard, Z.M. Sherman, D.J. Milliron, T. Truskett

2:40 . Simulating assembly of structures from colloids with mobile binders and explicit bond kinetics. **G.M. Hocky**

3:10 . Controlling structures and functions of a colloidal DNA liquid. **O.A. Saleh**

3:40 . Exploring and exploiting network formation in folded protein hydrogels. **L. Dougan**

4:10 Intermission.

4:30 . Dynamic covalent tetra-PEG hydrogels with tunable bond exchange kinetics. **A. Rosales**

5:00 . Percolation-induced gel–gel phase separation in a dilute polymer network. **T. Sakai**

5:30 . Using interactions and clustering from coarse-grained models to interpret the structure and viscosity of monoclonal antibody solutions at intermediate to high concentration. **A. Chowdhury**, W.D. Kimball, A. Lanzaro, T. Truskett, K.P. Johnston

Moscone Center
Room 305, South Bldg.

Symposium in Honor of Cynthia M. Friend

D. Chen, M. L. Personick, *Organizers*
J. Batteas, *Organizer, Presiding*
K. L. Queeney, *Presiding*

2:00 Introductory Remarks.

2:05 . Growth and catalytic activity of oxide-supported bimetallic clusters: Understanding the role of metal-metal interactions. **D.A. Chen**, M. Qiao, A. Ahsen, F. Li

2:35 . Hydrogen activation, spill-over and alkyne hydrogenation at Pd-in-Au dilute alloy catalysts. **P. Sautet**, H. Ngan, G. Yan, J. van der Hoeven, R. Madix, C.M. Friend

3:05 . ab-initio studies of chemical reactions on surfaces of various materials. **E. Kaxiras**

3:35 Intermission.

3:55 . Engineering metal-organic framework functionalities for water harvesting and catalysis. **L. Gagliardi**

4:25 . Mechanistic analysis of Cu-catalyzed electrochemical CO₂ reduction reaction. **B. Xu**

4:55 . Electrochemical approaches to decarbonizing chemicals and fuels. **H. Wang**

5:25 . Interfaces and catalysis for electrochemical applications. **J. Lattimer**, D.J. Strasser, M. Kastelic, S. Zhong, M. Pupucevski, S.A. McCatty, T. Zhang

Moscone Center
Room 304, South Bldg.

Nanoscience and Nanotechnology for Defense and Security

R. Nagarajan, *Organizer, Presiding*

2:00 . Materials design meets ductile ceramics for extreme environments. **S. Ren**

2:30 . Hybrid assembly of Ti₃C₂T_x MXene and graphene for highly stable heating elements. **T. Han**

3:00 . Low dimensional materials for Warfighter protection. **J.R. Uzarski**

3:30 . Oxidation and passivation kinetics of nanomaterials at high and ultra-high temperatures: a single nanoparticle approach. A.M. Friese, D.J. Rodriguez, A.R. Burrows, **S.L. Anderson**

4:00 . Infrared colloidal quantum dot photodetectors. **A. Sahu**

4:30 . Resilient authentication with quantum-protected security primitive. Z. He, **M. Elizarov**, N. Li, F. Xiang, A. Fratalocchi

5:00 . Accessing higher energy plasmonics by phase and composition control. **M.B. Ross**

5:30 . Photocatalytic properties of novel one-dimensional titanium dioxide lepidocrocite nanofilaments. **A. Walter**, G. Schwenk, J. Cope, K. Sudhakar, M. Hassig, A. Mininni, M. Barsoum

Moscone Center
Room 306, South Bldg.

Surface, Interface and Coating Materials

Applied Surface Research and Virtual Session

Z. Cao, S. Jiang, M. Qiao, K. Song, X. Yong, *Organizers*
M. Ma, *Organizer, Presiding*

2:00 . Polymeric n-Halamines for antimicrobial surfaces. **M.D. Hein**

2:40 . Improving paint performance and durability by applying design of experiments, high-throughput methodology, and predictive modeling. **P.S. Majumdar**

3:20 . Enhancing corrosion resistance and primer coating adhesion on magnesium and magnesium alloys using atmospheric plasma and lithium salt-assisted plasma treatments. **G. Jang**, J. Jun, Y. Su

3:35 . Fouling resistant membrane coatings via one-pot polydopamine/hyperbranched polyester modification for oily industrial wastewater remediation. **M.K. Hassan**, M.M. Zagho, S.M. Shaikh, M. Nasser, X. Gu, S. Nazarenko

3:50 . Enhanced and continuous liquid-liquid extraction and in-situ separation of volatile fatty acids from fermentation broth. **D.L. Speer**, T. Patel, B. Ho, J. Phillips, T. Zhu, J. Shangraw, M. Urgun-Demirtas, Y. Liang, A. Tuteja

4:05 . Tough films formed by the evaporation of aqueous dispersions containing rotaxane-crosslinked microparticles. **Y. Sasaki**, Y. Nishizawa, T. Watanabe, T. Kureha, K. Uenishi, K. Nakazono, T. Takata, D. Suzuki

4:20 . Water uptake, corrosion protection and mechanical properties of epoxy composite coatings. **A. S S**, S. Parida

4:35 Intermission.

4:45 . Interfacial investigations of gas hydrates for plugging risk assessment. A. Majid, N. Ismail, H. Stoner, **C.A. Koh**

5:00 . Percolation in networks of liquid diodes. C. Sammartino, Y. Shokef, **B. Pinchasik**

5:15 . Antibacterial waterborne polyurethane/calixarene-stabilized silver nanocomposite coatings. A. Mohammadi, M. Eslamiyeh, **S. Beigi-Boroujeni**

5:30 . Temporal changes in biofilm growth by Staphylococcus epidermidis on some polymeric materials and quantitative evaluation methods. **H. Kanematsu, D.M. Barry**, A. Ogawa, R. Kawai, T. Kogo, N. Hirai, H. Miura, T. Kamijo, T. Kato, M. Yoshitake

5:45 . Multifunctional wet adhesive film enabled by a single-component poly(ionic liquid). **C. Qiao**, B. Wang, H. Wang, H. Zeng

WEDNESDAY MORNING

Moscone Center
Room 310, South Bldg

Biomaterials and Biointerfaces

E. S. Andreescu, C. P. Collier, *Organizers*
S. Sinha Ray, *Organizer, Presiding*

8:00 . Engineered nanostructures to selectively limit human melanoma cell proliferation in vitro. **M.E. Castro**, O. Rodriguez-Martinez, A. Wu-Wu, K. Gonzalez, M. Cortez-Cuervo, k. quirindongo, K. Ruiz-Rivera, V. Arroyo-Suarez, M. Soto-Soto

8:20 . Withdrawn

8:40 . Collagen mimetic materials based on hierarchically assembled homopolypeptides. E. Buvalaia, M. Dulle, M. Kruteva, R. Biehl, **S. Foerster**

9:00 . Role of gold nanostar shapes in modulating macrophage responses and activities. .. **Kenry**

9:20 Intermission.

