COLL

DIVISION OF COLLOID AND SURFACE CHEMISTRY

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

SUNDAY MORNING

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station D

ACS Award in Colloid Chemistry 2023: Symposium in honor of Joanna Aizenberg

B. Hatton, L. D. Zarzar, *Organizers, Presiding*

8:00 . Plasmonic nanoparticle lattices: A smart materials platform. **T.W. Odom**

8:30 . Colloids as the central building block for advanced photonics and energy storage systems. **P.V. Braun**

9:00 . Nonequilibrium partitioning of surfactants into oil droplets. R. Balaj, W. Xue, P. Bayati, X. Chen, A. Boal, S. Mallory, **L.D. Zarzar**

9:30 . Programming assembly and transformations of nanoscale systems. **O. Gang**

10:00 . Open channel metal particle superlattices. **C.A. Mirkin**

Crown Plaza Indianapolis Downtown Union Square
Victoria Station B

Active and Responsive Interfaces

B. Bharti, *Organizer*
R. Kanwar, *Presiding*

8:00 . Tuning poly(*N*-isopropylacrylamide) surfactant phase behavior to access thermoresponsive micelle disassembly. **C.P. Easterling**, C.K. Simocko, M.K. Singh, L.J. Abbott, Z.W. Romero, J. Watt, M.J. Stevens, D. Huber

8:20 . Tuning the sensitivity of PNIPMAM-based nanosensors by the addition of salts. **J. Reitenbach**, C. Geiger, P. Wang, A. Vagias, R. Cubitt, D. Schanzenbach, A. Laschewsky, C.M. Papadakis, P. Mueller-Buschbaum

8:40 . Effect of multivalent interactions on the electrostatic stability of poly(*N*-isopropylacrylamide) nanogels. **Y. Zhu**, J. Hou, D.M. Gray, T.O. McDonald, A. Dumanli

9:00 . Moisture responsive fabrics with artificial leaf stomata. **L. Lao**, H. Bai, Y. Wu, J. Fan

9:20 . Silver-immobilized antiviral coatings for low-cost structural colour surface decoration. **D. Burak**, M. Rahman, D. Seo, S. Lee, S. Cho

9:40 . Leveraging redox-active ferrocene-containing polymers for electrochemical separation processes. **J. Elbert**, S.R. Cotty, H. Vapnik, N. Kim, X. Su

10:00 . Wetting on soft and swollen polymeric surfaces. **J. Pham**

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station A

Advanced Nanomaterials, Surface, and Interfaces for the Detection and Treatment of Emerging Contaminants

E. Andreescu, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Fabrication of dual responsive polymer microgel containing silver nanoparticles with catalytic and antibacterial activity. **M. Ajmal**, M. ALI

8:25 . Conjugated polymer nanoparticles as a universal high-affinity probe for the selective detection of microplastics. **A. Awada**, M. Potter, D. Wijerathne, J.W. Gauld, B. Mutus, S. Rondeau Gagne

8:45 . Reversible self-assembled monolayers: Multivalent dynamic platform for detection, inhibition, differentiation of influenza virus. **Y. Sergeeva**, S. Yeung, T. Janssens, N. Vinogradov, B. Sellergren

9:05 Intermission.

9:15 . Biofunctional microparticles enable trace heavy-metal detection in a dual modality detection device. A. Ulloa, **L. Stanciu**

9:35 . Assessment of chemical agent decontamination effectiveness utilizing a polymeric catalyst membrane as an optode. **A. Angelopoulos**, S. Barber

9:55 . Optical detection of quaternary ammonium compounds in complex fluids. **H. Dewey**, J. Jones, S. Lucas, J. Budhathoki-Uprety

10:15 . Graphene as a rational interface for enhanced adsorption of emerging contaminants from water: A novel approach for determining the role of Pi-Pi interactions. **J.L. Roberts**, C.S. Griggs

Crown Plaza Indianapolis Downtown Union Square
Victoria Station A

2023 ACS National Award for Creative Invention: Symposium in Honor of Younan Xia

W. Li, *Organizer*
B. J. Wiley, *Organizer, Presiding*

8:00 . Modulating the facet-selective binding of PVP with chloride to control the anisotropic growth of Ag nanocrystals. H. Xu, Z. Chen, K. Fichthorn, **B.J. Wiley**

8:30 . Youth and age in the world of nano. **C.J. Murphy**

9:00 . Symmetry reduction in seeded synthesis of metal nanocrystals. **S.E. Skrabalak**

9:30 Intermission.

10:00 . Synthesis of multifunctional nanomaterials through the self-assembly of size and shape selected nanocrystals. **C.B. Murray**, S. Yang, Y. Ning, D.J. rosen, E. Marino, C. gonzalez, Z. Wang, S. Bakshi, A. Rao

10:30 . Nanocrystals at the crossroads: Parallel tempering molecular dynamics of nanocrystal shape transitions. **K. Fichthorn**

11:00 . Periodic arrays of single-crystal gold nanoplates – placing new controls on planar growth modes. **S. Neretina**, R. Neal, S.D. Golze, Z.R. Lawson, W.J. Tuff, R.A. Hughes

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Colloidal Nanoparticle Synthesis and Assembly

H. Fan, D. Huber, T. Li, Y. Sun, *Organizers*
F. Lu, *Presiding*

8:00 . Fabrication of Janus nanosheets with pH-triggered switchable amphiphilicity for interfacial application. **W. Wang**

8:30 . Macroscopic materials built from nanoparticle superlattices. **R. Macfarlane**

9:00 . Structural diversity in dimension-controlled assemblies of tetrahedral gold nanocrystals. **Y. WANG**, J. Chen, Y. Zhong, S. Jeong, R. Li, X. Ye

9:20 . Temperature-mediated dual emission in Mn-doped in ZnS-CdSe Janus coupled quantum dot. **v. chaudhary**

9:40 Intermission.

9:50 . Controlling Ostwald ripening for the synthesis of ultrasmall nanocapsules. **T.P. Doan-Nguyen**, D. Crespy

10:10 . Lanthanide-based double perovskite nanocrystals with emissions covering the UV to NIR spectral range. **P. Saghy**, A.M. Brown, J.R. Robinson, O. Chen

10:30 . Obtaining nanoparticles with a defined DNA valency by DNA valency sorting chromatography. **N.T. Emerson**, H. Yang

10:50 . On the critical conditions for the colloidal synthesis of magic-sized clusters. **C. Zeng**

11:10 . Marangoni flow assisted assembly of cellulose nanocrystals in sessile droplets: Effect of droplet shape and substrate. P. Ho, I. Sodipo, T. Balcerowski, **A. Dumanli**

11:30 . Effects of solvent on the synthesis of metal sulfide nanostructures. **M. Stanford**, D. Rivera-Vazquez

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Metal Nanostructures for (Electro)Catalysis

M. L. Personick, Y. Sun, Y. Yin, *Organizers*
J. Chen, J. He, *Organizers, Presiding*

8:00 . Award Address (ACS Award for Creative Invention sponsored by ACS Corporation Associates). Enhancing the catalytic properties of palladium nanocrystals by transforming them into palladium hydrides. **Y. Xia**

8:30 . Nanoscale effects in oxygen reduction reaction electrocatalysis: The impact of stress relaxation on nanostructures and defects. Z. Zeng, A. Shih, A. Morankar, M. Koper, **J.P. Greeley**

9:00 . Atomically dispersive precursors to the synthesis of ultrafine platinum alloy and intermetallic nanoparticles. **H. Yang**

9:30 . Effect of citrate, PVP, and 4-ATP ligands on gold nanoparticle catalysts for 4-nitrophenol reduction: Reaction rate, induction time, and desorption. **S. Neretina**, R. Neal, R.A. Hughes

10:00 Intermission.

10:15 . Catalytic inorganic nanoparticles with enzyme-like activities. **X. Xia**

10:45 . Conversion of core@shell nanoparticles to high entropy alloy nanoparticle catalysts. **S.E. Skrabalak**

11:15 . Not so noble: Tailoring the reduction potentials of gold nanoparticles by size. **R. Espinoza**, D. Cahua, K. Magro, S.C. Nguyen

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

Surface Science Young Investigators

J. Batteas, H. Steinrueck, S. L. Tait, *Organizers, Presiding*

8:00 . Measuring solvent / solid adhesion energies and using them to bridge the gap between gas-phase and liquid-phase adsorption energies. **S. Harman**, G. Ruehl, J.R. Rumptz, C.T. Campbell

8:40 . Novel experiment setup to model the effects of temperature on halite scaling and inhibition. **C. Navarathna**, A. Kan, M.B. Tomson

9:20 . Synthesis of B_4 cluster on Mo(112) surface. **S. Hossain**, T. Nakagawa

10:00 Intermission.

10:20 . Effect of a Pt monolayer over a tungsten carbide surface as catalyst for acetylene selective hydrogenation. **C. Jimenez-Orozco**, A. Koverga, E. Flórez, J. Rodriguez

11:00 . Electrochemical adsorption of selenium at the pyrite (001) surface. **A. Wanhala**, J. Stubbs, P.J. Eng

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station B

Molecular Ordering at Interfaces: Theory, Fundamentals, and Applications

S. Claridge, *Organizer*
S. L. Tait, *Organizer, Presiding*
M. Stoehr, *Presiding*

8:00 Introductory Remarks.

8:10 . Investigating the impact of interfacial interactions on the formation and morphology of surface-anchored metal-organic frameworks. D. Dhanapala, D. Maglich, C. Fasana, F. Gonzalez, J. Wade, A. Weeks, **M.E. Anderson**

8:40 . Controlled assembly of Bundlemer brushes on gold. **M. Langenstein**, K. Crane-Moscowitz, C.J. Kloxin, E.M. Furst, D.J. Pochan

9:00 . Conformational analysis in monolayer interfaces and molecular electronics. **M.M. Thuo**, C. Du

9:30 . Cooperative binding in self assembled monolayers (SAMs): A computational modeling study. **B. Chilukuri**, K. Hipps, U. Mazur

9:50 Intermission.

10:10 . Continued explorations of 1D and 2D organic materials on surfaces. **J. MacLeod**

10:40 . Chiral molecular layers: A new twist for clean energy. **M. Lingenfelder**

11:10 . Modulating energy transfer from plasmonic nanoparticles to surface adsorbates. **C.F. Landes**

11:40 . High throughput generation of hierarchical nanometer-scale functional patterns on 2D crystalline and amorphous soft materials. **J.C. Arango** , C.J. Pintro

Virtual Only
Virtual Session

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*
A. Trache, *Presiding*

10:00 . Lateral compression of lipids drives transbilayer coupling of protein condensates. **Y. Lee**, S. Park, F. Yuan, J. Stachowiak

10:30 . Energy landscape for third and second stages of membrane protein folding probed by hydrogen-deuterium exchange nuclear magnetic resonance. P. Xiao, L. Brown, **V. Ladizhansky**

11:00 . Determination of membrane orientations of antimicrobial peptides and membrane protein complex. **Z. Chen**

11:30 . Surface spectroscopy of specific cation effects at liquid/liquid interfaces: An unconventional approach to self-assembly. **B. Doughty**, L. Lin, Z. Liu, U.I. Premadasa, Y. Ma, V. Bocharova, R.L. Sacci, J. Katsaras, K. Hong, J.M. Carrillo, C.P. Collier

12:00 . Biospectroscopic characterization of novel membrane photosensors. M. Saliminasab, Y. Yamazaki, A. Palmateer, A. Harris, A. Bondar, **L. Brown**

12:30 . Amantadine's preferred interactions with phase separated membranes. **J.J. Kinnun**, J.M. Carrillo, C.P. Collier, M.D. Smith, J. Katsaras

1:00 . Dynamic origins of membrane elasticity explored by NMR and molecular simulations. **M. Doktorova**, G. Khelashvili, R. Ashkar, M.F. Brown

Imaging Biopolymers and Biological Assemblies in Living Systems

Sponsored by POLY, Cosponsored by ANYL, BIOL and COLL

SUNDAY AFTERNOON

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Active and Responsive Interfaces

B. Bharti, *Organizer*
R. Kanwar, *Presiding*

2:00 . Polarity-dependence of the nonlinear dielectric response in interfacial water. **D. Bratko**, N. Mulpuri

2:20 . Material properties of liquid-like protein droplets drive spontaneous actin filament bundling. **K. Graham**, A. Chandrasekaran, L. Wang, A. Ladak, E. Lafer, P. Rangamani, J. Stachowiak

2:40 . Piezochromic photonic materials for ultrasensitive pressure detection. **R. Li**, Z. Wang, R.M. Parker, S. Vignolini

3:00 . Induced-charge electrophoretic microsensors: Label-free, particle motion-based biosensing. **C.P. Thome**, W.S. Hoertdoerfer, J.R. Bendorf, J.G. Lee, C. Shields IV

3:20 . Tuning the crystallization pathway of boehmite nanoparticles using *ac*-electric fields. **R. Kanwar**, J. Chun, B. Bharti

