

COLL

DIVISION OF COLLOID AND SURFACE CHEMISTRY

R. Foudazi, *Program Chair*

MONDAY MORNING

McCormick Place Convention Center
S504d

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Synthesis and Catalysis

W. Huang, Y. Sun, J. Zhao, *Organizers*
J. Chen, Y. Yin, *Presiding*

8:00 . Engineering plasmonic nanostructures through confined chemical transformations. **Y. Yin**

8:30 . Colloidal synthesis of metal nanocrystals under steady-state kinetics. **Y. Xia**

9:00 . Titanium oxynitride nanostructures from nitridation of TiO₂. **N.J. Halas**

9:30 . Tailoring metal nanoparticle catalysts for highly selective acetylene hydrogenation. **H. Zhu**

10:00 Break.

10:10 . Quantification of formation kinetics of nanostructures: A case study of ultrafine gold nanowires. **H. Yang**

10:40 . Synthesis of nonprecious Cu-based nanostructures with tunable optical properties for catalytic applications. **J. Chen**

11:10 . Plasmonic hot carrier generation and catalysis from real-time TDDFT simulations. N. Zhang, S. Sun, **B. Wang**

McCormick Place Convention Center
A2 - SOUTH HALL ChemPod 5

Atomically Precise Nanomaterials

Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Precision Synthesis & Advanced Characterization

G. Bailey, S. Ivanov, C. Zeng, S. Zhang, *Organizers, Presiding*

8:00 . Atomically-precise gold superatoms as building blocks for functional materials. **T. Tsukuda**

8:25 . Forbidden bonding: triggering M-M bond formation through redox. **T. Betley**

8:50 . Taming metal-metal bonds in polynuclear cluster compounds. **R. Hernandez Sanchez**

9:15 . Making poor metals rich at the nanoscale. **M.B. Ross**

9:40 . Doping and alloying strategies for tuning properties of ligand-protected coinage metal clusters. **A. Das**

10:05 Break.

10:20 . Boron nanoclusters. **L. Wang**

10:45 . Structural and electronic insights into noble metal nanostructures by X-ray spectroscopy. **P. Zhang**

11:10 . Spatial mapping of electronic structure in molecular copper clusters using resonant X-ray diffraction. **N.P. Mankad**, C. Yan, E. Lee, Y. Chen, T. Chang

11:35 . Plasmonic supraclusters for translatable *in vivo* surface-enhanced Raman spectroscopy. **J. Yu**

McCormick Place Convention Center
S504bc

Biomaterials and Biointerfaces

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

8:00 Introductory remarks.

8:05 . Lipid membrane viscosities from molecular simulations via time-correlation formulas. Z. Xu, **A. Sahu**

8:25 . Engineering porous nanofiber microspheres for tissue regeneration. **J. Xie**

8:45 . Sustained intracellular siRNA delivery from hydrogel nanoparticle emulsions. R. Negru, G. Papavasiliou, F. Teymour, **M.K. Vaicik**

9:05 . siRNA nano-immunotherapy for macrophage engineering in atherosclerotic cardiovascular disease. **W. Chen**

9:25 . Synthetic protocells mimic natural cells communication. **C.G. Palivan**

9:45 Intermission.

10:00 . Morphology-directed antifreeze activity *via* concentration-programmable self-assembly of cyclic peptide–PEG conjugates. **B. YINGJIE**, I. Kim, E. Lee

10:20 . Harnessing liquid-liquid phase separation to engineer hydrogel microstructure and control cell migration in 3D. **L. Li**

10:40 . Surface chemistry-guided interfacial energetics of polydopamine-based synthetic melanin for topical skin repair. **J. Moon**, N.C. Gianneschi

11:00 . Contactless cryogenic delivery of exosome augmented oxygen nano-reservoirs promotes skin regeneration in ischemic pressure ulcers. **A. Bushra**, X. Han, M. Fall, T. Locke, D. Jayne, R. Soderstrom, L. Rex, J.M. Irudayaraj

11:20 . Enzyme-mimetic electrochemical wearable sensor for real-time detection and degradation of organophosphate pesticides. **N. Gondhiya**, E. Andreescu

11:40 . Advancing topical docetaxel delivery *via* nanoformulation: Radiometric evaluation and assessment of an artificial skin model, Strat-M. **K. Ollerton**, H. Cauldbeck

McCormick Place Convention Center
S504a

Colloids & Interfacial Science in Industrial Applications

A. Chakrabarti, A. Jayaraman, *Organizers, Presiding*

8:00 Introductory remarks.

8:05 . Drainage via stratification of mixed surfactant micellar foam films. **K. Ngo**, V. Sharma

8:25 . Investigation of block copolymers as dispersing agents for carbon black. **H. Zhang**, P. Varanasi, S.M. Mulik

8:45 . Molecular dynamics simulation study of structure–property relationships in PDMS interfaces: Effect of molecular weight and surface crosslinking. **A. Osmani**, M. Bazaid, S. Jang

9:05 . Durable, broad-spectrum anti-biofouling polyurethane-based coatings. **Z. Meyer**, T. Repetto, S. Stafslie, G. Mehta, A. Pena-Francesch, D.C. Webster, A. Tuteja

9:25 Break.

9:40 . Extensional rheology and macromolecular engineering of architectural coatings. **A. Amer**, R. Gupta, G.A. Deeter, M. Krayner, V. Sharma

10:00 . Rheology and dispensing of real and vegan mayo: The chickpea or egg problem. **N. Nikolova**, S. Baier, V. Sharma

10:20 . Reaction kinetics of biodegradable polyamide microcapsules using thiolactone-amine via interfacial polymerization. **S. Kudal**, Z. Zhang, C. Manzi-Nshuti, S. Peleshanko, C. Windows-Yule

10:40 . Integrated modeling and high-pressure high-temperature experiments to elucidate silica scaling in geothermal systems. **A. Chakrabarti**, V. Skates, J.V. Guerrero, S. Molla

11:00 Setup for panel.

11:15 Academia-Industry Panel.

MONDAY AFTERNOON

McCormick Place Convention Center
S504d

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Synthesis, Assembly, and Photocatalysis

Y. Sun, J. Zhao, *Organizers*

W. Huang, *Organizer, Presiding*
O. Chen, *Presiding*

2:00 . Semiconductor-metal hybrid nanocrystals: synthesis, assembly, and photocatalysis. **O. Chen**

2:30 . From hybrid semiconductor design to photoredox reactivity: Viologen-based lead iodides for solar-driven organic synthesis. **Y. Wu**

3:00 . Photocatalytic conversion of light alkanes to value-added oxygenates. **D. Wang**

3:30 . Controllable synthesis and application of mesoporous crystalline frameworks. **D. Zhao**

4:00 Intermission.

4:10 . Interfacial self-assembly of hierarchically structured nanoparticles with photocatalytic activity. **H. Fan**

4:40 . Semiconductor–opsin hybrids: Enhancing photogenerated charge-carrier dynamics for redox catalysis. **J. Jang**, E. Rozhkova

4:55 . Photooxidative C-C coupling of phenols using ZnSe Quantum Dots: Ligand-dependent reactivity. **E. Gi**, K. Hernandez Perez, R. Lin, J.H. Olshansky

5:10 . Photocatalytic C-C coupling reactions using titanium oxide nanoparticles. **Y. Sun**

McCormick Place Convention Center
A2 - SOUTH HALL ChemPod 5

Atomically Precise Nanomaterials

Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Bio-Inspired Clusters & Catalysis

G. Bailey, S. Ivanov, C. Zeng, S. Zhang, *Organizers, Presiding*

2:00 . Conductivity and catalysis with iron-sulfur cluster-based coordination polymers. **J.S. Anderson**, L. Le, A. Wuttig, L. Gagliardi, A. Daru, S. Kunstelj

2:25 . Site differentiation and site isolation of iron-sulfur clusters. **D. Suess**

2:50 . Simulation of strongly correlated iron-sulfur clusters with reduced-density-matrix methods. **J. Boyn**

3:15 . Photoinduced charge transfer and H₂ photocatalysis initiated by Cu₆S₆ clusters. G.K. Jayasekara, M. Mara, T. Harville, T.N. Haddock, M.Y. Teferi, T. Woods, L.X. Chen, O. Poluektov, J. Niklas, C. Liu, **K.L. Mulfort**

3:40 . Metal chalcogenide clusters for energy storage and conversion. **E.M. Matson**

4:05 Break.

4:20 . Towards understanding of cluster-biomolecule interactions. **H. Hakkinen**

4:45 . Leveraging dynamic ligand scaffold motion into reactivity in bio-inorganic model systems: Benefit of rationally designed enthalpy-entropy compensation. A. Larson, J.H. Labrecque, W. Kong, D.H. Ess, **M.J. Rose**

5:10 . Tuning the structures and catalytic properties of metal nanoclusters via ligand Engineering. **J. He**

5:35 . Fast and selective hydride transfer electrocatalysis with metal clusters. **L.A. Berben**

McCormick Place Convention Center
S504a

At the Interface: Symposium in Honor of the Career of Prof. Manoj K. Chaudhury

A. Chakrabarti, S. Daniel, A. Ghatak, B. Zhang Newby, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Surface-bound gradients. **J. Genzer**

2:35 . Shedding light on the contact between a soft elastomer and a rough solid surface. **A.N. Dhinojwala**

3:05 . Bridging structure and mechanics: Stress mapping in PEGDA hydrogels. **J. Frechette**

3:35 . Surface modification of silicone medical devices aimed at reducing adverse events. **K.J. Wynne**, R. Jarrell, O. Zolotarskaya, Y. Amin

4:05 Break.

4:10 . Engineering transport across interfaces. **G.C. Walker**

4:40 . How the immune system learns. **A.K. Chakraborty**

5:10 . From Lord Rayleigh to Noble Laureate Pierre DeGennes to Professor Manoj Chaudhury: My doctoral apprenticeship in interfacial science and engineering became the foundation for a successful career in the academy. **S. Daniel**

5:40 Reflections on my Academic Career.

McCormick Place Convention Center
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Biomaterials and Biointerfaces

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

2:00 Introductory remarks.

2:05 . Small packages, big impact: The next wave of extracellular vesicle research innovations. **C. Cheng**

2:25 . Withdrawn

2:45 . Cation-assisted surfactant templating of DNA at the air-water interface: New insights into nucleic acid surface activity. **E. Hettiarachchi**, V.H. Grassian

3:05 . Nano-bio interactions at ice-water interface aim to design freeze-stable aluminum-based adjuvants for vaccines. **B. Sun**, X. Li

3:25 . Monosaccharide binding to synthetic carbohydrate receptor microarrays. **A.B. Braunschweig**

3:45 Intermission.