9:30 . Biology exploits geometry: impact of aspect ratio on protein networks. **M.D. Hughes**, S. Cussons, B.S. Hanson, K.R. Cook, T. Feller, N. Mahmoudi, R. Ariëns, D. Head, D.J. Brockwell, L. Dougan

9:50 . Characterization of polyelectrolyte nanocoating on mouse and human pseudo-islets towards treatment of Type-1 Diabetes. **M.Y. Yitayew**, M. Tabrizian

10:10 . Development of amphiphilic copolymers for the isolation of membrane proteins. **B. Klumperman**, G. Kuyler

10:30 . Nanoscale assembly of peptides at interfaces for enzyme immobilization. D. Johnson, T. Bader, T. Nair, A. Hashim, C. Tamerler, **C.L. Berrie**

Moscone Center
Room 307, South Bldg.

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, U. Natarajan, Z. Niroobakhsh, *Organizers*
A. Mallia, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Controlled fabrication of metal-organic framework monoliths with hierarchically porous structure. **H. Zhu**

8:25 . Specific ion effects: Hofmeister cations and coumarin fluorescence. **N. Metzger**, Y. Zhang

8:45 . Scalable route to monodisperse colloidal $\text{Ni}_x\text{CO}_{3-x}\text{S}_4$ nanoparticles using amino acids. **T. Meyer**

9:05 . Structure and function relationships of synthetically pure archaeal tetraether lipids. **A. Bhattacharya**, I.D. Falk, N.Z. Burns, S.G. Boxer

9:25 . Designing sequence-defined short oligomers for self-assembly and hybridization with functional materials to create conductive soft materials. **J. Kim**

9:45 . Understanding borate-mediated aggregation of vancomycin hydrochloride: pH dependence and investigation using UV-Vis absorption, fluorescence spectroscopy, and capillary electrophoresis. **A. Mallia**, S. Mwongela, N.Y. Forlemu, S. Tangirala

10:05 Intermission.

10:20 . Withdrawn

10:40 . Photooxidation of nonanoic acid in organic interfaces and the effect of relative humidity. **E. Scholer**, E.J. Davis, G. Freeman-Gallant, O. Alija, J.G. Navea

11:00 . Electrically conductive porous $Ti_3C_2T_x$ MXene-polymer composites from high internal phase emulsions (HIPes). **H. Cao**, Y. Wang, A. Sarmah, K. Liu, Z. Tan, K. Arole, J.L. Lutkenhaus, M. Radovic, M. Green, E. Pentzer

11:20 . Decoding optical responses of surface-immobilized liquid crystal droplets using machine learning for detection of aqueous amphiphiles with enhanced sensitivity and selectivity. **F. Wang**, S. Qin, C. Acevedo, R. Van Lehn, V. Zavala, D.M. Lynn

Moscone Center
Room 306, South Bldg.

Colloidal Networks

Y. Colon, D. J. Milliron, T. Truskett, *Organizers*
N. Conrad, *Presiding*

8:00 . Nanoparticle-based gel structures for photoelectrochemical applications. **J. Schlenkrich**, F. Lübkeermann-Warwas, D. Zámbo, A. Schlosser, M. Rosebrock, P. Rusch, C. Wesemann, R.T. Graf, L. Schoske, K. Hindricks, D.W. Bahnemann, P. Behrens, D. Dorfs, N.C. Bigall

8:20 . Tuning the assembly of siliceous materials for stabilizing oil-water emulsions and architecting siliceous materials for advanced separations. **G. Gadikota**, H. Asgar, S. Mohammed, X. Gao, A. Mamidala

8:40 . Microscopic dynamics of thermoreversible linker mediated nanocrystal gel assemblies. **C. Ofofu**, J. Kang, T. Truskett, D.J. Milliron

9:00 . Phase transitions of polymer-stabilized gold nanoparticles studied with X-ray photon correlation spectroscopy. **F. Schulz**, A. Jain, F. Westermeier, V.I. Markmann, F. Dallari, Y. Zhang, W.J. Parak, G. Grübel, F. Lehmkuhler

9:30 . Multicomponent nanocrystal gels. **N.C. Bigall**

10:00 Intermission.

10:20 . Cadmium chalcogenide nanoplatelet stacks from various media. **R.T. Graf**, A. Schlosser, K. Tran, D. Zámbo, M. Rosebrock, H. Borg, J. Schlenkrich, F. Lübkeermann-Warwas, P. Rusch, A. Chatterjee, H. Pfnür, F. Renz, D. Dorfs, N.C. Bigall

10:40 . Colloidal chalcogenide gels from oxidative assembly of anisotropic nanoparticles: Role of polarity in mechanism of attachment and consequences for functionality. L. Silva, V. Alevato, **S.L. Brock**

11:10 . Pt-Pd cryoaerogels as electrocatalysts for ethanol oxidation reaction. **H. Borg**, D. Zámbo, P. Bessel, D. Kranz, I. Morales, M. Rosebrock, F. Lübkekmann-Warwas, N.C. Bigall, D. Dorfs

11:30 . Pickering emulsions to improve the adhesion between casing and cement. **R.C. Advincula**, X. Cheng, A. Barthjia

Moscone Center
Room 301, South Bldg.