3:40 . Birefringence of chiral hedgehog particles. **p. kumar**, E. Marino, A. Simon, D. Katz, C.B. Murray, N. Kotov

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

Colloids Intended for Biological Applications

N. Feliu Torres, *Organizer*
W. J. Parak, *Organizer, Presiding*

2:00 . Formation and charaterization of transient dryg/cyclodextrin complex nanoparticles and microparticles for drug delivery. **T. Loftsson**

2:20 . Magnetic and light activated nanocarriers in the treatment of childhood brain cancers. **N. Thorat**

2:40 . Catalytic nanoparticles with peroxidase-like activity as labels for sensitive colorimetric lateral flow assay. **Z. Wei**, X. Xia

3:00 . Aqueous RAFT polymerization mediated linear-dendritic hybrids and their theranostic application. **a.S. kulkarni**, D.L. Watkins

3:20 . Predicting protein function and orientation on a gold nanoparticle surface using a residue-based affinity scale. **N.C. Fitzkee**, J.X. Xu, S. Alom, R. Yadav

3:40 . Understanding the mechanism of corona formation on gold nanoparticles in serum and simpler mixtures of serum proteins. **T.K. Shaikh**, N.C. Fitzkee

4:00 . Complex structural-optical property relationships in ternary and quaternary copper-indium-(zinc)-chalcogenide quantum dots at the ensemble and single particle level. **C.D. Heyes**

4:20 . Protein charge distribution governs the nature of the nanoparticle protein corona. **C. Kariyawasam**, R. Somarathne, R. Mayatt, R. Conner, N.C. Fitzkee

Crown Plaza Indianapolis Downtown Union Square
Victoria Station A

2023 ACS National Award for Creative Invention: Symposium in Honor of Younan Xia

W. Li, *Organizer*
B. J. Wiley, *Organizer, Presiding*

2:00 . Control of nanostructure shape to control function– in honor of Prof. Younan Xia. **P.S. Weiss**

2:30 . Probing molecular vibrations on the surfaces of colloidal silver nanocubes. **D. Qin**

3:00 . Amplifying optical absorption of ultrafine metal nanoparticles. **Y. Sun**

3:30 Intermission.

4:00 . Electron videography of colloidal and biological systems. **Q. Chen**

4:30 . Plasmonic hollow nanoparticles: Synthesis and applications in biosensing. **X. Xia**

5:00 . Stable perovskite nanocrystals and Au clusters for optical cryptographic applications. **U. Jeong**

Crown Plaza Indianapolis Downtown Union Square
Victoria Station B

Colloidal Nanoparticle Synthesis and Assembly

H. Fan, T. Li, Y. Sun, *Organizers*
D. Huber, *Organizer, Presiding*

2:00 . Shape memory in self-adapting colloidal crystals. **C.A. Mirkin**

2:30 . Stable and photosensitive HgTe colloidal quantum dots. J. Noh, **B.A. Korgel**

3:00 . Epitaxially aligned atomically flat single-crystal gold hexagonal and triangular nanoplates formed in large-area arrays. **S. Neretina**, R. Neal, S.D. Golze, Z.R. Lawson, W.J. Tuff, R.A. Hughes

3:30 Intermission.

3:40 . Multiscale chirality of self-assembled nanostructures. **N. Kotov**

4:10 . Biofunctional colloidal polystyrene particles enable pathogen detection. **L. Stanciu**, S. Somvanshi, A. Ulloa, A. Barui

4:40 . Biomolecules for non-biological things: Peptide 'bundlemer' design for model colloidal particle creation and hierarchical solution assembly. **D.J. Pochan**

5:00 . Design of dendritic pro-mesogenic ligands for the liquid crystal-nanoparticle hybrid system. **Y. Ning**, S. Yang, Z. Liu, Y. Morimitsu, C.O. Osuji, C.B. Murray

5:20 . Assembly of plasmonic gold trimers and dimers with air-filled nanogaps. **Z.R. Lawson**, A.S. Preston, M.T. Korsa, N.L. Dominique, W.J. Tuff, E. Sutter, J.P. Camden, J. Adams, R.A. Hughes, S. Neretina

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station B

Molecular Ordering at Interfaces: Theory, Fundamentals, and Applications

S. Claridge, S. L. Tait, *Organizers*
M. E. Anderson, S. Maier, *Presiding*

2:00 . Molecular nanostructures on graphene as well as nanostructures based on graphene. **M. Stoehr**

2:30 . On-surface synthesis of mesoscale ordered 2D polymers by topochemical photopolymerization. L. Grossmann, J. Björk, E. Ringel, B.T. King, **M. Lackinger**

3:00 . Surface modification of graphene with non-covalently bound self-assembled receptor monolayers. **P. Buhlmann**, X.V. Zhen

3:30 . Using controlled molecular assembly to tune the optoelectronic properties of materials. X. Chen, F. Wu, **J.D. Batteas**

4:00 Intermission.

4:20 . Polymerized noncovalent monolayers: A foundation for nanostructured material design. **S. Claridge**

4:50 . Molecular mechanisms in the assembly of intercellular adhesions. **D.E. Leckband**, C. Thompson, Z. Su, V. Vu, N. Shashikanth, Y. Wu, D.K. Schwartz

5:20 . Precision nanostructured presentation of carbohydrates and peptides at hydrogel interfaces. **A. Singh**, L. Williams, J.C. Arango, S. Claridge

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station A

Surface Chemistry

Molecular Strategies for Surface Reactions

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

2:00 . Designing molecular strategies to tune the electrode-electrolyte interface in heterogeneous electrocatalysis. **V. Thoi**

2:40 . Understanding mechanochemical reaction pathways; surface chemistry at the solid-solid interface. **W.T. Tysoe**

3:00 . Excited state ligand chemistry of carboxylate passivated CdSe and CdS quantum dots. **M.N. Grega**, J. Gan, J.B. Asbury

3:20 . Deciphering the redox-controlled stabilization effect on conduction band energies of silicon nanointerfaces functionalized with n-type monolayers of perylene bisimides. **A. Mukhopadhyay**, K. Liu, V. Paulino, C.L. Donley, O. Jean-Hubert

3:40 Intermission.

4:00 . Controlling and screening properties in organic thin films grown by molecular layer deposition. **D.S. Bergsman**

4:40 . Interfacial structure of the barite (210) surface: A comparison of x-ray reflectivity and molecular dynamics simulations. **O. Colón**, K. Yuan, A.G. Stack, S. Lee, P. Fenter, J. Bracco

5:00 . Molecular-scale observation of variations in Rb^+ adsorption mechanism controlled by the heterogeneity of the quartz (101) surface. P. Yang, K. Yuan, R. Khanal, S. Irle, L. Anovitz, P. Fenter, A.G. Stack, **S. Lee**

5:20 . Selective self-assembly at a solid-liquid interface of Au(111). **N. Preetha Genesh**, D. Cui, D. Dettmann, O. MacLean, T.K. Johal, A.V. Lunchev, A.C. Grimsdale, F. Rosei

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station D

ACS Award in Colloid Chemistry 2023: Symposium in honor of Joanna Aizenberg

B. Hatton, L. D. Zarzar, *Organizers, Presiding*

2:00 . Self-organization for shaping up bioinspired materials. **W. Noorduin**

2:30 . On the formation mechanisms of textured lattice structures from some natural and synthetic systems. **L. Li**

3:00 . Remote and tetherless nanoparticle toolkits for cells and live animals studies. **J. Cheon**

3:30 . Surface functionalization to control biological interactions and function – in honor of Prof. Joanna Aizenberg. **P.S. Weiss**

4:00 . Helical self-organizations and emerging functions in natural phenomena, art, architecture, early machines, biological and synthetic assemblies. **V. Percec**

4:30 . Engineering metal-organic framework functionalities for water harvesting and catalysis. **L. Gagliardi**

5:00 . Microbes as colloids: Simulating interactions with surface topographies. **B. Hatton**

5:30 . Chirality and complexity of chiral nanostructures. **N. Kotov**

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Oxides, Chalcogenides, Hybrids, and Interfaces at the Nanoscale for (Electro)Catalysis

J. He, M. L. Personick, Y. Sun, *Organizers*
J. Chen, Y. Yin, *Organizers, Presiding*

2:00 . Synthetic control of composition in multi-metal colloidal nanoparticles. **R.E. Schaak**

2:30 . Controlling the phase, defects and electronic structures of nanostructures and nanocomposites for efficient electrocatalytic water splitting. **S. Jin**

3:00 . Dissolution-redeposition dynamics at the electrochemical interface govern electrocatalytic reactions on metal oxyhydroxides. **F. Lin**

3:30 . Design and enabling of nanoarray integrated system for energy-efficient and cost-effective decarbonization. **P. Gao**

4:00 Intermission.

4:15 . Tailoring cooperative metal-support interfaces for catalysis. **S. Dai**

4:45 . Earth-abundant metal oxide nanoparticles catalyze carbon-carbon bond hydrogenolysis. **W. Huang**, A. Tennakoon, S. Chen, K. You, S. Ammal, A. Heyden, A.D. Sadow

5:15 . Exceptionally fast ion diffusion in block copolymer-based porous carbon fibers. **G. Liu**, J. Elliott, N. Osti, M. Tyagi, E. Mamontov, L. Liu, J. Serrano, K. Cao

5:45 . Oxidation of thiol-containing biomolecules by porous silica particles. **Y. Li**, R.N. Zare

6:05 . $Ni_{2-x}Mn_xP$ colloids as earth-abundant catalysts for electrochemical water oxidation. **F. Aghabozorgi**, S.L. Brock

Virtual Only
Virtual Session

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*
Y. Lee, *Presiding*

3:00 . Single-molecule binding spectroscopy of cancer biomarkers on cells and exosomes. **s. tani**, l. Alhalhooly, S. Ghosh, S. Mallik, j. kim, y. choi

3:30 . Smooth muscle alpha-actin R149C mutation downregulates integrin recruitment at cell-matrix adhesions. K.R. Ojha, H. Kim, S. Padgham, L. Hopkins, A. Chattopadhyay, G. Han, D. Milewicz, M. Massett, **A. Trache**

4:00 . Phase behavior studies of mixtures of intrinsically disordered protein tau and anionic liposomes. **C.R. Safinya**, C. Tchounwou, D. Lasher, B. Fletcher, K.K. Ewert, Y. Li, S.C. Feinstein

4:30 . Femtosecond X-ray photons uncover hidden dynamics of rhodopsin. **M.F. Brown**, T.D. Grant, S.M. Perera, L.A. Salas-Estrada, A.V. Struts, X. Xu, S.D. Fried, N. Weerasinghe, U. Chawla, R. Alvarez, J. Coe, R. Fromme, K. Karpos, C.K. Menon, S. Lisova, D. Meza, R. Nazari, A. Singharoy, S. Zaare, S. Chamberlain, N.A. Zatsepin, F. Perakis, S. Carbajo, M.S. Hunter, M. Liang, M.D. Seaberg, S. Boutet, D. Mendez, A. Grossfield, P. Fromme, R.A. Kirian

5:00 . Visualization of ultrafast force from lipids. **D. Bolmatov**, H. Scott, C.P. Collier, J. Katsaras

5:30 . Polymer giant vesicles as artificial models for dynamic biomembranes. **E. Yoshida**

Imaging Biopolymers and Biological Assemblies in Living Systems

Sponsored by POLY, Cosponsored by ANYL, BIOL and COLL

SUNDAY EVENING

Indiana Convention Center
Hall F-H

Advanced Nanomaterials, Surface, and Interfaces for the Detection and Treatment of Emerging Contaminants

E. Andreescu, *Organizer*

7:00 . Concentrating, recovering, and quantification of lithium from simulated seawater using three-dimensional MnO_2-silicon oxide nanoporous particles. **A.Y. VARGAS-LIZARAZO**, P. Sivakumar, P. Kohli

7:00 . Accelerated deactivation of broad-range microbes via in-situ generation of reactive oxygenated species for wearable devices. **M. Ali**, A.Y. VARGAS-LIZARAZO, T. Sons, M. Garnett, J. Vargas, M. Olson, P. Jensik, S. Hamilton, P. Kohli

7:00 . SERS materials prepared from silver nanoparticles embedded in polymer matrices. **A. Pico**, C. Rubio, D. Heredia, E. Villegas, L. Corredor, T. Terencio, L. De Lima, M. Caetano, F. Lopez

7:00 . Investigation of monochloramine disinfectant effects on the surface reaction and corrosion of iron interfaces. **S. Pandey**, D. Lemmons, R. Mackie, C. de Alwis, D. Kolodge, K.A. Perrine

7:00 . Peanut allergen reduction using phytic acid functionalized magnetic chitosan nanoparticles. **J. Bravo**, S. Smith, Q. Davis, A. Omoike

Indiana Convention Center
Hall F-H

Basic Research in Colloids, Surfactants and Interfaces

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

7:00 . Coarse grained computational chemistry of cyclodextrin based emulsions. **S. Vyas**, Y. Wang, K. Raghupathi, J.A. Bikker