4:00 . Leveraging incoherence in ultrasensitive chiroptical spectroscopies of biological interfaces. **G. Simpson**

4:20 . Deciphering the kinetics, interfacial activation, and inhibition of blood esterases. T. Rifat, **M.A. Ilies**

4:40 . Probing chiroptical signatures of ApoE isoforms using chiral silver Nanohelicoids driven by circularly polarized light printing. **M. Hwang**, P. Nowak, H. Jung, C. Wang, J. Kim

5:00 . Low-MESF fluorescent reference particles for flow cytometry analysis of extracellular vesicles. **M. Palmai**, P. Snee, Z. Varga

5:20 . Advanced analytics to connect non-viral gene therapy formulation and process parameters with structural and functional outcomes. **I.M. Pearl**, P. Sakhaei, B. Bohorc, U. Khamar, Z. Lai, J. McLaughlin, J. Cao, D. Biswas, Y. Shen, D. Zarraga

5:40 . Genetic logic within vesicles for control of hydrogel mechanics. **B. Wernisch**, M. Naji, Q. Wang, J.B. Lucks, K.R. Shull, M. Wang

McCormick Place Convention Center
Hall F2 - POSTERS

Basic Research in Colloids, Surfactants and Interfaces

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

12:00 1496. Optical modulation of ionic conductivity in printed $\text{Mg}(\text{OH})_2/\text{EMIM}:\text{TFSI}$ ionogels. **C. Goins**, H.P. McAllister, H.E. Kurtz, X. Wan, J.W. Wu, V.K. Sangwan, C.M. Thomas, M. Khalaj, J. Sklar, J.J. Richards, M.C. Hersam, J.A. Kalow

12:00 1497. Engineering highly photoluminescent gold nanoclusters through systematic optimization of synthetic parameters. **G.M. Milligan**, I. Donaldson, J. Kim

12:00 1498. Investigating polymer-surfactant intermolecular interactions using surface tensiometry and molecular dynamics simulations. **M. Kazak**, D.C. Garza, K.A. Cimat

12:00 1499. Hydride-induced electronic structure modulation of transition-metal oxides for plasmon-driven applications. **B.J. Alabi**, G.A. David, P. Biswas, D.N. Purayil, B.J. Reinhart, B.B. Muhoherac, R. Sardar

12:00 1500. Microfluidic fabrication of polymersomes for artificial cell applications. **V. Chang**, Q. Wang, N. Kamat, K.R. Shull, M. Wang

12:00 1501. Mode-dependent adhesion characterization of ice-shedding surfaces. **T. Olson**, J. Huang, R. Qiao, A. Tuteja

12:00 1502. Triazole-engineered silver nanoparticles for rapid detection of toxic metal ions. **L. Loga**, M.C. Vega, S.B. Poudel, D. Ghosh

12:00 1503. Evaluation of Rhamnolipid adsorption on carbon steel. **E. Mozayan**, B. Zhang Newby

12:00 1504. Nanoconfinement effects on the dielectric properties and microwave heating behavior of water in reverse micelles. **J.S. Oshiro**, S. Huang, Y. Wang, A.A. Park

12:00 1505. Synthesis of gold-titanium dioxide nanostructures for photocatalytic applications. **T. Miranda Soto**, S. Negron, S.J. Bailón-Ruiz

12:00 . Withdrawn

12:00 1506. Morphology-driven design of toroidal boron-containing micelles for BNCT applications. **W. Tsai**, P. Keng

12:00 1507. Premelting and adhesion at the ice-substrate interface. **B.R. Hance**, S.J. Sibener

12:00 1508. Interactions of KSCN with phospholipid monolayers studied by sum frequency generation and X-ray fluorescence. **S. Afroz**, B. Mueller, E. Schneck, P.S. Cremer

12:00 . Withdrawn

12:00 1509. Modeling interfacial complexation reactions using a configurationally-sampled embedding methodology. **J. Koegel**, A.E. Clark

12:00 1510. Fluorescent photopatterns of aqueous semiconducting polymer dots. **Y. Wang**

McCormick Place Convention Center
Hall F2 - POSTERS

Biomaterials and Biointerfaces

E. Andreescu, *Organizer*

12:00 1511. Development of dopamine-modified microneedle electrodes and their application in electrochemical sensing of tyrosinase in skin interstitial fluid. **G. Hou**, W. WU, F. Ko

12:00 1512. Sequence-encoded elasticity in the intrinsically disordered protein resilin: High-throughput mapping of molecular determinants of mechanical function. **P. Wasuwanich**, G. Liu, S. Keten, D. Ercek, M. Wang

12:00 1513. Molecular mechanisms of osmolyte-modulated protein phase separation. **G.Y. Wu**, P.S. Cremer

12:00 1514. Exploring metal–lipid interactions influence in membrane dynamics. **M. da Cruz Garcia**, C. Reynolds, O.C. Fiebig, R. Zdenek, P.S. Cremer

12:00 1515. Polymerization of α -lipoic acid on silica particles and its Interfacial Engineering. **S. Kim**, S. Seo

12:00 . Withdrawn

12:00 1516. Effects of environmental contaminants on phospholipid bilayers: Vibrational spectroscopic insights. **J. Mitchell**, S. Lee

12:00 1517. Thermal characterization of bioactive molecule interactions with model lipid membranes. **M. McCallum**, S. Lee

12:00 1518. Raman spectroscopic analysis of lipid membranes: From single-component systems to complex mammalian and bacterial models. **C. Kirkyla**, S. Lee

12:00 1519. Lipid composition-dependent modulation of membrane properties by local anesthetics. **G. Mazzo**, S. Lee

12:00 1520. Amino acid reactions with singlet oxygen induce dark toxicity of antimicrobial photodynamic therapy. C. Bodahandi, L. Pimpinella, P. Samarawickrama, **P. Gerges**, Q. Xu, A. Greer, A.M. Lyons

12:00 1521. Free-volume modulation and solvent effects on water transport across lipid bilayers. **T. Sterner**, S. Lee

12:00 1522. Gibbs adsorption and molecular packing of lipid at oil–water interfaces. **J. Homola**, S. Lee

12:00 1523. Biomass-derived apple peel extract–functionalized PCL/chitosan porous scaffold with enhanced antioxidant activity for wound healing. **F. Mustafa**, B. Lee

12:00 1524. Engineering hydrophilic peptides via zwitterionic unnatural amino acids. **W. LIU**, Z. Jin

12:00 1525. Serotonin vs dopamine: Composition dependent modulation of barrier properties in lipid bilayers. **J. Said**, S. Lee

12:00 1526. Plant-sourced hemoglobin-loaded oxygenated nanogel alleviates acetaminophen-induced hepatotoxicity. **A. Bushra**, T. Locke, M. Fall, T. Fan, J.M. Irudayaraj

12:00 1527. Improving triggered release of polar cargo from ROS-responsive liposomes. **A. Hansen**, M. Mustafa, J. Lou, M. Best

12:00 1528. Duolock: A premixing strategy for orthogonal multidrug loading via biointerface-guided self-assembly. **H. Kim**

12:00 1529. Multi-resolution epitope cartography of the protein corona: Predicting surface-dependent immunogenicity across five plasma proteins. **A. Jin**, **B. Cheng**, **J. Zhang**

12:00 1530. Synthesis of copper-based nanozymes for biomedical applications. **G. Salmanian**, J. Chen

12:00 1531. Glycol methacrylate copolymers as corneal prosthesis materials. **A. Hendrickson**, L. Ramasinghe, P. Betts, K.A. Cimat

12:00 1532. Graphene-based carbon aerogels with high sensitivity for piezoresistive sensing. **Q. Xiang**, K. Song

12:00 1533. Scalable synthesis of stable and reusable peptide-based coacervates as "pH beads". **R. Pai**, Z. Jin

McCormick Place Convention Center
Hall F2 - POSTERS

Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

M. Liu, N. Oh, S. Zeiske, *Organizers*

12:00 1534. Mn²⁺-doped InP/ZnS quantum dots: Synthesis and investigation of energy transfer dynamics. **J. Kim**, K. Liu, E. Gi, J.H. Olshansky

12:00 1535. Defect mediated plasmon tuning in Cd₂SnO₄ nanocrystals through chemical doping and controlled annealing pathways. **M.A. Amane**, G.F. Strouse

12:00 1536. Shape-controlled HgTe quantum dots for room temperature mid-infrared photoconductors. **J. Feng**, A. Caillas, J. yang, P. Guyot-Sionnest

12:00 1537. Room-temperature synthesis of CsPbI₃ perovskite quantum dots. **D. Lee**, J. Kim, J. Baek, B. Lee, J. Jang

12:00 1538. Highly monodisperse gram-scale synthesis of perovskite quantum dots via a precursor diffusion retardation method enabling high-performance solar cells. **J. Kim**, S. Han, J. Choi, Y. Kim

12:00 1539. Nanocrystals as phase change materials for thermal energy storage. **D.A. Shosanya**, S.M. Harvey

12:00 1540. FFT-based analysis of quantum dot superlattices. **S. Hong**, Y. Nagaoka, J. Schneider, Y. Bai, O. Chen

12:00 1541. Colloidal synthesis and compositional tuning of In–Zn–As alloy nanocrystals from Zn₃As₂. **S. Kim**, N. Oh

12:00 1542. Weak electric field enhances reactions by solvated electrons photogenerated from MN-doped quantum dots with visible light. **S. Dukette**, C. Orrison, I. Shulze, D. Son

12:00 1543. Competing magnetic and van der Waals interactions in field- and temperature-driven self-assembly of Fe₃O₄ nanocubes revealed by *In situ* SAXS/WAXS. **Z. Mi**, A. Jeong, R. Lin, B. Lee, W. Irvine, D. Talapin

McCormick Place Convention Center
Hall F2 - POSTERS

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

W. Huang, Y. Sun, J. Zhao, *Organizers*

12:00 1544. Light-driven decomposition of hydrogen peroxide mediated by gold-silver and gold-palladium nanoparticles. **S. Feshchenko**, **A. Thompson**, **M.L. Personick**

McCormick Place Convention Center
Hall F2 - POSTERS

Fundamental Research in Colloids, Surfaces and Nanomaterials

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

12:00 1545. History-dependent behavior in active droplets. **K. Kim**, Q. Le, B. Kaehr, L.D. Zarzar

12:00 1546. Characterizing adsorption on heterogeneous plastic colloids via light scattering techniques. **C. Snider**, E. Pax, M. Subir

12:00 1547. Investigation of inkjet ejection and droplet formation behavior of multiphase liquid. H. Kawada, T. Ienaga, T. Shiozaki, T. Yasunaga, T. Fukuoka, **A. Yamaguchi**

12:00 1548. High-entropy carbon dots: probing emissive state distributions in multicomponent systems. **G. Carr**, **D. Lee**, C. Agatemor

12:00 1549. Graph theory analysis of divalent metal ion binding to a carboxylate monolayer. **N. Santoni**, **E. Hegland**, M. Long

12:00 1550. Spiky nanoelectrodes for antifouling biosensing in complex media. Y.L. Wu, J. Jia, J. Das, M. Hoff, **T. Weng**, K. Riordan, C. Flynn, Y. Wang, S.O. Kelley, T.W. Odom

12:00 1551. Liposome nanoparticles for the combinatorial drug delivery of indocyanine green and doxorubicin against cancer. **M. Gordon**, D. Bwambok

12:00 1552. Influence of surfactants, polymers and proteins on foam film drainage. **C. Xu**, K. Ngo, V. Sharma