Nanomaterials

Low-Dimensional Porous Materials From Metal-Organic Frameworks to Polymers and Zeolites

S. Hunyadi Murph, R. Nagarajan, C. M. Sims, D. L. Watkins, *Organizers*
J. A. Hollingsworth, *Organizer, Presiding*

8:00 . Comparing nanoscale structural and electronic domain sizes in amorphous coordination polymers. **J.S. Anderson**, J. Xie, P. Crossland

8:30 . Well-defined heterometallic framework architectures of molecular qubits. **E.A. Dolgoplova**

9:00 . Efficient photon upconversion and tunable exciton emission in tailored heterointerfaces between 2D atomic crystals and 2D molecular frameworks. **T. Kempa**

9:30 . Withdrawn

9:50 . Molecular additives as competitive binding agents to control supramolecular-driven nanoparticle Assembly. **R.L. Li**, N. Sbalbi, O.F. Aly, M. Ye, R. Macfarlane

10:10 . Fluorophore -doped metal-organic framework for sensing low-energies radionuclides. **C. Ke**, Y. Chen, B. Zacher, C. Aspinwall

10:30 . Nanoscale structures and self-assembling mechanism of porous organic thin films revealed by scanning probe microscopy and molecular dynamics simulation. **T.K. Shimizu**, K. Yamanami, K. Matsui, Y. Fujita, R. Aasari, T. Kusawake, H. Watanabe

10:50 . Fast synthesis of two-dimensional layered Zeolites. **P. Li**, K. Celebi

11:10 . On route to synthesis of hierarchical Y zeolite catalysts with larger mesopores. **X. Li**, A. Kuperman, A.S. Katz

11:30 . Nonclassical dendritic evolution of nanoparticle superlattices. **M. Ye**, T. Hueckel, P.P. Gatenil, K. Nagao, W. Carter, R. Macfarlane

Moscone Center
Room 304, South Bldg.

Biosurfactants

Home & Personal Care

A. Izmitli, A. D. Kanthe, D. Miller, K. J. Stebe, *Organizers*
C. J. Tucker, *Organizer, Presiding*

8:00 . Structure: Property relationships for sugar surfactants. **D. Miller**, J.R. McMillan, R. Kennedy, M. Yonkey, Y. Tan, J. Hou, C. Nimako-Boateng, M. Cherry, L. Wilson, Y. O'Connor, X. Lu, T. Young, T. McDaniel, E. Wasserman, A. Izmitli, T. Peterson, Y. Rao

8:30 . Modeling tools for next generation surfactants and formulations. **P.H. Koenig**

9:00 . Innovation of Sustainable Surfactants: BASF Perspective. **R. Gupta**, K.E. Gutowski, J. Tropsch, K. Schmidt, T. Greindl

9:30 . Perspective on the importance of micelle microstructure and dynamics to design of products containing sugar surfactants. **K.J. Stebe**

10:00 . Physico-chemical aspects behind the use of biosurfactants in the eco-design of cosmetic formulations. **G.S. Luengo**

10:30 . Formulation design of biosurfactant based consumer products. **S. Amin**

11:00 . Building the viscosity of mild surfactant mixtures containing biosurfactants for applications in personal cleansers. **N. Li**, H. Shen, S. Wu, A. Potanin

11:30 . Fast surfactant dynamics reduces aggregation of biologics. **J.S. Katz**, S. Jordan, H. Fares, M. Carnovale

Moscone Center
Room 308, South Bldg.

Nanoscience and Nanotechnology for Defense and Security

R. Nagarajan, *Organizer, Presiding*

8:00 . Harnessing the precision of biological binding events to drive nanomaterial Assembly. **M.R. Knecht**

8:30 . Synthesis and applications of peptoid-based crystalline nanomaterials. **C. Chen**

9:00 . Self assembling nanoparticle enzyme clusters. **J. Breger**, E. Oh, M. Stewart, K. Susumu, G. Ellis, S. Diaz, S. Hooe, M. Thakur, A. Mario, I. Medintz

9:30 . Guiding peptide-driven exfoliation and organization of nanomaterials. R. Jin, L. Pham, **T. Walsh**

10:00 . Nanostructured sulfur rich polymers for infrared polarizers. **J. Wie**

10:30 . Lighter and stronger epoxy nanocomposite materials for soldier protection. A. Mali, P. Agbo, L. Zimmerman, **L. Zhang**

11:00 . Colloidal electronic matter. M. Manion, S. Park, **A. Liu**

11:30 . Research opportunities at ARL's Army Research Office (ARO): ARO overview, Science of Extreme Materials Branch, & materials design program. **E. Runnerstrom**

Moscone Center
Room 312, South Bldg.

Surface Chemistry

A. V. Teplyakov, L. Tribe, X. Zhou, *Organizers*
S. Claridge, *Organizer, Presiding*

8:00 . Tuning the electric fields and hydration of electrochemical interfaces with surfactants. A.K. Pennathur, A. Maitra, C. Tseng, **J. Dawlaty**

8:30 . Desolvation and surface adsorption of multivalent ion measured by vibrational spectroscopy. **A. Maitra**, E. Chiang, J. Dawlaty

8:50 . Probing surface hydroxyls of metal oxides: Fluoride substitution on defective blue TiO₂ and beyond. **K. Lau**, F. Niemann, K. Abdiaziz, M. Heidelmann, T. Schmidt, A. Schnegg, S. Reichenberger, S. Barcikowski

9:10 . Exploring the temperature: Dependent hydrogen bonding network in metal organic nanotubes with varying pore wall polarity. **T.H. Jahinge**, T. Forbes

9:30 . Electrodeposition of MIL-88B(Fe) on medical-grade stainless-steel surfaces. **E. Lucsik**, F. Tian

9:50 Intermission.

10:10 . Biomimetic nanobubbles enhanced dual cationic - anionic polyelectrolytes flocculation microbubbles flotation of stable emulsions. **M. Colic**

10:30 . Kinetics in colliding microdroplets: Accelerated synthesis of Azamondine from dopamine and resorcinol. **E. Brown**, G. Rovelli, K.R. Wilson

10:50 . Greasy cations also strongly bind to neutral macromolecules in aqueous solutions. U.E. Ertekin, E. Issever, **H. Okur**

11:10 . Radical inhibition by silica in high organic content concentrated emulsion gels. **F.D. Blum**, T. Zhang

11:30 . Linking molecular structure and shear-induced surface reactivity in tetraalkylammonium orthoborate ionic liquids. **F. Mangolini**, J. Yan, H. Lien

Moscone Center
Room 305, South Bldg.