7:00 . Further exploration of heat of immersion as a method to quantify wettability for particulates: Effect of temperature. **B. Xu**

7:00 . Continuity and stability of polyvinylpyrrolidone thin films on silicon wafers. **M. Windus**, W. Chen

7:00 . Effects of functional polymer particles on the formation of gold nanoparticles and their catalytic properties. **F.M. Eyimegwu**, F.O. Egemole , P.N. Eyimegwu, J. Kim

7:00 . Investigation of adsorption and spin coating of poly(vinyl alcohol) on hydrophobic substrates. **Y. Xu**, W. Chen

7:00 . Preservatives induced spontaneous phase separation of Semaglutide. **V. Tangry**, Q. Li, K. Qian, N.J. Wagner

7:00 . Tailoring surface behavior of hollow glass microspheres with poly(ethylene glycol methacrylate) polymer brushes. **R.T. Snipes**, M. Melara, J. Owens, I.A. Luzinov

7:00 . Urea's apparent impact on small AOT in isooctane reverse micelles: Constraints on the hydrogen bonding network. **M.T. Nguyen**, N.E. Levinger, B.L. Gourley

7:00 . Activated cleaning chemistries via megasonic energy for low-stress post-chemical mechanical planarization of SiC. **J. Powell**, A.T. Caridi, K.A. Cahue, K.R. Reyes, J.J. Keleher

7:00 . Development of bis-bipyridinium-based gemini surfactants for template-directed self-assembly. **V.P. Jakharia**, H. Tran, M.A. Olson

7:00 . Oxidant-resistant silver and bismuth nanoparticles for use bioimaging applications. K.C. Tome, **M.R. Mackiewicz**

7:00 . Enlightened: Silver nanoparticles undergo shape transformations in the presence of light except with encapsulated by hybrid lipid membranes. C. Nieves Lira, **M.R. Mackiewicz**, S. Harper, B. Harper, P.D. Ngyugen

7:00 . Physicochemical features of nanomaterials have an effect on their reflectance properties. S. Huo, **M.R. Mackiewicz**

7:00 . Hybrid lipid-coated silver nanoparticles are sticky on fabrics. S.H. Fischer, **M.R. Mackiewicz**

Indiana Convention Center
Hall F-H

Biomaterials and Biointerfaces

E. Andreescu, C. P. Collier, R. M. Espinosa-Marzal, S. Hunyadi Murph, S. Sinha Ray, *Organizers*

7:00 . Mechanochemical changes in the extracellular matrices of hepatic stellate cells in response to the stiffness of synthetic scaffolds. **H. Li**, L. Osorno, J. Llewellyn, T. Arinzeh, R. Wells, M. Foston

7:00 . Plug-in aero-manufacture of nanobulges for an in-place anticoronaviral on air filters. J. Choi, K. Poudel, K. Nam, A. Piri, A. Rivera–Piza, S. Ku, J. Hwang, J. Kim, **J. Byeon**

7:00 . Magneto-responsive hydrogels controlled by external magnetic field and Ca2+ ions. **D. Petri**

7:00 . Hierarchical bimodal nanoporous gold (hb-NPG) electrode for the sensitive and specific detection of glycoprotein biomarkers. **P. Sondhi**, T.M. Adeniji, K.J. Stine

7:00 . Enhancing efficiency of multistep reactions by substrate channeling using P22 virus-like particles. **Y. Wang**, E. Selivanovitch, T. Douglas

7:00 . Understanding conformational changes in HSA and its interaction with gold nanorods. **K. Halder**, S. Dasgupta

7:00 . Selected DNA aptamers exhibit structure-dependent control of collagen mineralization. **K. Ta**, A.E. Gerdon

7:00 . Design of methacrylamide based zwitterionic cross-linkers for polyampholyte hydrogels. **S.O. Oneida**, M. Chakraborty, M.T. Bernards, K.V. Waynant

7:00 . Unraveling wound healing mechanism with the use of bioinspired nanocomposites. **C.M. Hurd**, U.I. Flores, B. Koniuszy, H. Kamuda, M. Havens, J.J. Keleher

7:00 . Probing sequence dependent orientation in VOC binding peptides during IPA exposure using near edge X-Ray absorption fine structure spectroscopy. **g. sant'anna**, N. Bedford, D. Sim, S. Kim

7:00 . Multiple length-scale analysis of the effects of popular beverages on dental enamel. **E. Rond**, A. Erickson, S.L. Cravens

7:00 . Preparation and characterization of 3-D printed hydrogel systems doped with photochemically prepared antimicrobial nanoparticles. **K.M. Sheets**, C.E. Rogers, J.J. Keleher

7:00 . Detection of periodontal pathogens and analysis of saliva complexity. **R.A. Rathnayake**, N. McLaughlin, L. Chen, Z. Zhao, Y. yan, Q. Xie, W. Li, M. Mathew, R. Wang

7:00 . Nanomechanical mapping of membrane rigidity and protein biomarker for lung cancer on single exosomes. **S. Park**, H. Al Faruque, Y. Kim, E. Kim, Y. Lee

7:00 . Direct investigations of alginate interactions with proteins in solution and in alginate gels. **D.E. Leckband**, R. Chang, M. Gruebele

7:00 . *In silico* enzyme structure analysis predicts optimal immobilization via hydrophobicity matching. **H. Sanchez-Moran**, D.K. Schwartz, J. Kaar

Indiana Convention Center
Hall F-H

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*

7:00 . Investigating the influence of ether lipids on liquid-liquid phase separation in model membranes. **K.D. Sharma**, N. Waxham, F. Heberle

7:00 . Using iodinated cholesterol to enhance contrast in cryo-EM images of lipid membranes. **E. Crumley**, D. Mehta, J. Lou, M. Best, N. Waxham, F. Heberle

7:00 . Modelling the partitioning of amphiphilic molecules and co-solvents in biomembranes. **L. Tan**, M. Smith, H. Scott, A. Yahya, J.G. Elkins, J. Katsaras, H.M. O'Neill, S. Pingali, J. Smith, B.H. Davison, J.D. Nickels

7:00 . Effects of interdigitation on the biophysical properties of lipid bilayers: A molecular dynamics study of chain-asymmetric lipids. **E.H. Chaisson**, F. Heberle, M. Doktorova

Indiana Convention Center
Hall F-H

Colloidal Nanoparticle Synthesis and Assembly

H. Fan, D. Huber, T. Li, Y. Sun, *Organizers*

7:00 . Sequential growth mechanism of Ag-pMBA monolayer protected cluster formation. **A.J. Almalki**, T.P. Bigioni, R. Sapkota

7:00 . EVQ-218: A high energy nanoparticle that measures up to NIST standards. **B. Kennon**, **W. Niedermeyer**

7:00 . Colloidal nanoporous gold nanoparticles synthesis. **D. Lingden**, J. Bhattarai, K.J. Stine

7:00 . Solid-state synthesis of $Si_{1-x}Ge_x$ nanocrystals exhibiting energy gap tunability via Ge (II) halide precursors. **G. Spence**, I.U. Arachchige

7:00 . Shape control of CdSe quantum dots via ligand assisted coalescence growth. **J. Ojile**, D. Khon, M. Zamkov

7:00 . Monodispersed particles with chiral structural color. **J. HE**, S. LIU, G. GAO, Y. Takeoka

7:00 . Partial coalescence of CdSe/CdS core/shell nanocrystals. **J. Wray**, M. Zamkov, D. Khon

7:00 . Multifunctional heterogeneous carbon nanotube nanocomposites assembled by DNA binding peptide anchors. J. Chang, K. Kim, S. Yoon, K. Jo, **J. Lee**

7:00 . Facile aqueous synthesis of hollow dual plasmonic hetero-nanostructures with tunable optical responses through the nanoscale kirkendall effects. **M. Ivanchenko**, A. Carroll, A.B. Brothers, H. JING

7:00 . Transformable polymer masks as a platform for regioselective modification of metal nanocrystals. **M. Knobeloch**, Y. Li, S.E. Skrabalak

7:00 . Recent advancement in 2D nanomaterials promoting success of multi-excitonic applications by suppressing auger recombination. **M. Montemurri**, **B. Kayira**, M. Zamkov

7:00 . Synthesis of highly concentrated and monodispersed Au nanoparticles for precise self-assembled structure control. **M. Ouwleen**, K. Park, D. Long, a. gillman, R.A. Vaia, L.F. Drummy

7:00 . Microgel platforms for surface-enhanced Raman scattering based optical probes. **Q. Hardy**, S. Patrick, K. Whitham, D. Cherry, S. Hall, A. Hall, M.D. Montano, D.A. Rider, S.R. Emory

7:00 . As-synthesized alkyne-coated CdSe quantum dots for site-directed nanoparticle-substrate chemical linkage. S. Niezgoda, **V. Petner**, L. Tortella

7:00 . Gold-decorated silica beads for the fabrication of metallodielectric photonic crystals. **Y. Zhu**, A. Dumanli

7:00 . Synthesis of mixed alloy and core@shell nanoscale templates for galvanic replacement. **Y. Li**, **S.E. Skrabalak**

7:00 . Modulator approach for controlling the length of chiral 1-D single-helical gold nanoparticle superstructures. **Y. Zhang**, S. Brooks, N.L. Rosi

Indiana Convention Center
Hall F-H

Colloids Intended for Biological Applications

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

7:00 . Surface modification of aluminum nanocrystals with biologically-relevant ligands. **J. Luu**, O. Neumann, A. Bayles, C. Jacobson, N.J. Halas

7:00 . Effect of salt on the thermoresponsive behavior of an amphiphilic graft copolymer, poly(ethylene glycol)-graft-(poly(vinyl caprolactam)-co-poly(vinyl acetate)). **M. Kennedy**

7:00 . Hollow porous bimetallic platinum-rhodium shell based nanocomposite for combined tumor therapy. **J. Sun**, H. Wang, S. Wang

Indiana Convention Center
Hall F-H

Functionalized Nanoparticles for Medical Applications

T. Webster, S. Zanganeh, *Organizers*

7:00 . Machine learning assisted quantitative estimation of endometriosis biomarker through electrochemical impedance spectroscopy. **A. Pal**, **S. Biswas**, K. Chaudhury, S. Das

7:00 . Development of machine learning-driven web app interface for quantitative estimation of urine pH: Theory to experimental validation. **S. Biswas**, **A. Pal**, K. Chaudhury, S. Das

7:00 . Selective sensing of dopamine using hexagonal boron nitride: Experimental validation of first principle calculations. **S. Biswas**, **A. Pal**, K. Chaudhury, S. Das

7:00 . MoS_2 modified paper sensor towards selective detection of uric acid: Experimental validation of first principle calculations. **A. Pal**, **S. Biswas**, K. Chaudhury, S. Das

7:00 . Evaluation of particle size and surface coating in blood-brain barrier penetration ability using porous silicon nanoparticles. **w. zhang**

7:00 . Multifunctional human serum albumin nanoparticles with indocyanine green and rhodamine 6G ionic chemotherapeutic agent for theranostics. **D. Anum**, T. Alonge, **D. Bwambok**

Indiana Convention Center
Hall F-H

Fundamental Research in Colloids, Surfaces, and Nanomaterials

J. Katsaras, U. Natarajan, *Organizers*

7:00 . Using shear stress to drive Diels-Alder cycloaddition. **K. Kim**, P. Nautiyal, R. Carpick

7:00 . Ultrafast excited-state interactions between carbon dots and luminescent materials. **S. Saha**

7:00 . Monitoring the tunable biomolecular binding of electro-switchable monolayers using QCM-D. **N. Pringle**, W. Paxton

7:00 . Chemical stability of $CsPbX_3$ nanorods over anion-exchange reaction. **A. Champ**, J. Wen, M. Sheldon

7:00 . Incorporating a Ni(II) co-catalyst into quantum dot/β-$Pb_{0.33}V_2O_5$ nanowire heterostructures towards extended charge separation for photocatalytic CO_2 reduction. **B. Hassan**, D. Watson

7:00 . Development of plasmonic anticounterfeit tags for structural health monitoring studies. **M. Ibrar**, S. Huang, Z. Mccurtain, S.C. Jacobson, D. Crandall, S.E. Skrabalak

7:00 . Synthesis of thin films of PVA-conjugated melanin nanoparticles as a novel radiation-blocking material. **G. Stewart**, **A. Jafari**, S. Ghate, F. Madiyar

Indiana Convention Center
Hall F-H

Molecular Ordering at Interfaces: Theory, Fundamentals, and Applications

S. Claridge, S. L. Tait, *Organizers*

7:00 . In silico and tunneling microscopy investigations of surface impact on halogen···halogen intermolecular forces. **J. Sage**, B. Chilukuri

7:00 . Pt single-atom catalyst stabilized by single-layer COFs on single-crystal metal surfaces. D. Wisman, **Y. Bai**, S.L. Tait