12:00 1553. Nitrile vibrational reporters for probing local environments surrounding gold nanorods. **A. Turk**, C.J. Murphy

12:00 1554. Towards a tumor necrosis factor alpha binding nanoparticle for detection in tissue. **E.M. Tedford**, M. Marcellus, C.J. Murphy

12:00 1555. Uptake of polyelectrolyte-coated gold nanorods into THP-1 cells. **L. Gierstorf**, C.J. Murphy

McCormick Place Convention Center
Hall F2 - POSTERS

Nanomaterials

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

12:00 1556. Laser-induced topotactic phase transformation of a VO₂/V₂O₃ heterophase structure for reconfigurable photothermoelectric device applications. **J. Yoon**, W. Hong

12:00 1557. Surface ligand engineering of bistable photon-avalanching nanoparticles for enhanced chemical stability. **A.M. Granger**, N. Ades, J. Pan

12:00 1558. Modeling of nanocomposites for antifouling applications using computational atomic simulations. **Y. Cardona**, R. Perez Moyet

12:00 1559. Pechini-type sol-gel synthesis of agricultural nanoparticles using various pH levels. **E. Martinez**, B. Torres

12:00 1560. Mechanistic origins of helical polymerization driven by chiral transition metal oxide nanoparticle catalysts. **W. Lee**, G. Park, E.S. Turali-Emre, Z. Qu, B.M. Siemieniczuk, S. Cha, N. Kotov, J. Kim

12:00 1561. Lecithin surface passivation of lanthanide-doped potassium lead chloride nanoparticles. **N. Ades**, J. Pan

12:00 1562. Use of green-Synthesized carbon dots as an anti-bacterial alternative to prevent biofilm on teeth. **S.K. Sharma**

12:00 1563. Encapsulation of tyrosine for enhanced delivery using tannic acid nanoparticles. **M. White**, G. Diracca, M.M. Deinys, J. Pereira, S. Santra

12:00 1564. Enhanced contrast in correlative low-voltage electron microscopy of MOFs and COFs. E. Shahnam, **D. Vieira**, J. Lapkovsky

12:00 1565. TiO₂ heterostructures for photocatalysis. **J. Symuleski**, R. Medhi

12:00 1566. Direct patterning of inorganic nanocrystals into functional devices and applications. **Y. Liu**, H. Wu, D. Talapin

12:00 1567. Energy transfer in mixed-dimensional perovskite heterostructures. **M. Chattoraj**, A.P. Saunders, W.A. Tisdale

12:00 1568. Synthesis optimization and surface engineering of monodisperse CdSe QDs for direct photo-patterning and bioimaging probes. **L. Watkins**, J. Pan, C.M. Rathbun

12:00 1569. Basal-plane functionalization of semiconducting MoS₂ nanoflakes with masked *N*-heterocyclic carbenes. **Q.M. Tran**, T. Lee

12:00 1570. Programming fluorescence in gold nanostructures through amino acid chemistry. **K.M. Rosas**, O. Ocampo, J.P. Vanegas

12:00 1571. Encapsulation of quantum dots in polystyrene microparticles. **B. Nguyen**, K. Landy, I. Vaghefi, A. Brewer, P. Alivisatos, S.J. Rowan

12:00 . Withdrawn

12:00 1572. Enhancing sonodynamic therapy using degradable nano metal–organic frameworks under high-intensity focused ultrasound. Y. Sim, **G. Yang**, J. Ryu

12:00 1573. Hot-spot intensity and density govern SERS peak intensity and detection limits in single-particle and ensemble substrates. **I. Jung**, S. Park

12:00 1574. Silver triple-walled nanoframes with multiple face-to-face nanogaps for SERS-based LFA. **S. Park**, S. Park

12:00 1575. Complex core-satellite nanoparticles with trench-structured shells and cavities. **H. Hyejin**

12:00 1576. Synthesis and the understanding of formation of ultrathin, high-aspect ratio gold nanowires (< 2 nm). **Y. Chen**, Z. Yang, B. Qi, H. Yang

12:00 1577. Accelerating experimental discovery of Au-based nanozymes via active learning. **Y. Tang**

12:00 1578. Ion-dependent aggregation kinetics of carboxylated nanodiamonds probed by Multi-angle Simultaneous Dynamic Light Scattering (MASDLS). **E. Brown**, G. Geng, A. Ajoy

12:00 1579. Synthesis and shelling of lanthanide-doped NaYF₄ upconverting nanoparticles. **K. DeLeon**, A. Laszuk, J. Pan

12:00 1580. Synthesis and structural-magnetic characterization of metal-free nitrogen-doped graphene quantum dots. **S.P. Sunday**, K.A. Cimat, M. Chakraborty, W. Jadwisieniczak, D. Ingram, M.E. Kordesch, H. Ogasawara

12:00 1581. Metal nanoclusters as fluorescent probes: Interaction-driven sensing of organic targets. **T.R. Brewer**, S. Patel, K. Suzuki, R. Sharma

12:00 1582. Surface and structural characterization of nitrogen-doped carbon-based quantum dots prepared by distinct synthetic routes. **B. Senevirathne**, S.P. Sunday, W. Jadwisieniczak, K.A. Cimat

12:00 1583. Creation of novel sub-2nm polyethylene quantum dots: Achieving structural uniformity and quantum confinement in chemically intact aliphatic nanostructures. **B. Naumann**

12:00 1584. Evolution of symmetry and morphology in covalent bonding reaction-mediated octahedral gold nanoparticle supercrystal assembly tuned by building block size. **J. Jang**, J. Kim, S. Lee, J. Dey, S. Choi

McCormick Place Convention Center
Hall F2 - POSTERS

Surface Chemistry

A. V. Teplyakov, L. Tribe, *Organizers*

12:00 1585. Polymer-assisted engineering of copper peroxide nanozymes with enhanced laccase-mimic activity for sensing applications. **A. Kumari**

12:00 1586. Probing switchable molecular properties on ferroelectric surfaces via calculated Raman spectra. **A.D. Liyanage**, A. Zayak, B. Upadhyay, A. Baral, S. Aparekka Gamage

12:00 . Withdrawn

12:00 1587. Fluorinated self-assembled monolayers as nanoscale coatings. **R. Amarasekara**, T. Lee

12:00 1588. Investigating size, surface modification, and stability in enzymatic glucose and lactose electrochemical sensors. **M. Cabrera**, D. Kahanda

12:00 1589. Electrografted MoS₂ interfaces: Covalent DNA immobilization and surface coverage. **M. Asad**, P.K. Das, R. Wang, L. Tran, A. Mayfield, M. Shamsi

12:00 1590. Interfacial stability and conductivity of 4-aminophenyl and 4-nitrobenzene linkers on Au surfaces: A combined experimental and theoretical study. **C. Jaillita Rodriguez**, H. De Aguiar Minami, D. Galvez Aranda, J.M. Seminario, N.T. Alvarez

12:00 1591. Investigation of the inverse chelate effect on the MXene surface. **M. Downes**, Y. Kim, D. Talapin

12:00 1592. MgAl layered double hydroxides as templates for controlled nucleation of glycine polymorphs. **R. Yarinia**, D. Tran, A. Nosrati, J.D. Rimer, T. Lee

12:00 1593. Atomic-scale studies of electron-induced desorption at single-atom alloy active sites. **N. Rajabi**, P. Hutchison, K. Shen, E.A. Carter, E.H. Sykes, P. Christopher

12:00 1594. Thermodynamic framework for predicting aqueous struvite surface transformations. **S.E. Mason**, J.L. Bjorklund, J. Baltrusaitis, P. Elias

12:00 1595. Computational study of covalent organic frameworks for atmospheric water harvesting. **J. Garcia Alvarez**, C.G. Bresnahan, A.M. Koval, W.A. Pisani, T. Schutt, K. Williamson, M.K. Shukla

12:00 1596. Intrinsic stability of rhodium nanoclusters on HOPG: an atomic-scale investigation of heat treatment and CO adsorption. **C. Tawny**, M. Gillum, G. Ariyaratne, M. Mahapatra

12:00 1597. Characterization and analysis of rhodium oxide nanoparticles on HOPG surface. **G. Ariyaratne**, M. Gillum, C. Tawny, M. Mahapatra

MONDAY EVENING

McCormick Place Convention Center
Hall F2 - POSTERS

COLL Sci-Mix

8:00 1393. Atomic-scale structure and reconstruction of a colloidal au nanocube (100) surface revealed by scanning tunneling microscopy. **W. Quan**, L. Bi, A. Aber, S. Li

8:00 1394. Vapor phase functionalization of porous metal oxide materials with organic ligands and inorganic complexes. **A.M. Wheaton**, K.L. Mulfort, A.B. Martinson

8:00 1395. Embedding molecular recognition into nanocrystals with DNA origami wraps. **Y. Shi**, M. Kim, G. Tikhomirov

8:00 . Withdrawn

8:00 1396. Thermal stability of graphdiyne. **Z. Sepasi**, A. Aliev

8:00 1397. Dynamic superlattice from nanocrystal-liquid crystal hybrid materials. **S. Yang**, Y. Ning, D. Yang, Y. Zhang, J.G. Saven, C.B. Murray

8:00 1398. Antifoaming in aqueous micellar foams and foam films. **K. Ngo**, H. Zhang, R. Gupta, P. Varanasi, V. Sharma

8:00 1399. Shear and extensional rheology of associative polymers. **A. Amer**, R. Gupta, G.A. Deeter, M. Krayner, V. Sharma

8:00 1400. Stringiness, spinnability, and sprayability of polymer solutions. **L.B. Edano**, C. Slykas, D. Oester, F.M. Choi, R. Gupta, P. Varanasi, V. Sharma

8:00 1401. Low-MESF fluorescent reference particles for flow cytometry analysis of extracellular vesicles. **M. Palmi**, P. Snee, Z. Varga

8:00 1402. Surface design of targeted gold nanoparticles for cancer drug delivery. **J. Kennedy**

8:00 1403. Nanogel-engineered SPR biosensing via multivalent binding-induced structural transitions and Rmin-based signal analysis in complex biological media. **S. Jeon**, M. Park, H. Kim, D. Yoo

8:00 1404. Magnetic DNA nanostructures for enhanced drug delivery in pancreatic ductal adenocarcinoma (PDAC). **N. GayathriSrinivasan**, K. Huang, B. Kimmel, C. Castro, J.O. Winter

8:00 1405. Porous coatings by vapor sublimation and deposition for molecular channeling and filtration in an interstitial fluid microfiltration device. **Y. Chang**, Y. Ke, Y. Lin, H. Chen

8:00 1406. Dual-scale composite coatings for enhanced biointerface performance: Combined antifouling and antimicrobial functions. **D. Cho**, J. Oh