Symposium in Honor of Cynthia M. Friend

J. Batteas, M. L. Personick, *Organizers*
D. Chen, *Organizer, Presiding*
X. Deng, *Presiding*

8:00 Introductory remarks.

8:05 . Interplay of computation and experiment for surface structure and chemistry of dilute alloys. **M. Montemore**

8:35 . Adsorption on metal surfaces beyond density functional theory. **J. Sauer**

9:05 . Metal atom chemical potential: A key descriptor for predicting catalyst performance, and how to estimate it. **C.T. Campbell**

9:35 Intermission.

10:05 . Mobility and reactivity of porphyrins on metal surfaces. **H. Steinrueck**

10:35 . Trimetallic alloys for active and selective surface chemistry. **E.H. Sykes**

11:05 . Dilute surface alloys with early transition metal dopants for sustainable catalysis. J. Shi, H. Ngan, C.J. Owen, V. Mehar, S. Qin, P. Sautet, **J.F. Weaver**

11:35 . Molecular dynamics for dynamic molecular processes on catalytic surfaces. **B. Kozinsky**

WEDNESDAY AFTERNOON

Moscone Center
Room 304, South Bldg.

Nanohybrid Materials for Diverse Applications

N. Feliu Torres, W. J. Parak, *Organizers*
A. Mews, *Organizer, Presiding*

2:00 . Erythropoietin-quantum dot bioconjugates increase expression of aquaporin-4 membrane channels and augment water transport in human astrocytes. K. Rogers, O.K. Nag, M. Stewart, E. Oh, **J. Delehanty**

2:30 . Microfluidic synthesis of multilayered lipid-polymer hybrid nanoparticles for the formulation of low solubility drugs. **N. Kamar**, C. Leal

2:50 . Multi-sensing and self-healing skin for robotic applications. **Q. Chen**, A. Braun

3:10 . Mechanism investigation of the cation-exchange reaction on CdSe/CdS-dot-in-rods with lead halides in oleylamine. **V. Mittag**, L. Mochalski, C. Strelow, T. Kipp, A. Mews

3:30 . Modulating Plasmonic-TiO₂ core-shell nanoparticles properties for ROS generation and its biocompatibility. N. Cruz, G. Morales-Valenzuela, K. Juárez Moreno, **J. Romo-Herrera**

3:50 . In situ investigation of bio-nano interactions using X-ray photon-correlation spectroscopy. **F. Otto**, X. Sun, F. Schulz, C. Sanchez-Cano, N. Feliu Torres, F. Westermeier, W.J. Parak

4:10 . Withdrawn

4:30 . Rheology and applications of cellulose acetate stabilized Pickering emulsions. **M. Sohail**, T. Pirzada, D. Guenther, C. Opperman, S.A. Khan

Moscone Center
Room 307, South Bldg.

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*
D. Yu, *Presiding*

2:00 . Mixed micelle structure and composition from SANS and MD. **M. Tsianou**, S. Kancharla, D. Dong, D. Bedrov, P. Alexandridis

2:20 . Recent developments in the methods and applications of electrostatic self-assembly. **E. Besley**

2:40 . Understanding the role of end-capping and charge pattern on solution micellar structure of ionic polypeptoid block copolymers with controlled ionic sites. **M. Zhang**, Y. Liu, D. Zhang

3:00 . Role of hydrophile-lipophile balance and oxygen functional groups in the interfacial behavior of non-ionic surfactants unraveled by molecular simulations. **X. Sun**, H. Zeng, T. Tang

3:20 . Nanoscale dynamics dictate material performance in molecular self-assemblies. **T. Christoff-Tempesta**, S. Kaser, Y. Cho, L.D. Uliassi, x. zuo, J. Ortony

3:40 . Self-association and hydrogen bond structure of water within propylene carbonate binary mixtures revealed by polarized Raman spectroscopy and molecular dynamics. **J. Clark**, T. Bowling-Charles, S.J. Proma, B. Biswas, D. Limmer, H.C. Allen

4:00 Intermission.

4:15 . Effect of polymer topology on micellar self-assembly. R. Lopez-Rios De Castro, R. Ziolk, **C. Lorenz**

4:35 . Molecular dynamics simulation of the interaction of cationic polymer, surfactants and silicones in shampoo formulation. **D. Yu**, R. Marson, D. Miller, L. Leal, N. Fernandes

4:55 . Hydrogen bonding networks in non-aqueous environments. T. Majumder, **P.K. Wise**, A.R. LaCour, J. Heindel, T.L. Head-Gordon, J. Dawlaty

5:15 . Why do hollow microgels suppress crystallization?: A simulation study. **T. HÃ¶fken**, A. Petrunin, A. Scotti

5:35 . Molecular simulation study of adsorption of vinyl polycarboxylic acids at water surface: effect of stereo-chemistry and hydrophilicity. R. Kurapati, **U. Natarajan**

Moscone Center
Room 310, South Bldg

Biosurfactants

Method

A. Izmitli, A. D. Kanthe, K. J. Stebe, C. J. Tucker, *Organizers*
D. Miller, *Organizer, Presiding*

2:00 . Self-assembly of microbial biosurfactant amphiphiles. **N. Baccile**

2:30 . Methods for rapid screening of biosurfactant self-assembly and adsorption at interfaces.
N.L. Abbott

3:00 . Biosurfactant solution self-assembly and surface adsorption. M. Tsianou, **P. Alexandridis**

3:30 . High-shear surfactant rheology at NIST. **S.D. Hudson**, P. Salipante, M. Cromer, R. Murphy, K. Weigandt

4:00 Intermission.

4:10 . Chickpea or egg problem in engineering plant-based emulsions. N. Nikolova, C. Martinez, L. Hassan, K. Al-Zahabi, S. Sepahvand, M. Boehm, S. Baier, **V. Sharma**

4:40 . Surface-active biopolymer particles with engineered morphology: Sustainable Pickering stabilizers and active plastics microcleaners. **O.D. Velev**

Moscone Center
Room 306, South Bldg.