Indiana Convention Center
Hall F-H

Nanomaterials

R. M. Espinosa-Marzal, C. M. Sims, S. Sinha Ray, *Organizers*

7:00 . Surface-enhanced Raman scattering (SERS) enhancement using hybrid gold nanoparticles-carbon nanodots substrate for herbicide detection. **n. aboualigaledari**, J. Wei

7:00 . Effect of Au nanorod aspect ratio on glutathione-directed growth: A path toward chiral nanocrystals. **M.P. Perkins**, J.S. Googasian, S.E. Skrabalak

7:00 . Boosting hydrogen production in basic pH via morphological control of plasmonic tungsten oxide nanocrystals. **G.A. Davis**, R. Sardar

7:00 . Near-infrared chemiluminescent nanoparticles for in vivo optical imaging. **J. Lee**

7:00 . Thermodynamic coalescence synthesis of colloidal semiconductor nanocrystals. **j. huang**, M. Zamkov

7:00 . Chemically attachment of robust CNT film on the metal surfaces. **C.P. Nawarathne**, M. Hoque, G.R. Dangel, N.T. Alvarez

7:00 . Structural impact on magneto-plasmonic properties of Ga2FeO4 quantum (QD) spinels. **S.D. Bennett**, G.F. Strouse

7:00 . Synthesis of low melting point bimetallic copper-based nanoparticles. **R.X. Skalla**, S. Jeong, X. Ye

Indiana Convention Center
Hall F-H

PUNC: Nanomaterials Research at Primarily Undergraduate Institutions

M. E. Anderson, J. G. Clar, S. Hughes, *Organizers*

7:00 . Effect of complexation on heavy metal removal from water by magnetic nanoparticles. **C.L. O'Brien**, J.T. Luecken, G.M. Balkey, K.M. Mullaugh

7:00 . Impact of antibiotics and nanoplastics on the cell viability of trout gill epithelial cells. **A. Biondo**, C.A. Feigeles, E.F. Kessler, A.C. Mensch

7:00 . Effects of tylosin tartrate and natural organic matter on the size, charge, and deposition of polystyrene nanoplastics. **A. DiFelice**, E.A. Good, A. Silver, A.C. Mensch

7:00 . Seed-mediated synthesis of silver nanocube with tunable sizes and their associated optical properties. **A. Guo**, **M. Burke**, B. Klinger, Y. Bao

7:00 . Effects of orientation and intermolecular packing on charge-transfer complexes in thin films analyzed by infrared reflectance. **A. Smirnov**, A. Su, J.J. Reczek, C.M. Mauck

7:00 . Conductive polymer nanofibers for electrochemical sensing applications. **A.M. Cuccurullo**, **J.A. De Leon Gonzalez**, **C. Osowski**, D. Patel, N. Romano, R.A. Hunter

7:00 . Hexadecanethiol-functionalized gold nanoparticle dispersion in peptoid nanosheets. **I. Jenney**, E.J. Robertson

7:00 . Incorporating octanethiol-functionalized gold nanoparticles into the interior of bilayer peptoid nanosheets. **C. James**, E.J. Robertson

7:00 . Delivering ciprofloxacin into resistant *E. coli* using PEG-modified carbon nanotubes. **C. Burke**, **E. McKenna**, M.D. Ellison

7:00 . Size and shape control of copper indium sulfide nanocrystals using substituted thioureas. **R. Merinsky**, C. Harris, W.K. Willard, S. Hughes

7:00 . Motion of acetylcholine ions through a single-walled carbon nanotube. **A. Russell**, **H. Bonanny**, M.D. Ellison

7:00 . At the interface: Elucidating interactions between γ-fibrinogen peptides and a silica nanoparticle surface. **A.M. Houssein**, C.A. Daly

7:00 . Nanoparticles presenting biomimetic ligands influence mineralization of calcium phosphate. **R. McCann**, A.E. Gerdon

7:00 . Morphology-controlled growth of Janus nanoparticles. **T. Hamlett**, J.E. Doebler, G. Cooper, Y. Bao

7:00 . Effects of iron oxide nanoparticle exposure on the auditory physiology and iron bioaccumulation in house sparrows (*Passer domesticus*). **O. Sprys-Tellner**, **P. Hallemann**, J. Bergstrom, L. Jankowski, M. McLinden, N.I. Gonzalez Pech, K. Ronald

7:00 . Detection of neonicotinoids using functionalized gold nanoparticles and halogen bonding. **Q. Dang**, S. Reiff, M. Sherard, M.C. Leopold

7:00 . Design of colloidal microgels toward single-molecule bioanalytical sensors. **J. Sulich**, B. Hammer, A. Maley

7:00 . Synthesis and characterization of *N*-isopropylacrylamide-based nanogels as protein affinity reagents. **H. Yoo**, A. Maley

7:00 . Characterization of protein binding to *N*-isopropylacrylamide-based nanogels and core-shell nanogels. **L. Garcia**, **I. O'Laughlin**, **E. White**, A. Maley

7:00 . PDMS Boron nitride composities for water treatment. **O. Fisher**, J. Clar

7:00 . Thin film ground state charge transfer interactions of thiophene diketopyrrolopyrrole. **M.K. Ourgessa**, J.R. McClellan, M.J. Friday, C.M. Mauck

7:00 . Developing an understanding of iron oxide nanocluster synthesis with gas chromatography. **L.J. George**, R.J. Thomas, A.D. Reiffer, I. Cheetham-West, N.I. Gonzalez Pech

7:00 . Biomolecular attachment yield analysis on ultra-low crosslinked microgels confirmed by potentiometric titration and NMR. **J. Kamuche**, M. Gaines

7:00 . Metal cation sensing in organic media via modified surface chemistries in carbon quantum dots. **R. Hartman**, S. Niezgoda, K. Magee

7:00 . Potentiometric titration to characterize biomolecular attachment yield analysis on microgels particles. **L. Norris**, M. Gaines

7:00 . Analysis of silver nitrate conductivity to validate molecular dissolution models for silver nanoparticles. **S. Gonzalez**, C.A. Daly

7:00 . Evaluation of nanoparticle-BSA corona formation and stability with pure and mixed monolayer functionalized gold nanoparticles. **R. Costin**, M. Willis, J. Hanigan-Diebel, M. Carrol, l. myers, J. Cogburn, S.E. Lohse, J. Schiffbauer

7:00 . Structural investigation of novel supramolecular anion cages with synchrotron X-ray diffraction. **N.A. Figueroa**, T. Chang, Y. Chen, V. Espinoza-Castro, S. Mirzaei, R. Hernández-Sánchez, Y. Chen, N.I. Gonzalez Pech

7:00 . Investigation of oxygenated hole defects on 2D nanomaterials: Silicene, stanene and germanene. **J. Duron**, A. Pham, M. Groves

7:00 . Metal cation modification of graphene oxide membranes: Effects on membrane assembly, structure, and stability. **E.J. Robertson**, Y. Stehle, X. Hu, L. Kilby, K. Olsson, M. Nguyen, R. Cortz

7:00 . Synthesis of bismuth nanoparticles and investigations of protein-nanoparticle interactions. **E. Tollefson**, K.N. Neumann, C. Cox, L. Loaiza

7:00 . Two projects: Replacing platinum in metal-semiconductor photocatalysts, and multitasking ionic liquids for synthesis of a complete carbon dioxide catalyst system. **L. Hill**

Indiana Convention Center
Hall F-H

Surface Chemistry

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

7:00 . Surface chemistry and surface FT-IR study of the NAC segment of α-synuclein. **T.K. Akinleye**, C. Wang

7:00 . Investigating the effects Ag, Cu, and Pd functionalized chabazite have on the adsorption affinities of the noble gases Xe, Kr, and Ar. **M.A. Torcivia**, S.M. Demers, K. Broadwater, D. Hunter

7:00 . Microwave assisted chemical etching of β-Ga_2O_3. **E.A. Sowers**, J. Beagle, J. Brown, A. Green

7:00 . Metal ion sequestration from Martian simulant regolith and decarbonated marine sediment to establish their suitability as plant substrate growth support. **T. Bellitto**, I. August, M. Stefanowicz, C. Ferreira, S.K. O'Shea

7:00 . Investigation of Langmuir and Freundlich adsorption isotherms of essential nutrient anions (NO_2^-, NO_3^-, NH_4^+, PO_4^{3-}, and SO_4^{2-}) by Martian Regolith simulants and Mount Hope Bay sediments and their impact on primary producers' growth. **I. August**, T. Bellitto, C. Ferreira, M. Stefanowicz, S.K. O'Shea

7:00 . Are telechelic polysiloxanes better than hemi-telechelic for self-cleaning applications?. **M. Naveed**, M. Rabnawaz

7:00 . Critical stresses in mechanochemical reactions on surfaces: A combined experimental and DFT study of alkyl thiolates on Cu(100). **N. Hopper**, R. Rana, W.T. Tysoe

Indiana Convention Center
Hall F-H

Surface Chemistry in Heterogeneous Catalysis

L. Chen, *Organizer*

7:00 . Thin films of solution-processable layered black phosphorene nanosheets via electrophoretic deposition. **A.A. Abdelazeez**

Indiana Convention Center
Hall F-H

Synthetic Amphiphiles and Formulations for the Delivery of Drugs, Nucleic Acids, and Proteins

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

7:00 . Self-assembly of glucose and galactose containing Janus-type linear dendritic block copolymers for utilization in biomedical applications. **K. Green**, R.M. Worden, M. Loku Yaddehige, D.L. Watkins, L. Kemp, S.E. Morgan

7:00 . Surface modification of erythrocytes with lipid anchors: Structure activity relationship for optimal membrane incorporation, *in vivo* retention, and immunocompatibility. **H. Gaikwad**

MONDAY MORNING

Crown Plaza Indianapolis Downtown Union Square
Pennsylvania Station A

Nanomaterials

R. M. Espinosa-Marzal, C. M. Sims, *Organizers*
S. Sinha Ray, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Engineering DNA 2D and 3D crystals by geometry, not sequence. **C. Zhang**, C. Mao

8:25 . DNA-programmed self-assembly of integrated optical device components. **R. Macfarlane**

8:45 . Lignin-based nano-enabled antimicrobial materials. **T. Tzanov**, A. Morena, K. Ivanova, S. Perez Rafael, H. Bach

9:05 . Optimization of ambidextrous low molecular weight polymer gelators for applications in transdermal drug delivery. **B. Derbigny**, E. Tanner, D.L. Watkins

9:25 . Understanding the role of ligand shell in the diffusion of nanoparticles in complex biomimetic polymer hydrogels. **P. Moncure**, Z. Simon, J. Millstone, J. Laaser

Crown Plaza Indianapolis Downtown Union Square
Victoria Station B

Biomaterials and Biointerfaces

C. P. Collier, R. M. Espinosa-Marzal, S. Hunyadi Murph, S. Sinha Ray, *Organizers*
E. Andreescu, *Organizer, Presiding*

8:00 Introductory remarks.

8:05 . Monocrystalline labeling enables stable plasmonic enhancement for isolation-free extracellular vesicle analysis. **T. Hu**

8:25 . Motor protein driven, active, on-chip transport and detection of nanoscaled, biomolecular cargo. **T. Erichlandwehr**, J. Teuber, M. Usaj, A. Mansson, I. Fernandez-Cuesta

8:45 . Preparation of torus-shaped alginate microparticles for drug delivery by vortex-ring freezing method. **K. Matsumiya**, Y. Oki, N. Inagaki, S. Fukuda, H. Okochi, K. Yoshie, T. Ito

9:05 . Effect of surface charges and pH of solution on the spectral responses of water molecules at different lipid monolayer interfaces upon interaction with charged nanoparticles. **P. Gahtori**

9:25 Intermission.

9:35 . Multi-scale structuring of composite hydrogel mats via sequential electrospinning and thermal wrinkling. **K.J. De France**, J. Moran-Mirabal, T. Hoare, E.D. Cranston

9:55 . Antibody-free force-field and electrochemical immunosensor for ultrasensitive and highly specific detection of different dengue serotypes. **A. ROY**, S. Bhattacharyya, D. Senapati

10:15 . Synthetic approaches to chemically engineer functional surfaces and protocell membranes. **E.C. Izgu**

10:35 . Lung pathology impairs pulmonary surfactant membrane physiology. **M. Porras-Gomez**, C. Leal

Crown Plaza Indianapolis Downtown Union Square
Victoria Station A

2023 ACS National Award for Creative Invention: Symposium in Honor of Younan Xia

W. Li, *Organizer*
B. J. Wiley, *Organizer, Presiding*

8:00 . New forms of electrospun nanofiber materials for biomedical applications. **J. Xie**

8:30 . Intracellular supramolecular assemblies/colloids. W. Tang, M. Yi, J. Guo, Q. Zhang, A.N. Shy, Y. Qiao, **B. Xu**

9:00 . Materials chemistry for eco/bioresorbable microsystems technologies. **J.A. Rogers**

9:30 Intermission.