- 8:00 1407.** Molten salt colloidal synthesis of GaN quantum dots. **J. Cassidy**, D. Talapin
- 8:00 1408.** Spectral imaging reveals differences between ensemble and single-particle emission spectra of homogenous $\text{Cu}_x\text{In}_y\text{Zn}_z\text{S}_2$ and heterogenous/gradient-alloyed $\text{Cu}_x\text{In}_y[\text{Zn}_z]\text{S}_2$ quantum dots. **J.C. Morales Orocu**, E. Pott, B. Dong, C.D. Heyes
- 8:00 1409.** N-doped InAs quantum dots as mid-infrared emitter. **S. Saha**, P. Guyot-Sionnest
- 8:00 1410.** Short-chain ligand engineering of perovskite quantum dots for efficient and stable solar cells. **D. Choi**, J. Son
- 8:00 1411.** Evolution of AuRu catalysts during active ammonia synthesis revealed by *in situ* gas-cell electron microscopy. **A. McKeown-Green**, P. Moradifar, Z. Zhang, C. Lim, A. Barnum, L. Yuan, R. Sinclair, F. Abild-Pedersen, C. Ophus, J. Dionne
- 8:00 1412.** Implications of viscosity, symmetry, and temperature effects on the long-range ordering of ionic liquid films. **M.B. Van Den Top**, C.B. Lasar, A. Horvath, S. Koutsoukos, T. Welton, S.K. Shaw
- 8:00 1413.** Conjugated polymer-stabilized liquid metal inks in aqueous media for reconfigurable soft electronics. **E. Choi**, H. Kim, M. Ha, E. Lee
- 8:00 1414.** Plasma-treated nanoporous graphene oxide membrane for molecular separation. **S. tiwary**, A. Karim
- 8:00 1415.** Photophysical heterogeneity in $\text{CuInS}_2/\text{ZnSeS}$ Quantum Dots: Influence of structure and environment. **H. Kaur**, C.D. Heyes
- 8:00 1416.** Ultra-bright luminescent lanthanide nanoparticles for time-gated bioanalysis and imaging. **Y. Wang**
- 8:00 1417.** Photostable croconaine-conjugated liposomes for near-infrared light-triggered on-demand drug release. J. Kelley, N. Wehrle, S. Wessel, **Y. Park**
- 8:00 1418.** Diamond surface modification and effects on ALD nucleation density. **R.N. Rathnayake Mudiyansele**, M. Dhungana, M.A. Abdullah, S. Amagbor, D. Ballew, V. Mesilov, T. Golden, J. Kelber
- 8:00 1419.** High temperature annealing dynamics and surface recovery of $(3\times 1)\text{-O Nb}(100)$ elucidated by helium atom scattering. **M.F. Van Duinen**, C. Mendez, T.A. Arias, S.J. Sibener
- 8:00 1420.** Cyclic voltammetry studies of viologen self-assembled monolayer surface structure. **R. Stanley**, N. Pringle, P.K. Bhowmik, W. Paxton
- 8:00 1421.** Programmable surface chemistry on colloidal particles via microsphere autolithography(μSAL). **e. kunkel**, H. Robinson

8:00 1422. Design of pressure-resistant superhydrophobic surfaces for sustainable turbulent drag reduction. **B. Zhuang**, F. Wang, P. Khokhani, M. Bappy, L. Warwaruk, K. Hong, H. Ganesh, M. Bross, W. Straka, G. McKinley, K. Mahesh, S. Ceccio, A. Tuteja

8:00 1423. Procedurally evaluating the snow shedding behavior of coated surfaces. **M. Wu**, D. Gurera, A. Tuteja

8:00 1424. Modeling interfacial complexation reactions using a configurationally-sampled embedding methodology. **J. Koegel**, A.E. Clark

8:00 1425. Premelting and adhesion at the ice-substrate interface. **B.R. Hance**, S.J. Sibener

8:00 1426. Drainage via stratification of mixed surfactant micellar foam films. **K. Ngo**, V. Sharma

8:00 1427. Cooperative Lewis–Brønsted acid sites on mixed Fe–Mo oxide surfaces for selective benzaldehyde acetalization. **R. Burman**, A. Vil, N. Jayasekara, S. Torres Salamanca, S.L. Suib

8:00 1428. From microdroplet confinement to bias-free deposition: Reimagining nanoparticle synthesis at interfaces. **S. Paul**, J. Dick

8:00 1429. Water dynamics on Iridium single crystals. **K. Anjanarambath**, K. Nascimento da Silva, P. Papa Lopes

8:00 1430. Electrochemical counting of Au nanoparticles attached to Pt microelectrodes by Cu deposition and stripping. **F. Halim**, F.P. Zamborini

8:00 1431. Optical modulation of ionic conductivity in printed $\text{Mg}(\text{OH})_2/\text{EMIM}:\text{TFSI}$ ionogels. **C. Goins**, H.P. McAllister, H.E. Kurtz, X. Wan, J.W. Wu, V.K. Sangwan, C.M. Thomas, M. Khalaj, J. Sklar, J.J. Richards, M.C. Hersam, J.A. Kalow

8:00 1432. Nanoconfinement effects on the dielectric properties and microwave heating behavior of water in reverse micelles. **J.S. Oshiro**, S. Huang, Y. Wang, A.A. Park

8:00 . Withdrawn

8:00 1433. Plant-sourced hemoglobin-loaded oxygenated nanogel alleviates acetaminophen-induced hepatotoxicity. **A. Bushra**, T. Locke, M. Fall, T. Fan, J.M. Irudayaraj

8:00 1434. Shape-controlled HgTe quantum dots for room temperature mid-infrared photoconductors. **J. Feng**, A. Caillas, J. yang, P. Guyot-Sionnest

8:00 1435. Weak electric field enhances reactions by solvated electrons photogenerated from MN-doped quantum dots with visible light. **S. Dukette**, C. Orrison, I. Shulze, D. Son

8:00 1437. Programming fluorescence in gold nanostructures through amino acid chemistry. **K.M. Rosas**, O. Ocampo, J.P. Vanegas

8:00 1438. Accelerating experimental discovery of Au-based nanozymes via active learning. **Y. Tang**

8:00 1439. Creation of novel sub-2nm polyethylene quantum dots: Achieving structural uniformity and quantum confinement in chemically intact aliphatic nanostructures. **B. Naumann**

8:00 . Withdrawn

TUESDAY MORNING

McCormick Place Convention Center
S504d

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Electrocatalysis and Synthesis

W. Huang, J. Zhao, *Organizers*
Y. Sun, *Organizer, Presiding*
H. Wang, *Presiding*

8:00 . Chemistry-infused bandit framework for interpretable autonomous campaign of nanomaterials-based electrocatalysis. **C. Liu, Y. Lai**

8:30 . Molecules, nanomaterials, and their interactions in electrocatalytic nitrate and nitrite reduction reactions. **H. Wang**

9:00 . M-doped Cu₃N for selective electrochemical reduction of CO₂. **S. Sun**

9:30 . Distributions of polaronic defect states in layered oxygen evolution electrocatalysts are more important than their abundances. **M. Zdilla**, E. Borguet, J.P. Perdew, R. Ding, J. Henebry, M. Molla, R. Maniar, R.K. Sah, A. Dekshinamoorthy, P. Yasini

10:00 Intermission.

10:10 . Smart and programmable crystalline sponges for protection. **O.K. Farha**

10:40 . Synthesis hierarchically structured metal–organic frameworks for harmful gas isolation. **Y. Yue**

11:10 . Light-driven growth of gold nano- and microplates. **S. Neretina**, B.D. Nieu Kirk, D. Panda, R.A. Hughes

11:40 . Lithographically-directed growth of single-crystal gold microplate arrays with programmable geometries. **D. Panda**, R. Nizam, W.J. Tuff, C.C. Wyant, M. Zhukovskiy, M.R. Rosenberger, B. Santa, E.C. Kinzel, R.A. Hughes, S. Neretina

McCormick Place Convention Center
A2 - SOUTH HALL ChemPod 5

Atomically Precise Nanomaterials

Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Quantum Materials & Programmable Assembly

G. Bailey, S. Ivanov, C. Zeng, S. Zhang, *Organizers, Presiding*

8:00 . Talking to molecules with 2D atomic layers. **X. Duan**

8:25 . Colloidal semiconductor quantum dots: From artificial atoms to designer molecules. **U. Banin**

8:50 . Chirality magic from magic-Size clusters. **R.D. Robinson**

9:15 . Ligand induced circularly polarized luminescence from Si QDs. S.M. Somasundaran, S. He, M. Baraazandeh, P.N. Malavé, D. Li, T. Lian, **M.L. Tang**

9:40 . Chemically defined pathways to electronic function in III–V nanocrystals. H. Kim, **S. Jeong**

10:05 Break.

10:20 . Structural evolution and selectivity control of iron oxide-supported Pt catalysts in CO₂ hydrogenation. **H. Shi**

10:45 . Precise patterning through atomic stenciling on nanoparticles and their self-assemblies. **Q. Chen**

11:10 . Synthesis and assembly of precise-controlled silver nanocrystals. **O. Chen**

11:35 . Protein crystal engineering mediated with DNA. C.A. Mirkin

McCormick Place Convention Center
S503b

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, S. Kamdar, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*
T. L. Andrew, P. Kakkar, *Presiding*

8:00 . Polymer Grafted Nanoparticles: bridging organic-inorganic interface for emergence property design. Y. Shao, C.K. Ober

8:20 . Condensation-driven continuous emulsification on thin films. P. Gunipe, S. Anand

8:40 . Withdrawn

9:00 . Chemically programmable plasmonic patches on crosslinked polymer nanoparticles: From dispersed auNPs to curvature confined hexagonal lattices. K. Lee

9:20 . Mesoscale mechanisms of spontaneous oil imbibition in 2D aqueous foams. Y. Timounay, Z. Zeng, Y. Wang, R.D. Tilton, S. Garoff

9:40 . Tetrazine click at the interface of double emulsion droplets using perfluorinated norbornyl-gallates to enhance their stability in aqueous medium. O.V. Kulikov

10:00 . Probing Surfactant–Solvent interactions in dilute solutions to tune nanostructured fluids. D. Bandelli, R. Mastrangelo, D. Chelazzi, P. Baglioni

10:20 . Withdrawn

10:40 . Nanophase structuring in simple ternary solvents mediates reaction kinetics. L.D. Zarzar

11:00 . Speciation gate: A general principle for controlling interfacial energy in liquid-liquid systems. M. AlSakkaf, M. Andersson, t. solling, A. El-Zohry

11:20 . Chemical vapor deposition of polymer films for environmentally-benign and durable liquid repellent textile finishes. T.L. Andrew

11:40 . Disentangling interfacial and nanoconfinement effects in charged nanopores. T.A. Ho, A. Choudhary

McCormick Place Convention Center
S504bc

Biomaterials and Biointerfaces

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

8:00 Introductory remarks.

8:05 . Enzyme-regulated inorganic materials synthesis in multiphase media. **S.N. Jothirathna Ganithage**, A.T. Rowland, C.D. Keating

8:25 . Surface design of targeted gold nanoparticles for cancer drug delivery. **J. Kennedy**

8:45 . Nanogel-engineered SPR biosensing via multivalent binding-induced structural transitions and Rmin-based signal analysis in complex biological media. **S. Jeon**, M. Park, H. Kim, D. Yoo

9:05 . Asymmetrical flow field-flow fractionation (AF4) with on-line detectors unveils the true biophysical properties of polymer-pDNA complexes. **J. Lawson**, K.C. Lesco, R. Sekar, G. Wheeler, K.R. Williams, R. Kumar

9:25 . Engineering a liposome-hydrogel hybrid for intratumoral delivery of lapatinib. **J. Akhtar**, S. Lotake, S. Jain

9:45 Intermission.