Colloidal Networks

Y. Colon, D. J. Milliron, T. Truskett, *Organizers*
T. Holoman, *Presiding*

2:00 . Bottom-up fabrication of anisotropic nanoparticle clusters and large-scale arrays by using DNA origami assembly. **R. Wang**

2:20 . Directed self-organisation of hard and soft nanoassemblies into clusters with controlled architecture and properties. V. Mihali, M. Skowicki, D. Messmer, **C.G. Palivan**

2:40 . Thermal tuning of sol-gel colloidal packing. **J.A. Díaz Amaya**, T. Niper, L. Galeano Tirado

3:10 . Aging of colloid-polymer dispersions and re-entrant rheological behavior at interfaces and the microscale. **S. Bhatia**

3:40 . Colloidal clusters and networks formed by oppositely charged particles with varying stiffness. S. Morosova, L. López-Flores, A. Gevorkian, H. Zhang, V. Adibnia, W. Shi, D. Nykypanchuk, T. Statsenko, G.C. Walker, O. Gang, M. Olvera De La Cruz, **E. Kumacheva**

4:10 Intermission.

4:30 . Tuning structure and dynamics of colloid-polymer networks through bridging interactions. M.J. Gallegos, N. Park, D. Soetrisno, F. Safi Samghabadi, **J. Conrad**

5:00 . Macroscopic nanoparticle superlattices via self-assembly. **R. Macfarlane**

5:20 . Phase transition in polymeric systems for bioinspired materials working with water. R. Hagiwara, T. Nguyen, L. Wu, **K. Okeyoshi**

Moscone Center
Room 312, South Bldg.

Mentoring Undergraduate Surface Science Research

Understanding Adsorption and Surface Functionalization

L. B. Benz, E. V. Iski, G. Y. Stokes, *Organizers*
A. Baber, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Physical characterization of the microtubule associated protein tau using atomic force microscopy. **Z. Donhauser**

2:30 . Understanding the surface structures of binary SAMs. **G. Avila-Bront**

2:50 . Alkyne-derived molecular layers on nanoporous gold electrodes. **E.C. Landis**

3:10 . Nanocelluloses research at a primarily undergraduate institution: Insights, challenges and rewards. **R. Sunasee**

3:30 . Two decades of atomic force microscopy with undergraduate student researchers. **K. Sinniah**

3:50 Intermission.

4:10 . Guiding undergraduates in computational nanosurface interaction research. **C.A. Daly**

4:30 . Approaching an unknown state of matter: Plasma chemistry research with undergraduates. **M.J. Hawker**

4:50 . Surface supportive metal-organic frameworks for drug delivery - An undergraduate ressearch project. s.G. guillen, L. Hang, E. Lucsik, **F. Tian**

5:10 . STM studies of organic thiocyanates on Au(111) as a way of expanding the self-assembly toolkit. **A.F. Raigoza**

5:30 . Comparison of dynamics and mechanisms between electrochemically etched tungsten STM probes by AC and DC power supplies. **F. Xu**, N. McLane, R. Roddy

5:50 Concluding Remarks.

Moscone Center
Room 302, South Bldg.

Surface Chemistry

S. Claridge, A. V. Teplyakov, X. Zhou, *Organizers*
L. Tribe, *Organizer, Presiding*

2:00 . On-surface synthesis of porous graphene nanoribbons and nanosheets. **J. Zhu**

2:30 . Chirality from scratch: How the combination of achiral elements can bias the preferential formation of chiral self-assembled networks. **Z. Tessari**, S. De Feyter

2:50 . Localized chemical manipulation of surfaces utilizing thermal Scanning Probe Lithography (t-SPL). **N. Hendricks**, J. Chaaban, E. Cagin

3:10 . Easily implementable lock-in amplifier-based pulsed force Kelvin probe force microscopy for surface potential mapping at < 10 nm spatial resolution under ambient conditions. **X. Xu**, A. Zahmatkeshsaredorahi

3:30 Intermission.

3:50 . Scalable preparation of intrinsically chiral metal surfaces for enantioselective processes. **N. Shukla**, A.J. Gellman

4:10 . Linker-dependent charge transfer in covalently bound MoS₂-zinc phthalocyanine heterojunctions. **C. Hemmingsen**, C.T. Eckdahl, R. López Arteaga, S. Kim, N. Georgieva, L. Kuo, M.C. Hersam, E.A. Weiss, J.A. Kalow

4:30 . Dynamic and multifunctional metal-phenolic coordination nanopatterns. **C. Chen**, C.A. Mirkin

4:50 . Exploring the role of interfaces in the molecular orientation of vapor-deposited glasses. **D. Sunday**, T.J. Ferron, M. Fiori, M.D. Ediger, D. DeLongchamp

Moscone Center
Room 305, South Bldg.

Symposium in Honor of Cynthia M. Friend

J. Batteas, D. Chen, *Organizers*
M. L. Personick, *Organizer, Presiding*
B. Xu, *Presiding*

2:00 Introductory remarks.

2:05 . Interactions of single and few layer MoS₂ with Au surfaces. **J. Batteas**

2:35 . Functionalized polymer thin films for tunable surface wettability. K. Fisher, R. Elizabeth, M.E. Buck, **K.L. Queeney**

3:05 . Preparation, characterization, and reactivity of model catalysts. **H. Freund**

3:35 Intermission.

3:55 . Thermodynamics and kinetics of heterogeneous nucleation of CaCO₃ in water-energy systems. **Y. Jun**, Q. Li, Y. Zhu, Y. Wang, B. Lee

4:25 . Understanding the selectivity of CO₂ reduction towards multi-carbon products. Z. Cui, S. Cho, **A. Co**

4:55 . Reaction of aromatic molecules on model gold catalysts. **J.C. Rodriguez-Reyes**

5:25 . Combining surface science, electrochemistry, and computational modeling to investigate nanoparticle electrocatalysts. **X. Deng**, D. Alfonso, D. Sorescu, T. Nguyen-Phan, D. Kauffman

Moscone Center
Room 301, South Bldg.

Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, R. Nagarajan, D. L. Watkins, *Organizers*
C. M. Sims, *Organizer, Presiding*

2:00 . Semi-automated exploration of aqueous two-phase extraction parameters for single-wall carbon nanotube separations via fluorescence spectroscopy. **C.M. Sims**, J.A. Fagan

2:20 . Reactive conjugated polymers for selective dispersion of single-walled carbon nanotubes. **A. Adronov**

2:40 . Engineering a polystyrene/carbon nanotube/PEDOT:PSS conductive nanocomposite: The ultimate shield against electromagnetic interference. **N. Keshmiri**, A. Ahmadian Hoseini, p. najmi, J. Liu, A. Milani, M. Arjmand

3:00 . Effect of carbon nanotubes on inhibition of liquid metal spreading on metallic surfaces. **A. Zhexembekova**, C. Lee

3:20 . Customizing the self-assembly of supramolecular peptide nanotubes via hydrophobic interactions. **M. Zeng**, S. Perrier

3:40 . Withdrawn

4:00 . Magnetic transition changes resulting from strain generated by pressurization of intercalated cobalt nanoparticles in linked graphene oxide. **N. Sugak**, J. Prestigiacomo, M.K. Kolel-Veetil, S. Mukhopadhyay, M. Osofsky, L. Pfefferle

4:20 . Using zerovalent metal-ligand complexes as precursors for nanoparticle composites. **S. Schrettl**

4:40 . Tuning the parameters of DNA-based nanothermometry to better understand surface-tethered DNA melting. **A. Crawford**, P.A. Reinhardt, K.A. Willets

5:00 . Adaptive membrane architectures improve the photostability of silver nanoparticles. **M.R. Mackiewicz**

5:20 . Water soluble metal oxide-Ti₃C₂T_x MXene composite for rapid gas sensing at room temperature. **E. Yang**, S. Kim

5:40 . Enhancing CO₂-foam stability by functionalized silica nanoparticles for reservoir fracturing. **S. ALI**, M. Al Sakkaf, M. Mansha, S.A. Khan, P. Karadkar, B. Harbi

Moscone Center
Room 308, South Bldg.

Nanoscience and Nanotechnology for Defense and Security

R. Nagarajan, *Organizer, Presiding*

2:00 . Smart and programmable sponges for protection. **O.K. Farha**

2:30 . Molecular simulation of activation reaction mechanisms in MOF-808. **A. Hinkle**, I. Iordanov, M.A. Browe, S. Garibay

3:00 . Novel composite of a graphene oxide membrane and membrane supported metal-organic framework for a highly effective breathable barrier for toxic vapors and chemical warfare agents. **S. Yufeng**, P. Cheng, Z. Iqbal, K.K. Sirkar, G.W. Peterson

3:30 . Metal-organic framework supported single atoms for the capture and degradation of chemical warfare agent simulants. **M.C. Boyanich**, E. Johnson, A.J. Morris, J.R. Morris

4:00 . Functionalizing metal organic frameworks with sorbent moieties for hazardous chemistries of interest to the DoD. **C. Breshike**, D. Corbin, T.C. Cao, M.R. Papantonakis, A. Shabaev, R. McGill

4:30 . Effect of linker geometry on NU-1000 singlet oxygen photocatalysis for toxic chemical degradation. **I. Iordanov**, M.A. Browe, A. Kulisiewicz, J.B. DeCoste

5:00 . Elucidation of structure-property relationships for organophosphate sorbents based on metal-organic frameworks. **D. Corbin**, T.C. Cao, C.J. Breshike, M.R. Papantonakis, V.K. Nguyen, R.A. McGill

5:30 . Nanomaterials research pipeline for next generation protection solutions. **C. Bass**

5:45 Discussion .

Impact of PFAS on Environment and Health

Sponsored by ENVR, Cosponsored by COLL, GEOC and TOXI

THURSDAY MORNING

Moscone Center
Room 307, South Bldg.

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*
J. D. Driskell, *Presiding*

8:00 . Friction of methyl-branched fatty acids. R. Cui, **M. Ruths**

8:30 . Structure and activity of thiolated enzymes adsorbed onto gold nanoparticles to form highly functional bioconjugates. **J.D. Driskell**, M.B. Riley, F.E. Breausche, J.R. Walder, A. Somerlot, C. Baker

9:00 . Pressure and composition effects on nanoparticle ligand-solvent interactions. S. Salas Sanabria, **L. Hanson**

9:20 . Challenges in method development & particle analysis of biomaterials. **S. Race**, Z. Guo, H. Ning

9:40 . Tip-enhanced Raman scattering of few-layer MoTe₂ on gold: A look into selective enhancement of vibrational modes. **M. Rajapakse**, L.A. Velarde

10:00 Intermission.

10:15 . Airborne hydrocarbon contamination of graphite as characterized by Kelvin probe force microscopy (KPFM). **H. Liu**

10:35 . Control of interfacial tension through functionalized amphiphilic block copolymers for environmental sensing. **T. Durkin**, B. Barua, S. Savagatrup

10:55 . Kinetic temperature and pressure of an active Tonks gas. E. Schiltz-Rouse, H. Row, **S. Mallory**

11:15 . Longitudinal waves in lipid membranes near the order-disorder transition. **M. Mussel**

11:35 . Capillary-wave theory for phase-separated active Brownian particles. **L. Langford**, A. Omar

Moscone Center
Room 312, South Bldg.

Mentoring Undergraduate Surface Science Research

Electrochemistry and Metal Surfaces

A. Baber, L. B. Benz, E. V. Iski, *Organizers*
G. Y. Stokes, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Light-addressable electroanalysis with semiconductor/metal nanoparticle junctions. **G. O'Neil**

8:30 . Computational investigation of solid-liquid interfaces by undergraduate researchers. **K. Letchworth-Weaver**

8:55 . Working with undergraduates on surface studies using Electrochemical Scanning Tunneling Microscopy. **E.V. Iski**, E. Cook, K.P. Boyd, M. Paszkowiak

9:20 . Using template-assisted electrodeposition to deconvolute the role of nanostructure and surface chemistry in high-surface heterogeneous nanomaterials for electrochemical sensing. **E. Gillette**, N. Shey, R. Margetts, K.A. Manlapaz, L. Del Rosario

9:45 Intermission.

10:05 . Research with undergraduates towards generation and applications of metal nanoparticle assemblies on functionalized surfaces. **K. Bandyopadhyay**

10:30 . Chemical approaches to controlling sol-gel-derived germania colloid growth and structure. **J.F. Destino**, A.G. Fernandes, C. Borchardt, B.J. Schauer, A.C. Vahle, C.J. Jayson

10:55 . Use of ball-milling to introduce defects and ligands into UiO-66. C. Villalobos Nava, J. Avalos, J.C. Miller, M. Holt, **L.B. Benz**

11:20 . Working with undergraduates to understand small alcohol adsorption and reaction on Au(111)-based model catalysts under ultrahigh vacuum. **A. Baber**

11:45 Concluding Remarks.