10:00 . Gold nanostars as structural valency probes. **T.W. Odom**

10:30 . Multi-scale self-assembly of colloidal nanostructures. **Y. Yin**

11:00 . Noble metal nanostructures in the fight against bacterial infections. **J. Chen**

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Colloidal Nanoparticle Synthesis and Assembly

D. Huber, T. Li, Y. Sun, *Organizers*
H. Fan, *Organizer, Presiding*

8:00 . Surface engineering of gold nanocrystals. **C.J. Murphy**

8:30 . Scalable synthesis of ultra thin Au nanowires. **K. Steingass**, K. Park, R.A. Vaia

8:50 . Revisiting the seed-mediated growth of core-shell nanoparticles: Localizing the reducing agent on the seed surface. **B. Sharma**, G. Chen, T. Egan

9:10 . Periodic arrays of identically aligned bimetallic janus nanocrystals. **W.J. Tuff**, R.A. Hughes, S.D. Golze, S. Neretina

9:30 Intermission.

9:40 . Factory-on-a-chip: scaling-up droplet microfluidics for large-scale particle synthesis. **D. Lee**, D. Issadore

10:10 . Self-assembly of stimuli-responsive amphiphilic boron colloidosomes as boron nanodrugs for boron neutron capture therapy. Y. Chien, C. Wang, W. Lo, **P. Keng**

10:30 . Silicene/poly(N isopropylacrylamide) smart hydrogels as remote light-controlled switches. **T. Fang**

10:50 . Open- and close-packed oligomers via template-directed assembly of shape-engineered, lithographically-fabricated nanoparticles. **Y. Cai**, A. Fallah, S. Yang, Y. Choi, A. Stein, J.M. Kikkawa, N. Engheta, C.B. Murray, C.R. Kagan

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Plasmonic Nano(Photo)Catalysis

M. L. Personick, Y. Sun, Y. Yin, *Organizers*
J. Chen, J. He, *Organizers, Presiding*

8:00 . Plasmonic photocatalysis: New strategies and systems. **N.J. Halas**

8:30 . Plasmon dephasing and hot electron effects in gold nanostructures. **G.V. Hartland**

9:00 . Achieving multifunctional nanocatalysts using bio-inspired approaches. **M.R. Knecht**

9:30 Intermission.

9:45 . Plasmonic catalysts: From nanoparticles to metasurfaces. **E. Cortes**

10:15 . Chemical interface damping in single plasmonic nanostructures. **S. Link**

10:45 . LSPR wavelength as a tool for controlling performance of plasmonic catalysts. **T. Egan**, B. Sharma, M. Roshandel, G. Chen

11:05 . From noble to non-noble metallic nanoparticle photocatalyst: What can interband transition bring?. **P. Lyu**, S.C. Nguyen

11:25 . Comparing spectroscopically-determined binding constants in the binding of bovine serum albumin to small thiol-stabilized ω-functionalized gold nanoparticles. **S.E. Lohse**, J. Hanigan-Diebel, J. Schiffbauer

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

ACS Award in Colloid Chemistry 2023: Symposium in honor of Joanna Aizenberg

B. Hatton, L. D. Zarzar, *Organizers, Presiding*

8:00 . Self-healing paint. **K. Park**

8:30 . Stimuli-responsive and self-regulating liquid crystals. **N.L. Abbott**

9:00 . Colloidal clusters from confined self-assembly: Structure – thermodynamics – formation kinetics. **N. Vogel**

9:30 . Designing optical metamaterials from colloidal nanocrystal assemblies. **C.R. Kagan**

10:00 . Active assembly of homochiral colloids under orthogonally applied electric and magnetic fields. **N. Wu**

10:30 . Liquid crystal-infused porous surfaces with molecular order-dependent slipperiness and cargo release. **X. Wang**

11:00 . Resolving structural and dynamic heterogeneities in dilute alloy catalysts by modulation excitation spectroscopy. P. Routh, E. Redekop, M. Nachtegaal, A. Clark, **A. Frenkel**

11:30 . Raspberry colloid templated catalysts: From material design to catalytic performance. **J. van der Hoeven**

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station D

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*
R. Ashkar, *Presiding*

8:00 . Tracking the uptake of individual drug carriers via clathrin-mediated endocytosis. **G. Ashby**, C.C. Hayden, S. Gollapudi, J. Houser, J. Stachowiak

8:30 . Steric pressure between glycosylated transmembrane proteins inhibits their internalization by endocytosis. **S. Gollapudi**, S. Jamal, A. Kamatar, F. Yuan, L. Wang, E.M. Lafer, B. Belardi, J. Stachowiak

9:00 . Phase separated membranes as 2D complex fluids. **M.M. Santore**

9:30 . Modulating and modeling the surface ζ potential of hybrid lipid/ polymer nanovesicles: Implications for surface modification and drug delivery. **k. willes**, S.A. McFarland, T.E. Johnson, W. Paxton

10:00 . Catalytically-activated morphogenesis of pH-responsive assemblies. **W. Paxton**, N. Bair, b. staynings, D.R. Tree, Q. Zhu

10:30 . Investigating the mechanical properties of cholesterol-rich lipid membranes. **T. Kumarage**, S. Gupta, F.T. Doole, M. Doktorova, H. Scott, L.R. Stingaciu, J. Katsaras, G. Khelashvili, M.F. Brown, R. Ashkar

11:00 . Membrane organization and dynamics in polymer gel-tethered lipid bilayer (PGTB) systems. **K. Chuduang**, P. Pholraksa, C. Naumann

11:30 . Membrane interactions and osmotic pressure of agarose enables high yield assembly of cell-like giant phospholipid vesicles in salty solutions. **A. Cooper**, V. Girish, A. Subramaniam

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station A

Surface Chemistry

Catalysis and Surface Transformations

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

8:00 . Single atom Pt as co-catalyst in photocatalytic H_2 generation. **P. Schmuki**

8:40 . Accurate predictions of heterogeneous catalysis with quantum mechanical simulations. **Q. Zhao**

9:20 . Boronic acid adsorption on TiO_2 rutile (110): A DFT+U study. **L. Bendavid**, B. Lam

9:40 . Designing surface chemical passivation schemes and single molecule inhibitors for oxide materials. D. Silva-Quinones, **A.V. Teplyakov**

10:00 Intermission.

10:20 . Laser-induced patterning of atomic layer resists for area-selective atomic layer deposition. **A. Shestopalov**

11:00 . Effect of physical hole defect size and acidic group on pKa of reduced graphene oxide. O. Solares, S. Adler, P. Luong, **M. Groves**

11:20 . Influence of surface termination on electron emission from diamond surfaces into vacuum and into water. **C. Saucedo**, N. Rieders, R.J. Hamers

11:40 . Influence of oxidation states of graphene oxide on the properties of polyelectrolyte brushes grafted on top. **X. Cheng**, L. Rong, J. Ge, E. Caldona, R.C. Advincula

MONDAY AFTERNOON

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Biomaterials and Biointerfaces

E. Andreescu, R. M. Espinosa-Marzal, S. Hunyadi Murph, S. Sinha Ray, *Organizers*
C. P. Collier, *Organizer, Presiding*

2:00 Introductory remarks.

2:05 . Porous bioaffinity membranes for the isolation of circulating tumor cells. **N. Bentley**, J. Ruehe, T. Brandstetter

2:25 . Engineered protein nanoparticles for intranasal vaccination and delivery. **T. Pho**, J. Champion

2:45 . Physical property measurements of highly concentrated protein formulations. **F. da Cunha**, G. Springer, Z. Bebar, F. Rossi, E. Ximenes, B. Bowes, Z. Yu, D. Yang, K. Qian, V. Corvari, G. Reklaitis, M.R. Ladisch

3:05 . Bio-based nano-hybrids of marine-derived peptides and quorum sensing inhibitors reduce the incidence of biofilm-associated bacterial infections. **K. Ivanova**, E. Ramon, A. Ivanova, R. Slizyte, R. Mozuraityte, T. Tzanov

3:25 Intermission.

3:35 . Porous biodegradable matrices fabricated by thermally-induced phase separation (TIPS) for sustained release of antibacterial agents. **R. Zeinali**, K. Ivanova, **E. Ramon**, J. Puiggalí, **T. Tzanov**

3:55 . Nanoparticle surface curvature influences protein stability and binding energetics. **R. Somarathne**, d.L. amarasekara, C. Kariyawasam, H. Robertson, N.C. Fitzkee

4:15 . Relationship between interfacial properties and stability of therapeutic proteins. **K. Pham**, B. Thompson, T. Wang, K. Qian, Y. Liu, N.J. Wagner

4:35 . Investigating Janus particle-bacteria interactions towards nano-antibiotics development. **S. Bhattacharyya**, J.T. Wiemann, Y. Yu

Crown Plaza Indianapolis Downtown Union Square
Pennsylvania Station A

Nanomaterials

C. M. Sims, S. Sinha Ray, *Organizers*
R. M. Espinosa-Marzal, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Phosphonic acid based polymers; a new class of structure directing agents for nanocomposites with controlled interfaces via self-assembly. **T. Larison**, M. Stefik, E. Williams

2:25 . Amorphous polymeric carbon dots: green imaging agents. **C.L. Haynes**

2:45 . Gallic acid-assisted synthesis of novel ZrO_2 nanoparticle and its structural, morphological, and optical properties. **D. Febriantini**, Y. Yulizar, U. Lasibunga

3:05 . Photocatalytic synthesis of bimetallic nanoparticles via continuous nucleation. **Z. Simon**, K. McHugh, R. Sen, A. Paterno, S. Patton, P. Moncure, E. Lopato, S. Talledo, S. Bernhard, J. Millstone

3:25 . Deconvoluting the structure-optic relationship of photonic glass pigments obtained by the confined self-assembly of brush block copolymers. **Z. Wang**, R. Li, C. Chan, R.M. Parker, S. Vignolini

3:45 . Synthesis of varying shape and size plasmonic gold nanoparticles (AuNPs) catalyzed by preformed silicon nanoparticles (SiNPs). **J.P. Vanegas**, A. Reusch, B.S. Mitchell, M.J. Fink

Crown Plaza Indianapolis Downtown Union Square
Victoria Station A

2023 ACS National Award for Creative Invention: Symposium in Honor of Younan Xia

B. J. Wiley, *Organizer*
W. Li, *Organizer, Presiding*

2:00 . Polyelemental nanoparticle libraries. **C.A. Mirkin**

2:30 . Tuning core/shell structure to enhance nanoparticle catalysis. **S. Sun**

3:00 . Understanding the formation and electrocatalytic application of metal and alloy nanostructures. **H. Yang**

3:30 Intermission.

4:00 . Tips for making catalyst nanoparticles more sinter resistant. **C.T. Campbell**

4:30 . An atomic-scale perspective on bimetallic catalysts' stability and activity. **M. Mavrikakis**

5:00 . Molecular engineering and three-dimensional mapping of interfaces at the nanoscale. **S. Zhou**

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station A

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*
M. M. Santore, *Presiding*

2:00 . Mechanistic insights allows high yield assembly of giant unilamellar vesicles in solutions of physiological ionic strengths. **A. Subramaniam**

2:30 . Temperature induced change in structure and molecular transport of biological membranes. **H. Dai**, T. Wu, M.J. Wilhelm

3:00 . Measuring lipid-probe flip-flip in phospholipid bilayers by optical second harmonic generation: What are lipid-probes telling us about translocation?. J. Taylor, **J.C. Conboy**

3:30 . Adjusting membrane compartmentalization and bilayer fluidity in planar model membranes: polymer-tethered lipid bilayer approach. **C. Naumann**, K. Chuduang

4:00 . PFAS affinity for model biological membranes and its impact on membrane properties. T.N. Sobolewski, R.C. Trousdale, G. Yiyen, **R.A. Walker**

4:30 . Anionic lipid regulation of receptor tyrosine kinase dimerization in live cells: A PIE-FCCS study. **P. Singh**, A. Smith

5:00 . Shape and size controllable polymer nanostructures via facile polymerization in a bicellar template. **C. Liu**, C. Cheu, R. Podila, M. Nieh

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

PUNC: Nanomaterials Research at Primarily Undergraduate Institutions

M. E. Anderson, J. G. Clar, *Organizers*
S. Hughes, *Organizer, Presiding*
L. B. Thompson, E. Tollefson, *Presiding*

2:00 Introductory Remarks.

2:10 . Time-resolved structural studies of II-IV semiconductor nanocrystals. E. Wieman, M. Tarantola, N. Nagelj, J. Olshanksy, B. Guzelturk, **B.L. Cotts**

2:25 . Thermal and optical properties of nanostructured famatinite with Cu-site doping. M.S. Jensen, K.E. Plass, **M.E. Anderson**

2:40 . Tuning metal-organic frameworks using post-synthetic strategies to improve conductivity and photoactivity in MOFs with amine functionalized linkers. **D. Kissel**

2:55 . Microwave-assisted synthesis of anisotropic copper-based nanoparticles. **P.N. Njoki**, K. Fowler, J. Barr

3:10 Intermission.