10:00 . Influence of nucleic acid type and size on solid lipid nanoparticle delivery. **N. Bair**, D. Jayatunge, R. Searle, W.G. Pitt, J. Anderson, W. Paxton

10:20 . Probing surface-driven mechanisms that influence keratoprosthesis integration. **P. Betts**, L. Ramasinghe, A. Hendrickson, D. Demase, C. Portero, S. Wu, K.A. Cimat

10:40 . Magnetic DNA nanostructures for enhanced drug delivery in pancreatic ductal adenocarcinoma (PDAC). **N. GayathriSrinivasan**, K. Huang, B. Kimmel, C. Castro, J.O. Winter

11:00 . Engineering fluorescent core-shell nanoparticles for targeted glioblastoma treatment. **I. Alves de Albuquerque Bessa**, J.R. Cruz, M.O. Sousa, A.M. Souza, S.R. Medeiros, L.R. Pinto, N.M. da Costa, C.M. Ronconi

11:20 . Point-of-care diagnostics for rapid multiplexed detection of metabolic biomarkers. **M. Awan**, N. Gondhiya, E. Andreescu

11:40 . Investigating the structural evolution of genetically engineered material-binding peptide assemblies on gold. **R.O. Rodrigo**, C. Johnson, E. Gordon, T. Bader, C. Tamerler, C.L. Berrie

McCormick Place Convention Center
S504a

COLL Early Investigator Award Lectures

S. Hunyadi Murph, *Organizer, Presiding*

8:00 Introductions.

8:15 . Solutal effects in evaporating drops on engineered interfaces: self-ejection and patterning.
S. McBride

9:15 Break.

9:35 . Rheology, foaming and deposition performance relationships in sulfate-free formulations containing functional polysaccharides. **A. Fernandez**, J.R. McMillan, B. Caruso, M.L. Pacholski, S. Kamdar, S. Golden, D. Mayfield, S. Hughes, A. Banerjee, H. Faizi, L.M. Leal, D. Ferreira De Almeida, H. Dihang

10:35 Break.

10:55 . Interfacial confinement Engineering: Building complex material functions at the cellular scale. **A. Liu**

11:55 Concluding remarks.

Chemistry Behind Art and Art Conservation

Sponsored by Joint Programming, Cosponsored by ANYL, CHAS, CHED, COLL, INOR and POLY

TUESDAY AFTERNOON

McCormick Place Convention Center
S504d

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Heterogeneous Catalysis

W. Huang, Y. Sun, *Organizers*

J. Zhao, *Organizer, Presiding*

S. Zhang, *Presiding*

2:00 . Superstructures from self-assembly of nanoclusters: Synthesis and their application for heterogeneous catalysis. **S. Zhang**

2:30 . Functional porous liquids for catalytic transformations. **S. Dai**

3:00 . Mesopore confined and localized nanoparticles for selective catalytic upcycling of polyolefins. **A.D. Sadow**, W. Huang, K. Tonk, S. Sun, C. Meng

3:30 . Engineering catalytic microenvironments within a 2D bilayer silica nanospace. **I. Lee**

3:50 Intermission.

4:00 . Roles of supports and metal centers in supported metal catalysts for CO₂ hydrogenation to methanol. **Z. Wu**

4:30 . Nanoparticle-confined catalyst for processive ring-opening metathesis polymerization. M. Zhang, R. Zhang, W. Huang, **J. Niu**

5:00 . From single atoms to nanoparticles: The optimal Rh size for hydroformylation. **K. An**

5:30 . Evolution of AuRu catalysts during active ammonia synthesis revealed by *in situ* gas-cell electron microscopy. **A. McKeown-Green**, P. Moradifar, Z. Zhang, C. Lim, A. Barnum, L. Yuan, R. Sinclair, F. Abild-Pedersen, C. Ophus, J. Dionne

McCormick Place Convention Center
A2 - SOUTH HALL ChemPod 5

Atomically Precise Nanomaterials

Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Energy Frontier

G. Bailey, S. Ivanov, C. Zeng, S. Zhang, *Organizers, Presiding*

2:00 . Atomically precise functionalization of microporous nanomaterials for aqueous-phase gas transport. **J.A. Mason**, J.J. Calvin, E. Chen, J. Cho, C. DelRe, D.P. Erdosy, H. Hong, H. Kim, L. Liu, A. Natraj, B. Tang, M. Walter, M.B. Wenny

2:25 . Group V polyoxometalates from CO₂ infusion. **M.D. Nyman**

2:50 . Size-dependent phase changes and lattice dynamics in porous nanocrystals. **C. Brozek**

3:15 . Contorted aromatic molecules as building blocks for porous materials. **D.J. Xiao**

3:40 . Doping Au to improve Pt stability and catalysis for electrochemical reduction of oxygen. **S. Sun**

4:05 Break.

4:20 . Development of atomically precise copper nanoclusters for electrochemical CO₂ and NO₂ reduction reactions. **Y. Negishi**

4:45 . Structural precision in nanoparticles as a lever for selective surface-mediated transformations. **W. Huang**

5:10 . Molecular layer deposition of p- and n-type dopants: synthesis, kinetic mapping, and area-selective growth on silicon. **S. Williams**

5:35 . Engineering Pt and Pd single-atom catalysts on semiconductors for improved photocatalytic hydrogen evolution and oxygen reduction reactions. **S. Deka**

McCormick Place Convention Center
S503b

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, S. Kamdar, A. Mallia, U. Natarajan, Z. Niroobakhsh, *Organizers*
E. Johnson, V. Shah, S. Yang, *Presiding*

2:00 . Interface specific S_N2 reactions of Gemini diammonium ions and other unique interface selective processes. **t. solling**, J.L. Beauchamp

2:20 . From complete shell conversion to epitaxial core–Crown growth: solvent and polymer-regulated formation of SnS₂/SnSe₂ heterostructures. **L. Liu**, D. Song, J. De Yoreo, M. Sushko

2:40 . Interfacial behavior of peg-based surfactants in polymerizable high internal phase emulsions. **M. Olaleye**, J. Wang, M. Zhao, A. Koh

3:00 . Curious life of freezing dew. **S. Nath**

3:20 . From waste to wonder: mechanochemical ball milling for sustainable synthesis and scalable production of nanomaterial. **J.P. Vanegas**

3:40 . Trace chemical sensing with aqueous phase-interfaced liquid crystal microfluidics. **E. Bukusoglu**

4:00 . Top-view method as an alternative for contact angle measurement. **B. Zhang Newby**, E. Agyei

4:20 . Electric field-induced thin film instability towards template-less micro-nano patterning. **P. Gooh Pattader**

4:40 . Effect of cation symmetry on the long-range ordering in ionic liquid films. **C.B. Lasar**, A. Horvath, M.B. Van Den Top, S. Koutsoukos, T. Welton, S.K. Shaw

5:00 . Third-generation solid dispersion approach for enhancing the bioavailability and reducing food effect of SUVN-8204. M. TS, N. Medidi, I. Kalaikadhiban, **D. Dhanunjay**, S. Aamer Alim, s. gagginapally, A.K. Shinde, R. Nirogi

5:20 . Surface wakes on soft solids. **A. Chakrabarti**, D. Jaganathan, R. Haussman, L. Mahadevan

5:40 . Automated fluorescence titration as a tool for designing aqueous two-phase systems for single-wall carbon nanotube separations. **C.M. Sims**, T. Hicks, J.A. Fagan

McCormick Place Convention Center
S504bc

Biomaterials and Biointerfaces

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

2:00 Introduction.

2:05 . Evaluating transport mechanisms for lignocellulosic inhibitors in *Zymomonas mobilis* .
N.K. Singh, J.V. Vermaas

2:25 . Development of size-tunable superparamagnetic iron oxide/fluorescent conjugated polymer composite nanoparticles for sentinel lymph node biopsy. **H. ZHANG**, H. Ono, K. Chubachi, N. Nakamura, J. Tabata, M. Fushimi, M. Sekino, S. Ohta

2:45 . Multiscale mapping of antifreeze peptide binding at ice crystal interfaces across macro-to-atomic length scales. **M. Son**, J. Ji, E. Lee

3:05 . Process-controlled scale-down of miniemulsion polymerization for hydrogel nanoparticles in cell interfaces. R. Negru, f. borges, G. Papavasiliou, F. Teymour, **M.K. Vaicik**

3:25 . Synthesis, optimization, and polyampholyte applications of peptide-based zwitterionic cross-linkers. **K.V. Waynant**, M.T. Bernards, S.O. Oneida, A.E. Shea, R. Hubbard, M. Witherwax, P. Dubee, C. Malloy, A. Pollard

3:45 Intermission.

4:00 . Rheology of animal and plant milks: With or without gums. E.N. Bayraktar, L. Hassan, K. Al Zahabi, N. Nikolova, E. Patel, **V. Sharma**

4:20 . Simultaneous quantification of diverse nucleic acids in co-loaded lipid nanoparticle formulations for quality control and screening. **W. Poon**, D. Bisht

4:40 . Strain softening-stiffening of composite hydrogels composed of biopolymer and microfibrinous networks. **C. Xu**, Y. Saraswat, M. Shaikh, N. Shakoury, P. Wink Reis, L. Hsiao

5:00 . Cryo-EM reconstruction and structural analysis of the peptide amphiphile C16-VVAAEEEEGIKVAV. **N. Nguyen**, K. Gray, L.C. Palmer, S.I. Stupp

5:20 . Diet-dependent remodeling of colon basement membrane biointerfaces alters mechanical properties and microbial enzyme susceptibility. R. Roshankhah, M.R. Ravari, B. Barat, M. Roh, B. Shogan, **M.K. Vaicik**

5:40 . Decellularized matrix microgels with tunable physical properties for cardiac drug delivery. **D. Wu**, A. Avila, A. Ban, V. Pierre, C. Liu, S. Senyo

McCormick Place Convention Center
S504a

Langmuir Lectureship and Colloid and Surface Technology Award Lectures

D. Miller, *Organizer, Presiding*

2:00 Introduction.

2:15 . From colloidal platforms to surface microenvironment engineering: Bridging fundamental surface chemistry and practical catalysis for emission control. **F. Liu**, Y. Li

3:15 Break.

3:35 . Directing chemical reactivity using colloids and photons. **P.K. Jain**

4:35 Break.

4:55 . Molecular programming of diorganyl dichalcogenides for rational nanocrystal design. **R. Brutchey**

5:55 Concluding remarks.