Moscone Center
Room 304, South Bldg.

Nanohybrid Materials for Diverse Applications

N. Feliu Torres, A. Mews, W. J. Parak, *Organizers*
M. I. Dittmar, V. Mittag, *Presiding*

8:00 . Heterostructures in two-dimensional colloidal metal chalcogenides: Preparation and electronic properties. T. Tsangas, J. Schulz, C. Ruhmlieb, **A. Mews**

8:30 . Withdrawn

8:50 . Electrostatic self-assembly of GO-CNT nano-hybrid structures. **L. Soni**, K. Sharma, A. Panwar

9:10 . Support Vector Machine for assisting in the diagnosis of infectious disease based on the classification of colorimetric images. **C. del Real Mata**, O. Jeanne, T. AbdElFatah, M. Jalali, H. Khan, R. Siavash Moakhar, S. Mahshid

9:30 . Fabrication of robust mof-based hybrid nanofibrous aerogels using vapor phase deposition. **M. Ahmad Ebrahim**, V. Rahmanian, T. Pirzada, S.A. Khan

9:50 . Colloidal magnetic nanoparticles and clusters with anisotropic shape for magnetic hyperthermia: From the synthesis to their In vivo characterization. **T. Pellegrino**

10:10 . Dot-in-a-rod semiconductor nanoparticles attached to metal nanoparticles: Synthesis and Characterization. **M.I. Dittmar**, S. Hentschel, C. Strelow, T. Kipp, A. Mews

10:30 . Nanoplasmonic integrated microfluidic device for rapid molecular detection of pathogens. **T. AbdElFatah**, M. Jalali, S. Guptha Yedire, I. Isaac Hosseini, C. del Real Mata, H. Khan, S. Hamidi, O. Jeanne, R. Siavash Moakhar, M. Mclean, D. Patel, Z. Wang, G. Mckay, M. Yousefi, D. Nguyen, S.m. Vidal, C. Liang, S. Mahshid

10:50 . Laser-induced trapping of metastable amorphous- AlO_x/C ($2.5 < x \leq 3.5$) nanocomposites. **E.M. Davis**, G. Duscher, J. Wen, D. Mukherjee

11:10 . Collapsing mechanisms of nanoparticle-thermoreponsive hydrogel composites. K. Zygadlo, **L. Hanson**

11:30 . Zig-zag topography in two-dimensional iron hydroxide and spin-polarized absorption. **B. Park**, S. Kim, D. Lee, J. Lu, J. Kim, S. Lee, Y. Kim, N. Kotov

Moscone Center
Room 301, South Bldg.

Nanomaterials

From Nano-Assembly Control to Properties Control

J. A. Hollingsworth, S. Hunyadi Murph, R. Nagarajan, C. M. Sims, D. L. Watkins, *Organizers, Presiding*

8:00 . Controllable colloidal nanomaterial dispersion into three-dimensional porous matrices. **J. CHEN**, W. Liao

8:20 . Influencing the self-assembly of nanocubes through “hard” and “soft” roundness. **P.F. Pieters**, E. Vargo, Y. Qian, A. Alivisatos, T. Xu

8:40 . Formation of highly stable nanoparticle supercrystals with diverse building blocks and covalent bonding interaction. **j. kim**, S. Lee, J. Dey, J. Jang, S. Choi

9:00 . Computational design and realization of pyrochlore lattice with DNA nanotechnology. **H. Liu**, M. Sample, M. Matthies, H. Yan, P. Sulc

9:20 . Chiral symmetry emerges during the self-assembly of tetrahedra. **M.R. Jones**

9:40 . Electrical characterization of high efficiency top illuminated midwave HgTe colloidal quantum dot photodiodes. **J. Peterson**, P. Guyot-Sionnest

10:00 . How to quantify electrons in plasmonic colloidal metal oxide nanocrystals. **S.A. Shubert-Zuleta**, B. Tandon, B. Roman, X. Gan, D.J. Milliron

10:20 . Withdrawn

10:40 . Excited state phenomena and structural properties of CdSe colloidal quantum dots. **T. Goldzak**, A. McIsaac, T.A. Van Voorhis

11:00 . Investigation of defects in individual photo-oxidized InP/ZnSe/ZnS quantum dots by high-resolution imaging. **H. Baek**, J. Park

11:20 . Morphology changes at the organic-metal interface: Effects on the structure, electronic and thermoelectric performance. **B. Sochor**, S. Schraad, T. Chavez, G. Hao, A. Oechsle, M. Betker, Y. Bulut, T. Huang, A. Le Brun, T. Laarmann, P. Mueller-Buschbaum, A. Hexemer, S.V. Roth

Moscone Center
Room 308, South Bldg.

Nanoscience and Nanotechnology for Defense and Security

R. Nagarajan, *Organizer, Presiding*

8:00 . Stimuli-responsive carbon nanotube membranes for chemical warfare protection. C. Chen, Y. Li, N.T. Bui, M.L. Jue, S. Park, E.R. Meshot, S. Buchsbaum, M.B. Herbert, R. Zhu, O.V. Kulikov, B.R. McDonald, C.A. Valdez, S. Hok, Q. He, C. Doona, K. Wu, T.M. Swager, **F. Fornasiero**

8:30 . Decomposition of DMMP on metal-modified TiO₂(111) surface. **M. Bonney**, J. Wang, L. Shi, M.G. White

9:00 . Dual-phase carbon nanotube chemiresistor array utilizing hygroscopic aqueous films for selective detection of toxic compounds. **S. LEE**, C. Lee

9:30 . Printed and laser induced graphene electrochemical biosensors for rapid monitoring of environmental toxins in water, soil, and food. **J. Claussen**, Z. Johnson, N. Jared, R. Soares, G. Miliao, C. Cardoso-Pola

10:00 . Non-equilibrium sensing of volatile compounds using active and passive analyte delivery. S. Brandt, I. Pavlichenko, A.V. Shneidman, **H. Patel**, A. Tripp, T.S. Wong, S. Lazaro, E. Thompson, A. Maltz, T. Storwick, H. Beggs, K. Szendrei-Temesi, B.V. Lotsch, C. Kaplan, C.W. Visser, M.P. Brenner, V.N. Murthy, J. Aizenberg