3:30 . Tunable copper indium sulfide nanocrystal synthesis using substituted thioureas. **S. Hughes**, C. Harris, R. Merinsky, W.K. Willard

3:45 . Polyelectrolytes as a useful tool for controlling nanoparticle surface chemistry. **L.B. Thompson**

4:00 . Development of magnetic nanoparticles for the treatment of water. **K.M. Mullaugh**, C.L. O'Brien, J.T. Luecken, G.M. Balkey, F.N. Najjar, H.K. Bhagat

4:15 . Synthesis and characterization of carbon dots from water-soluble thiols. H.G. McKinnie, Q. Ye, L.M. Brammer, **D.T. Miles**

4:30 Intermission.

4:50 . Journey of triazole derivatives from dual ion-sensing to model drug delivery system. **D. Ghosh**, S.M. Landge, K.S. Aiken

5:05 . Design, synthesis, and characterization of colloidal nanogels and microgels for protein capture and digital biosensing. **A. Maley**, H. Yoo, J. Sulich, L. Garcia, E. White, I. O'Laughlin

5:20 . Biomolecular attachment yield analysis on surface-structurally diverse microgel particles. **M. Gaines**

5:35 . Use of ω-aminoalkylsilane self-assembled monolayers in functionalized surfaces for applications in organic electronics and bacterial biofilm inhibition. **P. Lundin**

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station D

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, Z. Niroobakhsh, *Organizers*
D. Miller, P. Nalam, *Presiding*

2:00 . Antibacterial, sustainable, natural indigo dyed cotton textile. **S. Rai**, V.N. Mohakar, V. Reukov, S. Sharma, S. Minko

2:20 . Controlling the durability and optical properties of triplet-triplet annihilation upconversion nanocapsules. **T. Schloemer**, S.N. Sanders, M. Hu, P. Narayanan, D. Congreve

2:40 . Measuring local distributions of limonene in phospholipid vesicle dispersions. **A. Webley**, S.R. Dungan, S.E. Ebeler

3:00 . Minimizing condensate adhesion for heat transfer enhancement via nano-hierarchical structure. **J. Song**, K. Yeung

3:20 . Utilizing megasonic energy to enhance post-chemical mechanical planarization (p-CMP) cleaning for emerging substrates. **K.A. Cahue**, A.T. Caridi, J. Powell, T.R. Cahue, J.J. Keleher

3:40 . Adsorption behavior of long-chain perfluoroalkyl substances on hydrophobic surface: A combined molecular characterization and simulation study. **P. Nalam**, T. Mohona, Z. Ye, N. Dai

4:05 Intermission.

4:15 . Elucidating antiscalant mechanisms for mitigation of gypsum scaling. **J.N. Rolf**, T. Cao, C.J. Porter, D.D. Holloway, Z. Caes, A. Pan, E. MacDonald, V. Karanikola, M. Elimelech

4:35 . Effects of anions on hydrophobic forces between charged and uncharged hydrophobic surfaces. **N. Maharjan**, A.S. Nair, J. Nauruzbayeva, Y. Xu, A. Alghonaim, P. Zhang, T. Pascal, H. Mishra

4:55 . Characterizing the hydrophobicity of superhydrophobic surfaces by friction force measurements. **M. Beitollahpoor**, N. Pesika

5:15 . Quantifying surface charge densities of common polymers via direct force measurements. **P. Zhang**, A. Alghonaim, Y. Xu, N. Maharjan, J. Nauruzbayeva, H. Mishra

5:35 . Characterization of the solubilization capacity of sophorolipid micelles. **D. Miller**, J.R. McMillan, C. Nimako-Boateng, M. Cherry, Y. O'Connor, T. Young, A. Izmitli, B. Johnson, C.J. Tucker, T. Kalantar, B. Reiner, I. Van Reeth

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations

Plasmonic Nanostructures, Spectroscopy, and CO2 Reduction

J. Chen, M. L. Personick, Y. Sun, *Organizers*
J. He, Y. Yin, *Organizers, Presiding*

2:00 . Framing silver nanocrystals with a second metal to enhance shape stability and expand functionality. **D. Qin**

2:30 . Atomically precise gold nanoclusters for electrocatalysis. **R. Jin**

3:00 . Adsorbate-nanoparticle interactions dictate catalytic reaction pathway selection: Insights gained from *in situ* plasmon-enhanced spectroscopic studies. **H. Wang**

3:30 . Optical spectroscopy of hybrid-metal semiconductor nanoparticles for photocatalytic reactions. Y. Wang, Y. Sun, **J. Zhao**

4:00 Interminssion.

4:15 . Enhancing nanoparticle catalysis to achieve highly efficient CO2 capture by conversion. **S. Sun**

4:45 . Selective CO_2 reduction on copper-based nanocatalysts. **P. Liu**

5:15 . *Operando* correlative studies of evolving Cu nanocatalysts for CO_2 electroreduction. **Y. Yang**, S. Louisia, S. Yu, C. Wang, D. Muller, H.D. Abruna, P. Yang

5:45 . Copper-based dilute alloy and multimetallic complex solid solution nanocrystal catalysts for efficient chemical transformations. **X. Ye**

6:15 . Magnetically induced metal-ferrite nanoparticle catalysts for CO_2 reduction. **O.T. Mefford**, A. Malaj, A. Adogwa, E. Chukwa, V.R. Punyapu, R.B. Getman, M. Yang

6:35 . CdS quantum dot aerogel platforms decorated with Pt or Ni_2P nanoparticles for visible-light photocatalytic water reduction. **V. Alevato Neves**, C. Premtaj, D. Streater, J. Huang, S.L. Brock

Crown Plaza Indianapolis Downtown Union Square
Victoria Station B

Molecular Ordering at Interfaces: Theory, Fundamentals, and Applications

S. L. Tait, *Organizer*
S. Claridge, *Organizer, Presiding*
M. Lackinger, *Presiding*

2:00 . Some observations on the role of solvent in the self-assembly process. **K. Hipps**, U. Mazur

2:30 . Variations in complementary hydrogen bonds direct assembly patterns of isosteric polyheteroaromatics at surfaces. D. Wisman, H. Kim, C. Kim, T. Morris, D. Lee, **S.L. Tait**

3:00 . High-resolution imaging as a new analytical technique for the characterisation of conjugated polymers. **G. Costantini**

3:30 . Electrochemical SERS on graphitic interfaces via underlayer-modified electrodes: *In situ* probing of adsorbed, redox-active molecular assemblies. K. Hatfield, **J. Rodriguez Lopez**

4:00 Intermission.

4:20 . Molecules in solvation layers: Structure, ordering, and implications for electrochemical energy conversion. **Y. Zhang**

4:50 . Tuning the self-assembly and bottom-up synthesis of macrocycles: From metal to bulk insulator surfaces. **S. Maier**

5:20 . Investigation on the single-molecular conductance of molecular wire by STM at the solid-liquid interface: Enhancement by a radical substituent. **K. Matsuda**

5:50 Concluding Remarks.

Virtual Only
Virtual Session

Functionalized Nanoparticles for Medical Applications

S. Zanganeh, *Organizer*
T. Webster, *Organizer, Presiding*

3:00 . Soft nanomaterials like peptides in mimicking the growth of the most powerful virus on earth so far (SARS-CoV-2). **A.F. Nahhas**, T. Webster

3:30 . Angiogenesis and iron: a central role for iron in tumor suppression. M. Sepand, **S. Zanganeh**

4:00 . Fast-disintegrating diltiazem HCl/cyclodextrin inclusion complex electrospun nanofibrous strips for oral drug delivery. **A. Kirtania**, A. Celebioglu, T. Uyar

Virtual Only
Virtual Session

Advanced Nanomaterials, Surface, and Interfaces for the Detection and Treatment of Emerging Contaminants

E. Andreescu, *Organizer*

12:00 . Interfacial polymerized polyaniline nanostructure coated enzyme based fiber optic biosensor for detection of carbofuran pesticide. **T. Pal**, S. Mukherji

Virtual Only
Virtual Session

Basic Research in Colloids, Surfactants and Interfaces

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

12:00 . Effect of rectangular micro-nano structure on aluminophobicity of silicon substrate surface: A molecular dynamics study. **D. He**, Z. Rui, L. xin, H. Sun, J. Zhuo

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

12:00 . Design and development of peptide conjugates of amino-imidazoles for targeting tumor cells. **M.A. Biggs**, B.G. Goncalves, M.E. Murray, **I.A. Banerjee**

12:00 . Surface preparation for single-molecule fluorescence imaging in organic solvents. **C. Liu**, K. Gu, S. Liu

12:00 . Steady state fluorescence and gelation studies of anthraquinonylalkanamides. **R. Pham**, T. Hayashi, j. norton, A. Mallia, E. Lee

12:00 . Synthesis, photophysical, and gelation studies of alkyloxycoumarin derivatives as low molecular mass gelators. **N. Le**, J. Leonora, A. Mallia

12:00 . Formation of bijels via solvent transfer induced phase separation using liquid-in-liquid 2D printing. **S. Amirfattahi**, H. Honaryar, Z. Niroobakhsh

12:00 . Synthesis, self-assembly, gelation, and thermal properties of molecular gels based N-(hydroxyphenyl)alkanamides as low molecular mass gelators. **B. Fisher**, J. Miller, A. Mallia

12:00 . Molecular dynamics study the wetting behavior of molten Al droplet on α-Al2O3. **J. Zhuo**, Z. Rui

12:00 . Numerical simulation of molten aluminum droplet impact on the structured surface. **H. Sun**, Z. Rui, L. xin, D. He

Virtual Only
Virtual Session

Biomaterials and Biointerfaces

E. Andreescu, C. P. Collier, R. M. Espinosa-Marzal, S. Hunyadi Murph, S. Sinha Ray, *Organizers*

12:00 . Design and self-assembly of tri-terpene peptide conjugates and their binding interactions with tumor cells. **M.I. Rico**, B.G. Goncalves, **I.A. Banerjee**

12:00 . 3D printing hydrogel scaffolds with nanohydroxyapatite gradient to effectively repair osteochondral defects in rats. **H. Zhang**, **Z. Zhao**, **C. Zhou**

12:00 . Real-time tracking of the degradation and consequent phenomena of biodegradable microgels under presence of reducing agents using confocal microscopy. **A.N. Italiano**, **S.V. Kazakov**

Virtual Only
Virtual Session

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

J. Katsaras, S. Muralidharan, M. Nieh, A. N. Parikh, *Organizers*

12:00 . Soft matter and signaling—cosolute effects on rhodopsin activation. K. Hewage, S. Fried, S. Kadinappulige, A. Struts, S. Perera, **M.F. Brown**

12:00 . Effects of cholesterol and antimicrobial peptides on membrane properties. F.T. Doole, C.K. Chan, D. Sarkar, A.V. Struts, A. Singharoy, **M.F. Brown**

Virtual Only
Virtual Session

Colloidal Nanoparticle Synthesis and Assembly

H. Fan, D. Huber, T. Li, Y. Sun, *Organizers*

12:00 . Durable radiative cooling coating via nanoparticles evaporation-driven assembly against environmental aging. **J. Song**, W. Zhang, Z. Sun, M. Pan, F. Tian, X. Li, X. Deng

12:00 . Design of new drug encapsulated peptide assemblies for targeting spheroids. **M.E. Murray**, **B.G. Goncalves**, C.G. Lebedenko, **I.A. Banerjee**

12:00 . FRET-based assay for particle fusion and re-arrangement of the lipid nanoparticles (LNP) in manufacturing. **Y. He**, C. Pouton, A. Clulow

Virtual Only
Virtual Session

Colloids Intended for Biological Applications

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

12:00 . Design and optimization of an optical nanoaptasensor based on gold nanotriangles modified with two blocking agents for the detection of carcinoembryonic antigen. **M.C. Licuona**, J.A. Farfan, B.C. Galarreta, Y. Hernandez

Virtual Only
Virtual Session

Controlled Assembly of Charged Soft Matter

C. P. Collier, *Organizer*

12:00 . Biomimetic heterodimerization of tetrapeptides to generate liquid crystalline hydrogel in a two-component system. **B. Wu**, S. Zhao, X. Yang, L. Zhou, Y. Ma, H. Zhang, W. Li, H. Wang

Virtual Only
Virtual Session

Functionalized Nanoparticles for Medical Applications

T. Webster, S. Zanganeh, *Organizers*

12:00 . Self-amplified necrotic targeting theranostic nanoparticles with deep tumor penetration for imaging-guided personalized chemo-photodynamic therapy. **Z. Zhang**, J. Xue, F. Liu, J. Gao, F. Feng

12:00 . Microfluidic assembly of fused membrane coated drug nanoparticles. **P. Tsai**, H. Bai, M. Wang

Virtual Only
Virtual Session

Fundamental Research in Colloids, Surfaces, and Nanomaterials

J. Katsaras, U. Natarajan, *Organizers*

12:00 . Velocity-dependent contact angle and energy dissipations of dynamic wetting nanodroplets on nanopillared surfaces. **c. xie**, j. shi, Y. Luo, G. Chu, H. Li