Chemistry Behind Art and Art Conservation

Sponsored by Joint Programming, Cosponsored by ANYL, CHAS, CHED, COLL, INOR and POLY

WEDNESDAY MORNING

McCormick Place Convention Center
A2 - SOUTH HALL ChemPod 5

Atomically Precise Nanomaterials

Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Miscellaneous

G. Bailey, S. Ivanov, C. Zeng, S. Zhang, *Organizers, Presiding*

8:00 . Fluorogenic generation of luminescent silver nanodots. **J. Yu**

8:25 Break.

8:35 . Mechanochemical functionalization of silicon cluster dimers. **O. Dawodu**, J. Seo, A.E. Pimentel, E. Mauga, T.A. Su

8:50 . Synthesis of multimetallic nanoclusters via anti-galvanic replacement (AGR) and characterization by anodic stripping voltammetry (ASV). **N. Sultana**, F. Zamborini

9:05 . Atomic and nanoscopic origins of plasmon tunability. **A.J. Branco**, S. Jeong, M.B. Ross

9:20 . Withdrawn

9:35 Break.

9:45 . Compressive strain enhances the performance and durability of Pt toward ethanol oxidation by synergistically involving H₂O molecules to alter reaction pathway. **Z. Wang**, J. Guan, K. Li, Y. Ding, J.G. Chen, Y. Xia

10:00 . CdSe nanoclusters stabilized by N-Heterocyclic Carbene ligands: Expanding ligand paradigms in semiconductor cluster chemistry. **I. Mishra**, C. Zeng

10:15 . Withdrawn

10:30 . Vapor phase functionalization of porous metal oxide materials with organic ligands and inorganic complexes. **A.M. Wheaton**, K.L. Mulfort, A.B. Martinson

10:45 Break.

10:55 . Atomic-scale structure and reconstruction of a colloidal au nanocube (100) surface revealed by scanning tunneling microscopy. **W. Quan**, L. Bi, A. Aber, S. Li

11:10 . Embedding molecular recognition into nanocrystals with DNA origami wraps. **Y. Shi**, M. Kim, G. Tikhomirov

11:25 . Precision synthesis and electrocatalytic applications of multimetallic metal oxide nanocrystals. **B. Zhu**, L. Liu, A. Butrum-Griffith, Z. Peng, F. Yang, C. Yan, H. Guo, N. Ramos, C. Huang, Y. Hsieh, S. Jiang, J. Chen, M. Pink, Y. Losovyj, J.T. Miller, A. Holewinski, R. Li, C. Wang, H. Xin, X. Ye

11:40 . Highly polarized shortwave-infrared photoluminescence from atomically precise gold quantum rod nanoclusters. **A. Sardar**, L. Luo, G. He, R. Jin

McCormick Place Convention Center
S504d

Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

Colloidal QD/Nanocrystal Synthesis

M. Liu, N. Oh, S. Zeiske, *Organizers, Presiding*

8:00 . Wurtzite Indium Phosphide quantum dots: From cation-exchange synthesis to advanced shell engineering and Solar-to-Fuel conversion. **U. Banin**, J. Dai, D. Stone, X. Li, A. Levi

8:30 . Solution synthesis of III–V quantum dots beyond indium pnictides: Why did it take so long, and what have we learned along the way?. **D. Talapin**

9:00 . Molten salt colloidal synthesis of GaN quantum dots. **J. Cassidy**, D. Talapin

9:15 . Direct observations of programmable dissolution pathways in InP nanoplates at atomic scale with liquid-phase transmission electron microscopy. **C. Liu**, W. Baek, T. Lin, A.S. Thind, R.F. Klie, E. Rabani, P. Alivisatos

9:30 Coffee Break.

10:00 . Emergent optical nonreciprocity in colloidal semiconductor magic-size clusters. **R.D. Robinson**

10:30 . Spectral imaging reveals differences between ensemble and single-particle emission spectra of homogenous $\text{Cu}_x\text{In}_y\text{Zn}_z\text{S}_2$ and heterogenous/gradient-alloyed $\text{Cu}_x\text{In}_y[\text{Zn}_z]\text{S}_2$ quantum dots. **J.C. Morales Orocu**, E. Pott, B. Dong, C.D. Heyes

10:45 . Photodoped transparent conducting oxide (TCO) nanocrystals. **S. Archer**, G.F. Strouse

11:00 . Tuning carrier density and effective mass in doped CdO nanocrystals via size and dopant control. **A. Pazoki**, G.F. Strouse

11:15 . Influence of autogenous pressure on the formation of colloidal LiTaO_3 nanomaterials through solvothermal methods. **P. Chowdhury**, L. Obama Mbasogo, **S. Reeves**

McCormick Place Convention Center
S503b

Basic Research in Colloids, Surfactants and Interfaces

S. Kamdar, Z. Niroobakhsh, *Organizers*

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

8:00 . Using molecular dynamics simulation and small-angle X-ray scattering to investigate liquid structures of extractant-(ionic liquid) mixtures. **X. Wang**, A. Peroutka, M. Servis

8:20 . Withdrawn

8:40 . Molecular dynamics investigation of the impact of hydrolysis on polyvinyl alcohol interactions in water. **D. Eike**, S. Scott, B.E. Ugur, M.A. Webb

9:00 . SFG water response increases with interfacial potential according to the Grahame model. **N.M. Gonzalez**

9:20 . Molecular dynamics simulations of graphene binding peptides with pristine graphene. **T. Dinadayalane**, T. Riggins, D. Daggag, D. Ramasamy

9:40 . Machine learning-assisted phase diagram determination in aqueous two-phase systems. N. Thomas, H. Lee, A. Witmer, C. Lopez, T. Reddy, **M. Kim**

10:00 . Evaluation of liposomes for simultaneous drug delivery of doxorubicin and a near-infrared ionic dye against cancer. **D. Bwambok**, E. Fetting

10:20 . PLGA nanoparticles for lipophilic carbonic anhydrase inhibitor delivery. S.A. Khan, **M.A. Ilies**

10:40 . Enzyme-like structurally precise nanoparticle by self-assembly. **R. Nagarajan**

11:00 . Interaction between peptide and antimicrobial preservative: Characterization by NMR spectroscopy, MD simulation, and small-angle scattering. **K. Qian**

11:20 . Iodinated latex dispersions for application as antimicrobial coatings. **V. Gundabala**, H. Sekar, M. Tirumkudulu

11:40 . Three-slab model for the dielectric permittivity of a lipid bilayer. M. Sheraj, **A. Sahu**

McCormick Place Convention Center
S504bc

Biomaterials and Biointerfaces

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

8:00 Introduction.

8:05 . Biointerface regulation of adipogenic differentiation: Decoupling ECM protein interactions and nanofiber topography. **M.K. Vaicik**, C. Valdez, A. Ross

8:25 . Reactive MD simulations and SAXS reveal the structure and assembly of crosslinked surfactant nanoparticles for nucleic acid delivery. **P. Corrigan**, M.F. Hassan, D. Singla, E.R. May, M. Nieh, J.L. Rouge

8:45 . Dual-scale composite coatings for enhanced biointerface performance: Combined antifouling and antimicrobial functions. **D. Cho**, J. Oh

9:05 . Investigating the corrosion inhibition capabilities of hydrogels embedded with bacteria capable of microbiologically influenced corrosion inhibition (MICI). **Z. Burton**, K. Ikuma

9:25 . Beyond conventional antibiotics: Engineering stimuli-responsive nano–bio systems for antimicrobial control. **J. Morones-Ramirez**

9:45 Break.

10:00 . Gold nanostars as optical probes for tracking HER2 dynamics on live cell membranes. **X. Wen**, Y.L. Wu, E. Schaumann, T.W. Odom

10:20 . Growth tissue in control manner for the regenerative medicine, physics stand point. **M. Lisunova**

10:40 . Porous coatings by vapor sublimation and deposition for molecular channeling and filtration in an interstitial fluid micfiltration device. **Y. Chang**, Y. Ke, Y. Lin, H. Chen

11:00 . Non-disruptive extraction and accurate particle sizing analysis of bio-originated nanoparticles in human blood plasma with potential diagnostic applications. **H. Ambrosius**, D. Hernandez Torquemada, P. Hernandez Torquemada, K. Sugaya, Q. Huo

11:20 . PEGylation of soy lecithin for simplified, single-component lipid nanocarrier design. **P. Ghosh**, N. Buhaichuk, A. Biswas, D.C. Webster, B. Chandra, M. Quadir

11:40 . Vapor-phase sublimation and deposition of multifaceted metal-organic framework. **S. HU**, C. Lee, H. Chen

McCormick Place Convention Center
S504a

Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, S. Lim, R. Nagarajan, C. M. Sims, D. Watkins,
Organizers
K. J. Koski, Z. Li, *Presiding*

8:00 . Withdrawn

8:15 . Exfoliation of emerging 2D materials: from Mithrene monolayers to transition metal dichalcogenide nanoribbons. **A.P. Saunders**, F. Liu, W.A. Tisdale

8:30 . Chemical and dimensional tunability of 0D and 2D silicon telluride (Si_2Te_3). M. Jones, **K.J. Koski**

8:45 . Amphiphilic and conductive MXene inks via alkoxide functionalization for multifunctional coatings and versatile solvent processing. **S. Lee**, S. KIM

9:00 . Investigating the role of composition in optical properties of multi-metal MXenes. **G. Kadagishvili**, B. Wyatt, M. Tanwar, H. Fang, B. Anasori, Z. Fakhraai

9:15 . Influence of chemical intercalants on the microstructure and reactivity of vanadium carbide (V_2CT_x) MXene. **R. Beers**, D. Bao, J. Ray

9:30 . Implications of viscosity, symmetry, and temperature effects on the long-range ordering of ionic liquid films. **M.B. Van Den Top**, C.B. Lasar, A. Horvath, S. Koutsoukos, T. Welton, S.K. Shaw

9:45 . Colloidal metal nitride nanocrystals directly synthesized in molten inorganic salts under high-pressure ammonia. **R. Lin**, D. Talapin

10:00 . From microdroplet confinement to bias-free deposition: Reimagining nanoparticle synthesis at interfaces. **S. Paul**, J. Dick

10:15 . Correlated plasmonic excitation in moiré-symmetry plasmonic superlattices. **Z. Li**

10:30 . Machine learning for high-throughput SAXS/WAXS characterization of magnetic nanoparticles. **S. Mokhtari**, M. Impéror-Clerc, R. Poteau, S. Cayez, N. Ratel-Ramond

10:45 . Tailored synthesis of copper-based multimetallic nanorod electrocatalysts. **H. Guo**, S. Jeong, N.P. Siepser, M. Nguyen, R.X. Skalla, B. Zhu, X. Zhan, K. Chatterjee, S.E. Skrabalak, G.A. Henkelman, L.A. Baker, X. Ye

11:00 . Conjugated polymer-stabilized liquid metal inks in aqueous media for reconfigurable soft electronics. **E. Choi**, H. Kim, M. Ha, E. Lee

11:15 . Plasma-treated nanoporous graphene oxide membrane for molecular separation. **S. tiwary**, A. Karim

11:30 . Substrate-step modulation of epitaxial grown MoS_2 monolayer thin film. **D. Shi**

11:45 . Efficient band-edge emission from indirect bandgap semiconductor quantum dots upon shell engineering. **j. zhai**