10:30 . Open-air plasma treatment of fabrics to enhance nanoparticle adhesion for chem-bio protection. **S. Karande**, O. Grimm, N. Pomerantz, G.W. Peterson, J.E. Whitten

11:00 . Designed metal-containing peptoid membranes as enzyme mimetics for enhanced organophosphate hydrolysis. **T. Trinh**, T. Jian, R.N. Zuckermann, C. Chen

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Surface Chemistry

A. V. Teplyakov, L. Tribe, X. Zhou, *Organizers*
S. Claridge, *Organizer, Presiding*

8:00 . Conformational control of colloidal ultrathin nanoplatelets by surface chemistry. **B. Abecassis**

8:30 . Calorimetric study of the effect of a-zirconium phosphate nanoparticles surface functionalization on phosphate sorption. **A. Gale**, N. Kabengi, D.R. Talham

8:50 . Solvent-ligand shell mediated self-assembly of chalcogenide dots and nanoplatelets under high pressure and in liquid environments. **P. Banerjee**, B. Lee, E. Shevchenko

9:10 . Expanding the library of functional amines reacted on nano-diamond surfaces using a bromide intermediate. **C. Stokes**, T. Cheung, J. Drew, N. Susendran, A. Lakshmi, M. Qasim, G. Drew, S. Sainio, S. Lee, D. Nordlund, A. Wolcott

9:30 Intermission.

9:50 . Rare-earth element capture by surface ionic interactions in layered synthetic zeolites. **P. Chatterjee**, Y. Han, T. Kobayashi, R. Behera, T.H. Johnson, T. Prozorov, J.W. Evans, W. Huang

10:10 . Absorption properties and chemical analysis of volatile organics captured by a mesoporous silica based passive diffusive sampler. **N.F. Materer**, E. Kadossov, A.W. Apblett, S. Shaikh, M. Teicheira

10:30 . Microwave activation of pyrite surfaces for enhanced leaching of hosted telluride minerals. **N. Munoz Garcia**, J.L. Corchado-Albelo, L. Alagha, A.A. Ramirez, B.D. Cano, M. Heitz

10:50 . Electrical characteristics of gold-silver telluride for selective separation of Telluride minerals in the froth flotation process. **J.L. Corchado-Albelo**, **N. Munoz Garcia**, L. Alagha

Moscone Center
Room 310, South Bldg

Colloidal Networks

Y. Colon, D. J. Milliron, T. Truskett, *Organizers*
T. A. Wilcoxson, *Presiding*

8:00 . Artificial synthesis of conjugated microporous polymers: How solvent influences structure. **C. Mollart**, A. Trewin

8:20 . Fabrication of co- and ter-polymeric poly(cyclodextrin) particles with selective and superior carrying abilities of antibiotic and anticancer drugs. A.S. Yilmaz, R.S. Ayyala, **N. Sahiner**

8:40 . Dynamic molecular interactions for constructing constitutionally adaptive nanoparticle networks. **E.R. Kay**

9:10 . Linked colloidal gels from plasmonic metal oxide nanocrystals. **D.J. Milliron**, T. Truskett, E.V. Anslyn, J. Kang, Z. Sherman, D. Conrad, B. Roman

9:40 Intermission.

10:00 . Withdrawn

10:30 . Molecular modeling of soft porous coordination polymers. **Y. Colon**

11:00 . Many-bodied plasmon ruler for nanoparticle dispersions and assemblies. **Z. Sherman**, D.J. Milliron, T. Truskett

11:20 . Ultratough hydrogels design via amphiphilic entangled network design. **X. Hou, L. Zhou**

11:40 . Aggregation process of amyloid beta 1-40 coated gold nano-colloids. **K. Yokoyama**

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Room 306, South Bldg.

Symposium in Honor of Cynthia M. Friend

M. L. Personick, *Organizer*
J. Batteas, D. Chen, *Organizers, Presiding*

8:00 Introductory remarks.

8:05 . Wettability-based ultrasensitive detection of amphiphiles through defect engineering in self-assembled monolayers. **J. Aizenberg**, X. Wang

8:35 . Oxidation catalysis using gold and gold palladium alloy catalysts. **G. Hutchings**

9:05 . Understanding dilute alloy catalysts for oxidation and hydrogenation reactions. **J.D. Lee**, R.J. Madix, C.M. Friend

9:35 . Unraveling 1-hexene hydrogenation over dilute Pd-in-Au alloys. **J.E. van der Hoeven**

10:05 Intermission.

10:25 . Evaluating the stability and activity of dilute Cu-based alloys for electrochemical CO₂ reduction. **J. Biener**

10:55 . Oxidative self-coupling of alcohols over gold catalysts: Across the Great Divide and beyond. **C. Reece**

11:25 . Polyhedral nanoparticles as fundamental model surfaces: Advancing structural and compositional complexity. **M.L. Personick**

11:55 Concluding remarks.

Virtual Only
Virtual Session

Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, R. Nagarajan, C. M. Sims, D. L. Watkins, *Organizers, Presiding*

10:00 . Anisotropic semiconductor nanocrystals: From heavy-metal-free compounds to metal halide perovskites. **G. Jia**

10:20 . Withdrawn

10:40 . Unraveling the transformation pathways in semiconductor clusters by studying the formation of spectroscopically pure (CdS)₁₃ magic-size clusters. **Y. Deng**, J. Liang, Y. Wang

11:00 . Modeling the kinetics of nanoparticle formation. **R. Szabo**, G. Lente

11:20 . Responsive nanoporous materials from “hairy” nanoparticles. **I. Zharov**

11:40 . Advances in single-chain polymer nanoparticles research. **J.A. Pomposo**

12:00 . Development of electroconductive PAN/PEDOT electrospun fibers for tissue engineering applications. **F. Garrudo**, G. Filippone, L. Resina, J.C. Silva, F. Barbosa, L. Vieira Ferreira, J. Morgado, F.C. Ferreira

12:20 . G4.0PAMAM dendrimer as an effective nanocarrier for anticancer drugs. **M. Szota**, B. Jachimska

12:40 . Understanding and improving the thermal stability of lead iodide perovskite nanocrystals. **Y. Zhang**, B.A. Korgel