12:00 . Optical detection of carcinoembryonic antigen using PVP-stabilized nanoaptasensors and a controlled growth mechanism. **J.A. Farfan**, M.C. Licuona, B.C. Galarreta, Y. Hernandez

Virtual Only
Virtual Session

Nanomaterials

R. M. Espinosa-Marzal, C. M. Sims, S. Sinha Ray, *Organizers*

12:00 . Surfactant-assisted exfoliation of metal borides into minimally functionalized nanosheets. **A. Rasyotra**, A. Thakur, R. Mandalia, R. Ranganathan, K. Jasuja

Virtual Only
Virtual Session

PUNC: Nanomaterials Research at Primarily Undergraduate Institutions

M. E. Anderson, J. G. Clar, S. Hughes, *Organizers*

12:00 . High-yield plasma-dependent fabrication of efficient surface-enhanced Raman scattering undulated Au nanoplates. **D. Aligholizadeh**, W. Turner, **M. Devadas**

12:00 . Role of guanosine on fluorescent properties of carbon dots. **F. Dingman Peterson**, M. Mitti, N. Camilus, R. Naccache, S. Martic

Virtual Only
Virtual Session

Surface Chemistry

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

12:00 . Ice-shedding surfaces with spontaneous stress-localization. **Q. Yang**

Kathryn C. Hach Award for Entrepreneurial Success: Symposium in Honor of Philip J. Wyatt

Sponsored by SCHB, Cosponsored by ANYL‡, COLL‡, PMSE‡ and POLY‡

Kathryn C. Hach Award for Entrepreneurial Success: Symposium in Honor of Philip J. Wyatt

Sponsored by SCHB, Cosponsored by ANYL‡, COLL‡, PMSE‡ and POLY‡

MONDAY EVENING

Indiana Convention Center
Hall F-H

COLL Sci-Mix

8:00 . Thin films of solution-processable layered black phosphorene nanosheets via electrophoretic deposition. **A.A. Abdelazeez**

8:00 . Understanding the mechanism of corona formation on gold nanoparticles in serum and simpler mixtures of serum proteins. **T.K. Shaikh**, N.C. Fitzkee

8:00 . Hollow porous bimetallic platinum-rhodium shell based nanocomposite for combined tumor therapy. **J. Sun**, H. Wang, S. Wang

8:00 . Oxidant-resistant silver and bismuth nanoparticles for use bioimaging applications. K.C. Tome, **M.R. Mackiewicz**

8:00 . In silico and tunneling microscopy investigations of surface impact on halogen···halogen intermolecular forces. **J. Sage**, B. Chilukuri

8:00 . Time resolved emission studies of amino acid partitioning into model biological membranes. **R. Trousdale**, K. Duncan, R.A. Walker

8:00 . Anti-fouling surfaces from glassy polyelectrolyte multilayers. **J.O. Akintola**, J.B. Schlenoff

8:00 . Activated cleaning chemistries via megasonic energy for low-stress post-chemical mechanical planarization of SiC. **J. Powell**, A.T. Caridi, K.A. Cahue, K.R. Reyes, J.J. Keleher

8:00 . Transformable polymer masks as a platform for regioselective modification of metal nanocrystals. **M. Knobeloch**, Y. Li, S.E. Skrabalak

8:00 . Investigating the effect of vaping additives on the biophysical nature of pulmonary surfactant lipid systems. **M. Dziura**, S. Castillo, O. Gbadamosi, M. DiPasquale, D. Marquardt

8:00 . High throughput generation of hierarchical nanometer-scale functional patterns on 2D crystalline and amorphous soft materials. **J.C. Arango** , C.J. Pintro

8:00 . Investigating Janus particle-bacteria interactions towards nano-antibiotics development. **S. Bhattacharyya**, J.T. Wiemann, Y. Yu

8:00 . Exploring structure-activity effects while employing an “overcutting” mode for organic residue removal during Cu post-chemical mechanical planarization (p-CMP) cleaning. **A.L. Dudek**, J.J. Keleher

8:00 . Lanthanide-based double perovskite nanocrystals with emissions covering the UV to NIR spectral range. **P. Saghy**, A.M. Brown, J.R. Robinson, O. Chen

8:00 . Self-assembly of glucose and galactose containing Janus-type linear dendritic block copolymers for utilization in biomedical applications. **K. Green**, R.M. Worden, M. Loku Yaddehige, D.L. Watkins, L. Kemp, S.E. Morgan

8:00 . Development of machine learning-driven web app interface for quantitative estimation of urine pH: Theory to experimental validation. **S. Biswas**, **A. Pal**, K. Chaudhury, S. Das

8:00 . Anionic lipid regulation of receptor tyrosine kinase dimerization in live cells: A PIE-FCCS study. **P. Singh**, A. Smith

8:00 . Insights into mechanical and tribological performance of nanolubricants during boundary mode lubrication between cartilage surfaces. **A.T. Joenathan**, M. Gillis, T. Lawson, M.W. Grinstaff, B. Snyder

8:00 . Optimization of ambidextrous low molecular weight polymer gelators for applications in transdermal drug delivery. **B. Derbigny**, E. Tanner, D.L. Watkins

8:00 . Quantifying structural heterogeneity in individual $CsPbBr_3$ quantum dot superlattices. **D. Clark**, V. Lumsargis, D. Blach, K. Zhu, A. Shumski, L. Yao, Q. Chen, L. Huang, C.W. Li

8:00 . Motor protein driven, active, on-chip transport and detection of nanoscaled, biomolecular cargo. **T. Erichlandwehr**, J. Teuber, M. Usaj, A. Mansson, I. Fernandez-Cuesta

8:00 . Targeted photothermal ablation of biofilms using functionalized gold nanoparticles. **d.L. amarasekara**, R. Somarathne, T.K. Shaikh, E.R. McCaffrey, M. Hejny, N.C. Fitzkee

8:00 . Concentrating, recovering, and quantification of lithium from simulated seawater using three-dimensional MnO_2-silicon oxide nanoporous particles. **A.Y. VARGAS-LIZARAZO**, P. Sivakumar, P. Kohli

8:00 . Modular DNA micelles for the controlled delivery of therapeutic DNA-surfactant conjugates. **I. de la Fuente**, S. Pal, S.S. Sawant, K. Kho, N. Sarangi, J. Cannata, L. Liang, T. Keyes, J.L. Rouge

8:00 . Preparation and characterization of 3-D printed hydrogel systems doped with photochemically prepared antimicrobial nanoparticles. **K.M. Sheets**, C.E. Rogers, J.J. Keleher

8:00 . Enabling hydrothermal ZnO nanowire synthesis on non-planar surfaces using surface-directed assembly. **A.M. Ortiz-Ortiz**, J. Wang, A. Gayle, H. Faustyn, D. Penley, C. Sherwood, N.P. Dasgupta

8:00 . Determination of surface functional groups on polydopamine particles and its influence on antioxidant properties. **G. Rey**, T. Fricker, A.N. Dhinojwala

8:00 . Effects of interdigitation on the biophysical properties of lipid bilayers: A molecular dynamics study of chain-asymmetric lipids. **E.H. Chaisson**, F. Heberle, M. Doktorova

8:00 . Surface chemistry and surface FT-IR study of the NAC segment of α-synuclein. **T.K. Akinleye**, C. Wang

8:00 . Controlling Ostwald ripening for the synthesis of ultrasmall nanocapsules. **T.P. Doan-Nguyen**, D. Crespy

8:00 . Understanding electronic interactions at the interface of metal-organic hybrid system through controlling surface binding head-group on gold nanostructures. **S. Hati**, X. Yang, J. Zhang, R. Sardar

8:00 . Structural and mechanical properties of ligated DNA crystals. **R. Li**, M. Zheng, A.S. Madhvacharyula, Y. Du, C. Mao, J. Choi

8:00 . Programming “atomic substitution” in alloy colloidal crystals using DNA. **K. Landy**, K. Gibson, Z. Urbach, S. Park, E. Roth, S. Weigand, C.A. Mirkin

8:00 . Mechanochemical changes in the extracellular matrices of hepatic stellate cells in response to the stiffness of synthetic scaffolds. **H. Li**, L. Osorno, J. Llewellyn, T. Arinzeh, R. Wells, M. Foston

8:00 . Selective sensing of dopamine using hexagonal boron nitride: Experimental validation of first principle calculations. **S. Biswas**, **A. Pal**, K. Chaudhury, S. Das

8:00 . Development of stable liquid emulsions of spice oleoresin using modified surfactant based emulsifiers. **S. Murugesan**, G. Srinivaas, T. Nallamilli, K. Raghavarao, S. Tangutooru, V. Priya

8:00 . MoS_2 modified paper sensor towards selective detection of uric acid: Experimental validation of first principle calculations. **A. Pal**, **S. Biswas**, K. Chaudhury, S. Das

8:00 . Mycosynthesis of zinc oxide nanoparticles exhibits fungal species dependent morphological preference. **N.G. Brady**

8:00 . Characterizing the hydrophobicity of superhydrophobic surfaces by friction force measurements. **M. Beitollahpoor**, N. Pesika

8:00 . *In silico* enzyme structure analysis predicts optimal immobilization via hydrophobicity matching. **H. Sanchez-Moran**, D.K. Schwartz, J. Kaar

8:00 . Bioactive principle functionalized nanomaterials for anticancer applications. **S. Ghosh**, S. Thongmee, T. Webster

8:00 . Induced-charge electrophoretic microsensors: Label-free, particle motion-based biosensing. **C.P. Thome**, W.S. Hoertdoerfer, J.R. Bendorf, J.G. Lee, C. Shields IV

8:00 . Interfacial polymerized polyaniline nanostructure coated enzyme based fiber optic biosensor for detection of carbofuran pesticide. **T. Pal**, S. Mukherji

8:00 . Competitive adsorption between monoclonal antibodies and non-ionic surfactants at the air-water interface. **B. Thompson**, K. Pham, T. Wang, K. Qian, Y. Liu, **N.J. Wagner**

8:00 . Tailoring surface behavior of hollow glass microspheres with poly(ethylene glycol methacrylate) polymer brushes. **R.T. Snipes**, M. Melara, J. Owens, I.A. Luzinov

8:00 . Control of C2C12 murine myoblast adhesion and differentiation by hierarchically patterned elastomeric surfaces. **L. Williams**, S. Libring, T. Tirey, T. Davis, A. Miller, R. Tatlock, S. Calve, L. Solorio, S. Claridge

8:00 . Structural diversity in dimension-controlled assemblies of tetrahedral gold nanocrystals. **Y. WANG**, J. Chen, Y. Zhong, S. Jeong, R. Li, X. Ye

8:00 . Self-assembly of cadmium dipeptide nanoparticles into bowtie complex microparticles with chirality continuum. **p. kumar**, T. Vo, M. Cha, W. Xu, A. Visheratina, J. Kim, W. Choi, S.C. Glotzer, N. Kotov

8:00 . Phosphonic acid based polymers; a new class of structure directing agents for nanocomposites with controlled interfaces via self-assembly. **T. Larison**, M. Stefik, E. Williams

8:00 . Evaluation of particle size and surface coating in blood-brain barrier penetration ability using porous silicon nanoparticles. **w. zhang**

8:00 . Birefringence of chiral hedgehog particles. **p. kumar**, E. Marino, A. Simon, D. Katz, C.B. Murray, N. Kotov

Virtual Only
Virtual Session

COLL Sci-Mix

8:00 . Magnetically actuated active deep tumor penetration of deformable nanocarriers for enhanced cancer therapy. **Y. Zhu**, X. Yang

8:00 . Fast-disintegrating diltiazem HCl/cyclodextrin inclusion complex electrospun nanofibrous strips for oral drug delivery. **A. Kirtania**, A. Celebioglu, T. Uyar

8:00 . Study on interface performance and hydrophilic-lipophilic regulation of amphiphilic Silicon-based Janus nanoparticles. **K. Xu**, Z. Yang

8:00 . Magnetic liposomal phase convertible nanodroplets as bimodal contrast agent for ultrasound and magnetic resonance imaging. **H. Waqar**, R. Riaz, N.M. Ahmad, A.I. Majeed, S.R. Abbas

8:00 . Durable radiative cooling coating via nanoparticles evaporation-driven assembly against environmental aging. **J. Song**, W. Zhang, Z. Sun, M. Pan, F. Tian, X. Li, X. Deng

8:00 . Bacterial cellulose based magnetic composites for transdermal patches. **A. ALAM**, M. Khandelwal

8:00 . Microfluidic assembly of fused membrane coated drug nanoparticles. **P. Tsai**, H. Bai, M. Wang

8:00 . pH-responsive nanoparticle library with precise pH tunability by co-polymerization with non-ionizable monomers. **R. Zhao**

8:00 . Marine aerosols and urban aerosols are different in surface properties -- using second harmonic scattering to observe the organic sufactant partition at the aerosol surface. **Y. Wu**, M.J. Wilhelm, Y. Li, T. Wu, H. Dai

8:00 . Antigen-bearing outer membrane vesicles as tumour vaccines produced *in situ* by ingested genetically engineered bacteria. **J. Xu**, X. Zhao, G. Nie

8:00 . Biodegradable polymeric occluder for closure of atrial septal defect with interventional treatment of cardiovascular disease. **Q. Wang**, J. Ding, B. Li, Z. Xie, X. Chen, D. Zhang, C. Liu, S. Wang, Y. Xie, Z. Zhang

8:00 . "Chinese paintings" on gel surface through a wetting-enabled-transfer (WET) strategy. **X. Wan**, S. Wang

8:00 . Aggregation of thermo-responsive nanoparticles into macroscopic materials. **M. Liu**, S. Wang

8:00 . Sequential macrophage activation switch controlled by NIR for infected percutaneous tissue repair of Ppy coated sulfonated PEEK. **X. Liu**, X. Liu

TUESDAY MORNING

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station B

Industry-Academia Dialogue

M. Lynch, D. Miller, *Organizers, Presiding*

8:00 . Industry-Academia Dialogue. **D. Miller**, **M. Lynch**

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Biomaterials and Biointerfaces

E. Andreescu, C. P. Collier, R. M. Espinosa-Marzal, S. Hunyadi Murph, *Organizers*
S. Sinha Ray, *Organizer, Presiding*

8:00 Introductory remarks.