Surface Chemistry

Atomic_level Understanding of Surface Phenomena

A. V. Teplyakov, L. Tribe, *Organizers, Presiding*

8:00 . Diamond surface modification and effects on ALD nucleation density. **R.N. Rathnayake Mudiyanse**, M. Dhungana, M.A. Abdullah, S. Amagbor, D. Ballew, V. Mesilov, T. Golden, J. Kelber

8:20 . Atomic-scale description of the Nb(110) ordered-oxide surface layer. **M.J. Bedzyk**, D.A. Garcia-Wetten, S. Majumder, T. Lee, D.A. Duncan

8:40 . Oxidation on highly stepped Rh surfaces. **A. Gonzalez**, E. Serna-Sanchez, M. Gillum, D.R. Killelea

9:00 . Closer look at oxygen reconstructions of Rh single crystals. **E. Serna-Sanchez**, A. Gonzalez, M. Gillum, D.R. Killelea

9:20 . Unmasking oxygen substitution for sulfur point defects in epitaxial MoS₂: From formation mechanism to suppression strategy. **J. Ji**

9:40 . Resolving the CO puzzle on surfaces and nanoparticles with DFT+U. **T. Maxson**, T. Szilvasi

10:00 . High temperature annealing dynamics and surface recovery of (3x1)-O Nb(100) elucidated by helium atom scattering. **M.F. Van Duinen**, C. Mendez, T.A. Arias, S.J. Sibener

10:20 . Examination of the growth mode of Zr films on Nb(100)–(3×1)O using STM. **M. Hall**, R. Burnley, J. Wagner, S.J. Sibener

10:40 . Probing surface-supported single molecule level transformations of benzoporphyrins by tip-enhanced Raman spectroscopy. **S. Rajak**, N. Jiang

11:00 . Robust N-heterocyclic carbene monolayers: Deposition methods, ligand architecture, and surface characteristics. **A. Chandran**, N.L. Dominique, g. Kaur, S. Chowdhury, L. Ekowo, i. Jensen, M. Aloisio, C.M. Crudden, D.M. Jenkins, J.P. Camden

11:20 . Site-specific and temperature dependent hydration of faceted alpha hematite. **A.B. Dua**, L.N. Pretzie, A. Bielinski, Y. Li, V. Novosad, C. Liu, A.B. Martinson, A.S. Hock

11:40 . On surface synthesis of NHC derived molecular graphene nanostructures. **D. Wang**

Photoinduced Charge Transfer in Nanostructured Materials for Functional Applications

MOFs for Sensing and Photocatalysis

Sponsored by ENFL, Cosponsored by COLL

WEDNESDAY AFTERNOON

McCormick Place Convention Center
S503b

Basic Research in Colloids, Surfactants and Interfaces

S. Kamdar, Z. Niroobakhsh, *Organizers*

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

2:00 . Redox dye-mediated fluorescence energy transfer of carbon nanotube-based nanosensors.

S. Nishitani, K. Ao, M. Landry

2:20 . Molecular dynamics simulations reveal PEGylation architecture and drug binding on single-walled carbon nanotubes. **S. Damaraju**, J.V. Vermaas

2:40 . Aminopropyl-polyhedral oligomeric silsesquioxane modified graphene nanoplatelets in polyurea: Pathway to tough, impact-resistant films. **M. Majdoub**, D. Sengottuvelu, S. Nouranian, A. Al-Ostaz

3:00 . Thermal stability of graphdiyne. **Z. Sepasi**, A. Aliev

3:20 . Electrochemical unzipping of carbon nanotubes in a molten salt: Tuning the architecture of graphene stacks. **N. Samartzis**, Y. Yuan, Q. Wang, J. Fan, H. Luo, I. Popov, S. Dai

3:40 . Synthesis of porous carbon materials through carbonization within zeolite nanochannels for oxygen reduction reaction and carbon dioxide adsorption. **I. Ivanov**, M.G. Bakker, J.W. Harris

4:00 . Emissive state engineering in high-entropy carbon dots. **S. Owiredo**, N. McGuire, C. Agatemor

4:20 . Transpiration-inspired power generation by nanostructured carbon materials. **J. Won**, J. Glasmacher, S. Harper, A. Liu

4:40 . Comparison of molecular layer formation on nanoporous gold electrodes. **E.C. Landis**

5:00 . Quantifying ions and water molecules at aqueous interfaces using accessible ultrafast lasers. **N.M. Gonzalez**

McCormick Place Convention Center
S504d

Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

Colloidal QD/Nanocrystal-Based Optoelectronics

M. Liu, N. Oh, S. Zeiske, *Organizers, Presiding*

2:00 . Infrared technologies based on optically enhanced inorganic colloidal quantum dots. **P. Guyot-Sionnest**

2:30 . Long-wave infrared HgTe quantum dot photoconductors with optical enhancement. **J. yang**

2:45 . Kinetic-controlled transformations of III-arsenide nanocubes. **S. Yang**, B. Wu, D. Yang, Y. Zhang, J.S. Francisco, P. Alivisatos

3:00 . N-doped InAs quantum dots as mid-infrared emitter. **S. Saha**, P. Guyot-Sionnest

3:15 . Colloidal synthesis of p-type Zn₃As₂ nanocrystals. **S. Kim**, N. Oh

3:30 Coffee Break.

4:00 . Quantum dot nanocrystal based infrared image sensor applications. **S. Oh**

4:30 . Harvesting infrared photons with semiconductor plasmonic nanocrystal heterojunctions. **M. Crane**

5:00 . Interfacial radical chemistry limits the stability of blue QLEDs. **Y. Liu**, Y. Chen, S. Kang, D. Talapin

5:15 . Ligand-mediated donor and acceptor blending enables enhanced charge separation in AgBiS₂ nanocrystal solar cells. **H. KIM**, J. PARK, Y. Choi, J. Choi

McCormick Place Convention Center
S504bc

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Light-Matter Interactions

W. Huang, Y. Sun, *Organizers*

J. Zhao, *Organizer, Presiding*

Y. Zhang, *Presiding*

2:00 . Autonomous nanoparticle synthesis enabled by real-time SAXS and UV-Vis feedback. **Y. Zhang**, H. Kim, F. Lu, c. cao, X. Qu, O. Gang, K.R. Reyes, H. Zhang, L. Zhang, m. Carbone, D. Yang

2:30 . Mechanism of plasmon induced mode-selective adsorbate vibrational excitation. K. Chen, **T. Lian**

3:00 . Tracing the origin of chirality of metal halide perovskite nanoclusters and quantum dots. **J.Z. Zhang**

3:30 . Conjugation on QD surface promotes energy transfer by inducing charge transfer states. M. Baraazandeh, Y. Liu, Z. Xu, **M.L. Tang**

4:00 Intermission.

4:10 . Active learning for materials discovery: Data-efficient design of multi-metallic peroxidase-like nanozymes. **G. Chen**

4:30 . Understanding the synthesis of silica encaged metal particles and their impact on nanoscale transport in a prototypical catalytic process: Furfural hydrogenation. **S.K. Beaumont**, Z. Han, S. Page, M. Panchal

4:50 . Light Work: A two-pronged approach to the photo-enabled detection of low-affinity pesticides using surface-enhanced Raman spectroscopy. **J. Gorman**, B. Hein, K. Bai, H. Wei

5:05 . Surfactant-free synthesis of gold nanoplates using monoalcohol-directed shape control. **B.D. Niekirk**, S. Zhang, R. Tang, K. Xu, M.R. Rosenberger, R.A. Hughes, K. Fichthorn, S. Neretina

McCormick Place Convention Center
S504a

Nanomaterials

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

2:00 . Regioselective assembly of gold nanobipyramids and single quantum dot trimer architectures for room-temperature quantum information processing. **O. Ajiboye**, M. Daniel

2:15 . Structure-engineered nanocellulose aerogels for thermal management: From heat insulation to directional heat conduction. **C. Liu**

2:30 . Light-induced patterning of chiral nanostructures on substrate. **J. Kim**

2:45 . NaYF₄:Gd³⁺,Yb³⁺,Er³⁺ @NaYF₄ Core–Shell upconverting nanoparticles for enhanced optical luminescence imaging and X ray imaging. **A. Amjad**, Z. Rosenzweig, Y. Liang

3:00 . Molten salt annealing of nanocrystals. **Y. Mao**

3:15 . D₂O-enhanced twistrion yarn harvesters for low-frequency mechanical energy harvesting. **I. Ekanayake**, M. Zhang, R.H. Baughman

3:30 . Photophysical heterogeneity in CuInS₂/ZnSeS Quantum Dots: Influence of structure and environment. **H. Kaur**, C.D. Heyes

3:45 . Quantification of ligand fractions for individual mixed-ligand metal organic framework micro-crystals using optical photothermal infrared spectroscopy. **T. Dias**, A. Mora Mata, R. Norton

4:00 . Characterization of differential sedimentation size-separated graphene dispersions via analytical ultracentrifugation. **C.M. Sims**, J. Killgore, E. Mansfield, J. Downing, A. Moraes, M.C. Hersam, J.A. Fagan

4:15 . Fe single-atom deposited g-C₃N₄ catalysts for electrochemical systems: Linking coordination environment to post-cycling evolution. **J. Pandey**

4:30 . Plasmonic metal–insulator–metal metasurfaces as tunable platforms for plasmon enhanced Raman spectroscopy. **S. Vural-Kaymaz**, F. Khalid-Salako, H. SARIGUL, B.N. Günaydin, H. Kurt, M. Yüce

4:45 . Effect of magnetic anisotropy on magnetic properties and magnetocaloric effects in Fe_xGeTe₂ based 2-D van der Waals materials. **A. Oli**, I. dubenko, S. Meher, A.K. Singh, S. Stadler, N. Ali, S. Talapatra

5:00 . Tunable plasmonic circular dichroism of hierarchical chiral assemblies and their wavelength dependent differential amplification of Raman scattering. **A. Serrano-Freijeiro**,

L.M. Liz-Marzán, J. Pérez-Juste, I. Pastoriza-Santos, S. Bals, C. Renero-Lecuna, C. Hamon, M. Mychinko, J. Gabriel-Trazo, M. Impéror-Clerc

5:15 . Oriented alignment in PbS quantum dot assemblies with charged inorganic ligands. **A. Jeong**, D. Talapin

McCormick Place Convention Center
W183a

Surface Chemistry

Soft Matter Surfaces and Porous Materials

A. V. Teplyakov, L. Tribe, *Organizers, Presiding*

2:00 . Versatile surface modification strategy for commercial contact lenses to achieve sustained release of diverse therapeutic molecules. **P. Chen**, Y. Wang, J. Chen, H. Lin*

2:20 . Binary adsorption of ciprofloxacin and methylene blue on sulfonated graphene oxide. **T.K. Saha**, C.K. Shaha, S. Karmaker

2:40 . Mesoporous silica to absorb organic contaminants from water. R. Shrestha, **N.F. Materer**

3:00 . Bioinspired negative curvature monomer architecture accelerates on-surface topochemical polymerization. **M. Hossain**, J.A. Garfield, M.W. Gachema, S. Claridge

3:20 . Hydrogel marbles for a stationary gas absorption system. **s. lee**, S. Wooh

3:40 . Programmable surface chemistry on colloidal particles via microsphere autolithography(μ SAL). **e. kunkel**, H. Robinson

4:00 . Developing stable, confined liquid crystal-aqueous interfaces for continuous sensing applications. **A. Ozsahin Isilak**, E. Bukusoglu

4:20 . Synthesis, modification, and chlorhexidine loading of polymer modified-HM-HAP particles: *In vivo* antibacterial analysis and cell cytotoxicity assessment. **F. Shafiq**, W. Qiao

4:40 . Effect of biodegradable Surfactants on Amphiphilic drug Promethazine hydrochloride. **N. Shafi**

5:00 . Spontaneous surface passivation of water-resistant dynamic imine bond polymers. **J. Lee**, J. Park, K. Koynov, H. Butt, S. Wooh

5:20 . Procedurally evaluating the snow shedding behavior of coated surfaces. **M. Wu**, D. Gurera, A. Tuteja

5:40 . Cyclic voltammetry studies of viologen self-assembled monolayer surface structure. **R. Stanley**, N. Pringle, P.K. Bhowmik, W. Paxton

Environmental Processes, Toxicity and Model Prediction of Micro- and Nano-plastics in the Ecosystem

Sponsored by ENVR, Cosponsored by AGFD, ANYL and COLL

**Photoinduced Charge Transfer in Nanostructured Materials for Functional Applications
Mechanistic Insights**

Sponsored by ENFL, Cosponsored by COLL

Environmental Processes, Toxicity and Model Prediction of Micro- and Nano-Plastics in the Ecosystem

Sponsored by ENVR, Cosponsored by AGFD, ANYL and COLL

Photoinduced Charge Transfer in Nanostructured Materials for Functional Applications

Sponsored by ENFL, Cosponsored by COLL

THURSDAY MORNING

McCormick Place Convention Center
S504d

Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

Colloidal QD/Nanocrystal-Based Optoelectronics

M. Liu, N. Oh, S. Zeiske, *Organizers, Presiding*

8:00 . Controlling synthesis and doping of lead halide perovskite quantum dots. **Y. Dong**

8:30 . 3D Iodide double-perovskite (Elpasolite) semiconductor nanocrystals. **F. Horani**, D.R. Gamelin

9:00 . Precise transition metal doping of strongly confined halide perovskite nanocrystals. C. Valdes, M. Cárdenes Wuttig, S. Feldmann, **Z. VanOrman**

9:15 . Enhancing the stability and inhibiting phase segregation of perovskite quantum dots via metal-organic framework encapsulation. **P. Ariyaratne**, S. Pandey, T. Zhuorigebatu, M.E. Kordesch, W. Gao, J. Chen

9:30 Coffee Break.

10:00 . Strategies to achieve circularly polarized light response from the colloidal nanocrystals. **Y. Kim**

10:30 . From classical to quantum colloids: Active-lattice perovskite quantum dots and the emergence of cooperative quantum optics. **P. Kambhampati**

11:00 . High performance hybrid transistor based on 2D MoS₂ and surface-modified Cd-doped Perovskite quantum dots. **D. Sengottuvelu**, **S. Poornachandiran**, P. Narayan Samanta, M. Majdoub, S. Nouranian, A. Al-Ostaz

11:15 . Short-chain ligand engineering of perovskite quantum dots for efficient and stable solar cells. **D. Choi**, J. Son

11:30 . Colloidally synthesized plasmonic high-entropy metal oxide for overall water splitting. **P. Biswas**, B.B. Muhoberac, J. Chen, G.A. Davis, D.N. Purayil, R. Sardar

McCormick Place Convention Center
S504bc

Surface Chemistry

Surfaces in Nanosystems

A. V. Teplyakov, L. Tribe, *Organizers, Presiding*

8:00 . Structure and dynamics of n-octanol confined in silica pores with varying surface modifications. **M.M. Hoffmann**, M.D. Too, S.N. Troy, M. Vogel

8:20 . Beyond Langmuir-Hinshelwood: analytical rate theories for non-mean field surface kinetics. P. Paranjape, **J.P. Greeley**

8:40 . Template-stripped substrates with solvent-impermeable metal thin films. **C. Avedian**, C. Trang, M.S. Inkpen

9:00 . Design of pressure-resistant superhydrophobic surfaces for sustainable turbulent drag reduction. **B. Zhuang**, F. Wang, P. Khokhani, M. Bappy, L. Warwaruk, K. Hong, H. Ganesh, M. Bross, W. Straka, G. McKinley, K. Mahesh, S. Ceccio, A. Tuteja

9:20 . Role of surface ligand chemistry and shape anisotropy of plasmonic nanostructures on electrooxidation. **S. Saxena**, S. Hati, A. Sharma, P. Biswas, D. Roy, B.B. Muhoberac, R. Sardar

9:40 . Nanostructure, stability, and reactivity of rhodium and rhodium oxide nanoparticles on a single-crystal graphite surface. **M. Mahapatra**

10:00 . Fabrication of gallium-based liquid metal alloy films and their tribological performance. **J. Lee**, S. Wooh

10:20 . Temperature-dependent alkyl chain ordering effects on coupled electron and phase transfer at functionalized TiO₂ nanoparticle interfaces. **P. Nasehi**, R. Noriega, H.S. White, M. Lone, C. Waibel

10:40 . Low-voltage aqueous electrophoretic deposition of TiO₂-AgBiS₂ heterojunctions for eco-friendly photoelectrochemical hydrogen production. **J. PARK**, H. KIM, J. Choi

11:00 . Surface engineering of cotton via in-fiber Cu₂O nanoparticles and metal-thiol coordination chemistry. **M. Kashem**, S. Nam

11:20 . High-purity monovalent functionalization of carbon nanotubes. **S. Nishitani**, Z. Liang, A. Tabo, K. Xu, M. Landry

McCormick Place Convention Center
S503b

Basic Research in Colloids, Surfactants and Interfaces

S. Kamdar, Z. Niroobakhsh, *Organizers*

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

8:00 . Shear and extensional rheology of associative polymers. **A. Amer**, R. Gupta, G.A. Deeter, M. Krayner, V. Sharma

8:20 . Stringiness, spinnability, and sprayability of polymer solutions. **L.B. Edano**, C. Slykas, D. Oester, F.M. Choi, R. Gupta, P. Varanasi, V. Sharma

8:40 . Antifoaming in aqueous micellar foams and foam films. **K. Ngo**, H. Zhang, R. Gupta, P. Varanasi, V. Sharma

9:00 . Electrostatic interactions and water structure between charged polymer brushes. **P. Kakkar**, A.J. Romero, S.K. Mallapragada, A. Travesset

9:20 . *Beyond the binary collision approximation*: Modelling low energy impingement events with classical MD+. **C. Mize**, J. Meyer

9:40 . Modulating the interfacial reactivity of organic/water sonicated emulsion aqueous microdroplets for H₂O₂ production. **V. Shah**, A. Fok, G. Muñoz-Avilés, P.J. Kenis

10:00 . Negative thermal expansion and its manifestations within confined lamellar-structured concentrated surfactant solutions. **M. Kaboolian**, P.U. Kelkar, M. Baliga, C. Leal, M. Caggioni, S. Lindberg, K.A. Erk

10:20 . Metastable oxide-mediated interfacial engineering for spiky CuO shell growth on metal nanoparticles. **C. Wu**, X. Wen, T.W. Odom

10:40 . Droplet and interfacial mechanics governing shear response in emulsions. **E. Johnson**, A. Koh

11:00 . Exploring polymer-surfactant interactions at interfaces with sum frequency generation spectroscopy and molecular dynamics simulations. **D.C. Garza**, M. Kazak, T. Kelley, K.A. Cimatu

11:20 . Predicting adsorption competition in mixed surfactant systems. **J. Elowitz**, S. Banerjee, A.E. Clark

11:40 . Dynamic superlattice from nanocrystal-liquid crystal hybrid materials. **S. Yang**, Y. Ning, D. Yang, Y. Zhang, J.G. Saven, C.B. Murray

McCormick Place Convention Center
S504a

Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, S. Lim, R. Nagarajan, C. M. Sims, D. Watkins,
Organizers
M. A. Ilies, Y. Li, *Presiding*

8:00 . Electrografted Biosensing Interfaces on 2D Nanomaterials. **M. Shamsi**

8:15 . Ultra-bright luminescent lanthanide nanoparticles for time-gated bioanalysis and imaging.
Y. Wang

8:30 . Carbonic anhydrase IX targeting with gold nanoplateforms of different sizes for efficient doxorubicin delivery to hypoxic tumors. M. Sanchez Machado, A. Shabana, U.K. Mondal, **M.A. Ilies**

8:45 . Design of metal-organic nanohybrids for detecting foodborne pathogens. **S. Itagaki**, Y. Yamamoto, H. Shiigi

9:00 . Synthesis and characterization of polycatenated DNA crystals. **J. KOO**, W. Zhou

9:15 . Photostable croconaine-conjugated liposomes for near-infrared light–triggered on-demand drug release. J. Kelley, N. Wehrle, S. Wessel, **Y. Park**

9:30 . Effect of anchoring chemistry on polymer growth for stimuli-responsive and hyperthermia-triggered drug delivery. **R. Atik**, P. Chinwangso, T. Lee

9:45 . Programmable hybrid peptoid–nanoparticle nanomembranes for effective and selective detoxification of mustard gas simulant. **T. Trinh**, R.N. Zuckermann, C. Chen

10:00 . Sculpting light at the nanoscale: Chemical routes to nanophotonic materials and biosensing. **Y. Li**

10:15 . Elucidating the self-assembly mechanism of multifunctional BCNO nanoassemblies with pH-responsive and active-targeting properties for Boron Neutron Capture Therapy. **W. Yi**, P. Keng

10:30 . Predictive design of drug-loaded nanocarriers via rapid nanoprecipitation and machine-learning-guided optimization. **D.U. Mualen**, F. Sorourifar, J. Paulson, J.O. Winter

10:45 . Superstructural phase transitions in polymer-grafted nanooctahedra. **B. Zhu**, J. Chen, R. Li, J. Ren, Y. Wang, Y. Zhong, Y. Liu, A. Yasuhara, M. Kakefuda, Y. Aoyama, T. Vo, X. Ye

11:00 . Withdrawn

11:15 . Folate receptor α -directed mesoporous silica nanoparticles for targeted alpha therapy of ovarian cancer. **A. Swaidan**, C. Mona, I. Azrour, B. Louis, P. JeanJean, B. Comin-Anduix, K. Záruba, J. Czernin, J. I. Zink, G. Carlucci, I. Siddique

11:30 . Pepsin induced chiral plasmonic Au nanoparticles. **S. Cho**, I. Ha, J. Han, K. Nam

11:45 . One-step photochemical synthesis of thermoresponsive gold–polymer nanohybrids with tunable solid/hollow morphologies and catalytic activity. **M. Wu**, R. Montalbo, C. Su, O. Shih, H. Tu