8:05 . Ultrasound-assisted nano-enabled hydrogel coating on urinary catheters for prevention of biofilm-associated infections. **A. Puertas**, A.A. Ivanova, K. Ivanova, G. Ciardelli, T. Tzanov

8:25 . Targeting over-expressed mutated epidermal growth factor and fibroblast growth factor receptors in tumor cells. **H.L. Hunt**, C.G. Lebedenko, M.E. Murray, **I.A. Banerjee**

8:45 . Exploring the relationship between environmental biofilms and the corrosion of metal surfaces. **Z. Burton**, N. Stumme, R. Ordikhani Seyedlar, S.K. Shaw, K. Ikuma

9:05 . Self-assembly of cadmium dipeptide nanoparticles into bowtie complex microparticles with chirality continuum. **p. kumar**, T. Vo, M. Cha, W. Xu, A. Visheratina, J. Kim, W. Choi, S.C. Glotzer, N. Kotov

9:25 Intermission.

9:35 . Tissue-adhesive hydrogel for multimodal drug release to immune cells in skin. **N. Day**, R. Dalhuisen, N. Loomis, S. Adzema, J. Prakash, C. Shields IV

9:55 . Neuronal cell morphology and movement on the micropillar patterns with various modulus created by imprinting method of photoresin. **S.Y. Yang**, T. Nguyen

10:15 . 3D interior hotspots embedded with viral lysates for label-free Raman-based detection of infectious diseases. **I.B. Baffour Ansah**

10:35 . Structural and mechanical properties of ligated DNA crystals. **R. Li**, M. Zheng, A.S. Madhvacharyula, Y. Du, C. Mao, J. Choi

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

2023 ACS National Award for Creative Invention: Symposium in Honor of Younan Xia

B. J. Wiley, *Organizer*
W. Li, *Organizer, Presiding*

8:00 . Enabling next-generation high-performing sodium batteries through novel electrode materials with well-controlled nano-architectures. **W. Li**

8:30 . Electron microscopy research enabled by shape-controlled nanoparticles. **M. Chi**

9:00 . Understanding order/disorder in nanostructured metal oxide electrode materials for lithium ion batteries. **H. Xiong**

9:30 Intermission.

10:00 . Antimicrobial gold nanoclusters: Design, synthesis and antimicrobial mechanisms. **M. Yan**

10:30 . Nanoparticles under high pressure: Assembly and formation of active nanostructures. **H. Fan**

11:00 . Thermal driven applications at interfaces. M. Jiang, W. Shang, **T. Deng**

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station D

Basic Research in Colloids, Surfactants and Interfaces

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

8:00 . Effects of additives on the lamellar microstructure and flow behavior of concentrated surfactant solutions. **P. Kelkar**, M. Kaboolian, A. Seshadri, R.D. Corder, S. Lindberg, P. Stenger, K.A. Erk

8:20 . Spontaneous emulsification of model acylated peptide: An investigation on semaglutide. **Q. Li**, K. Qian, V. Tangry, D.P. Allen, M.L. Mason, K.D. Seibert, N.J. Wagner

8:40 . Influence of choline chloride-based natural deep eutectic solvent on the degree of flocculation and rheological behavior of bentonite polyacrylamide suspension. D. Alresheq, **M. Nasser**, I. Hussein

9:00 . Characterization and application of semi-aqueous and non-aqueous dispersions. **D. Dermody**, H. Katepalli, R. Moglia, A. Nowbahar, K. Barnes, L. Qi, R. Campbell, D. Malotky, D. Yu

9:20 . Fabrication of bijels using 3D printing induced by STRIPS method. S. Amirfattahi, H. Honaryar, **Z. Niroobakhsh**

9:40 Intermission.

10:00 . High-concentration siRNA duplex solutions: Preparation, and biophysical and rheological characterization. **K. Qian**

10:20 . Fluorine-free hollow glass microsphere-based firefighting suspensions. **R.T. Snipes**, M. Melara, J. Owens, I.A. Luzinov

10:40 . Friction of methyl-branched fatty acids. R. Cui, **M. Ruths**

11:00 . Multi-scale model to study structure-function relationships of lipid-like peptides. **A. Banerjee**, M. Dutt

11:20 . Critical phase-transition concentration in molecular adsorption at electrode-electrolyte interfaces revealed by electrochemical STM and cyclic voltammetry. **Z. Li**, C. Leasor, K. Chen

Crown Plaza Indianapolis Downtown Union Square
Victoria Station B

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

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

8:00 . Dynamic signatures of domain formation in lipid membranes. S. Gupta, H.J. Lessen, F. Heberle, A.J. Sodt, **R. Ashkar**

8:30 . Tail length dependence of acyl tail correlation dynamics and membrane viscosity in lipid bilayers. **M. Nagao**, E.G. Kelley, B. Farago, P. Zolnierczuk, P. Butler

9:00 . Construction of accurate 3D images of intracellular cholesterol and sphingolipid distributions enabled by depth correction of NanoSIMS depth profiling images. B.L. Gorman, M.A. Brunet, **M.L. Kraft**

9:30 . Physical basis for co-solvent disruption of membrane phase behavior. L. Tan, H. Scott, M. Smith, S. Pingali, H.M. O'Neill, J. Morrell-Falvey, E.T. Prates, J. Katsaras, J. Smith, B.H. Davison, J.G. Elkins, **J.D. Nickels**

10:00 . Phase diagram of an asymmetric lipid bilayer determined from asymmetric giant unilamellar vesicles. **F. Heberle**, T.A. Enoki

10:30 . Vitamin E as a membrane raft modulator. M. DiPasquale, **D. Marquardt**

Crown Plaza Indianapolis Downtown Union Square
Victoria Station A

Nanomaterials

R. M. Espinosa-Marzal, C. M. Sims, S. Sinha Ray, *Organizers*
J. A. Hollingsworth, *Presiding*

8:00 Introductory Remarks.

8:05 . Composition dependent localized surface plasmon resonances of tungsten oxysulfide nanocrystals. **G.A. Davis**, R. Sardar

8:25 . Quantum shell architecture improves multi-exciton dynamics in near IR. **D. Harankahage**, M. Zamkov

8:45 . Linker-dependent charge transfer in Zn phthalocyanine/MoS_2 heterojunctions. **C. Hemmingsen**, C.T. Eckdahl, R. López Arteaga, S. Kim, L. Kuo, M.C. Hersam, E.A. Weiss, J.A. Kalow

9:05 . Assessing the colloidal route toward different phases in the Ge-Cr-Te system. D. Parobek, C. DeLaney, J. Watt, **S. Ivanov**

9:35 . Tailored heterointerfaces in 2D atomic crystals and 2D molecular frameworks. **T. Kempa**, R. Dziobek-Garrett, O. Ambrozaite

10:05 . Electrodeposition of nanoscale halide thin films. **S. Grewal**, C. Leverant, L. Merrill, K. Klavetter, M. Siegal

10:25 . Improvement of electrical property and mechanism of nano nickel surface modification on metal oxide powder. **J. Jo**, Y. Yoon, J. NA, U. LEE

10:45 . Connecting cation exchange and metal deposition outcomes via Hume–Rothery-like design rules using copper selenide nanoparticles. **R. Sen**, X. Gan, J. Millstone

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

PUNC: Nanomaterials Research at Primarily Undergraduate Institutions

M. E. Anderson, S. Hughes, *Organizers*
J. G. Clar, *Organizer, Presiding*
M. Gaines, A. Maley, *Presiding*

8:00 . Testing the limits of nanoparticle-embedded peptoid nanosheet formation through an oil-water interface assembly mechanism. **E.J. Robertson**, C. Tran Minh, C. James, I. Jenney, M. Nguyen

8:15 . pH dependence of ion motion through a carbon nanotube. **M.D. Ellison**, A. Russell, H. Bonanny

8:30 . Using capillary electrophoresis to quantify competitive adsorption of eco-corona constituents to silver nanoparticles. **K.R. Riley**

8:45 . Electrically transmissive and stable alkyne-derived molecular layers on nanoporous gold electrodes. **E.C. Landis**

9:00 Intermission.

9:20 . Design of conductive biopolymeric nanocomposite anodes to enhance microbial fuel cell performance. I. Deninger, **J.J. Keleher**, K.M. Sheets

9:35 . Environmental transformations and impacts of nanoplastics. **A.C. Mensch**, A.L. DiFelice, A. Silver, A.C. Biondo, E.A. Good, C.A. Feigeles

9:50 . Development of novel PDMS-boron nitride nanocomposites for environmental remediation. **J.G. Clar**

10:05 . Structural effects on ground state charge transfer in planar organic semiconductor thin films. **C.M. Mauck**, M.K. Ourgessa

10:20 Intermission.

10:40 Panel Discussion.

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station A

Surface Chemistry

Orientation and Intermolecular Interactions

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

8:00 . Exploring the orientation and intermolecular coupling in organic semiconductor thin films via infrared reflectance-absorbance spectroscopy. **C.M. Mauck**, A. Smirnov

8:40 . Understanding electronic interactions at the interface of metal-organic hybrid system through controlling surface binding head-group on gold nanostructures. **S. Hati**, X. Yang, J. Zhang, R. Sardar

9:00 . Metal organic frameworks for noble gas separation. **S.M. Demers**, J. McNamara, J. Reagin, C. Baker, M.A. Torcivia, D. Hunter, M.S. Morey

9:20 . Crystal engineering of metal–organic frameworks via topo-photochemical reactions. **J. Song**, X. Yu, S. Chen, Y. Luo, M. Tsotsalas, P. Weidler, A. Nefedov, S. Heissler, Y. Wang, C. Woell

9:40 Intermission.

10:00 . Exploring structure-activity effects while employing an "overcutting" mode for organic residue removal during Cu post-chemical mechanical planarization (p-CMP) cleaning. **A.L. Dudek**, J.J. Keleher

10:20 . Morphology dependent SERS enhancement of plasmonic WO_{3-x} nanostructures. **V. Simas**, R. Sardar, G. Davis, S. Hati, A. Kumbhar

10:40 . Plasma-enhanced chemical vapor deposition: A versatile gas-phase strategy to customize naturally-derived polymer surface properties. **M.J. Hawker**

11:00 . Understanding the mechanisms of surface photoinduced reactions on amorphous surfaces and nanoparticles through the ultrafast detection of highly unstable intermediate species and final products. **M.E. Vaida**

11:20 . Acceleration of Diels-Alder reactions by mechanical distortion. **Y.S. Zholdassov**, L. Yuan, S.R. Garcia, R. Kwok, A. Boscoboinik, D.J. Valles, M. Marianski, A. Martini, R.W. Carpick, A.B. Braunschweig

Interfacial Reactivity of Nanoconfined Surfaces

Sponsored by GEOC, Cosponsored by CEI, COLL and ENVR

TUESDAY AFTERNOON

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

2023 ACS National Award for Creative Invention: Symposium in Honor of Younan Xia

B. J. Wiley, *Organizer*
W. Li, *Organizer, Presiding*

2:00 . Understanding the formation and reconfiguration of complex nanocrystal superlattices using in-situ electron microscopy. **X. Ye**

2:30 . CO_2 utilization and water treatment opportunities enabled by molecular electrocatalysis and nanostructured materials. **H. Wang**

3:00 . Core-shell nanostrucutres with low precious metal content and tunable strain for electrocatalysis. F. Xu, **C. Wang**

3:30 Intermission.

4:00 . Copper-modified 2D transition metal carbide (MXene) electrocatalysts for carbon dioxide reduction. **Z. Hood**

4:30 . 3D bioprinting for high-content tissue fabrication. **Y. Zhang**

5:00 . Creating customized, functional nanoprobes: From enhanced imaging applications to chemical sensing. **B.D. Gates**

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

ACS Award Lectures 2023

Financially supported by Colgate-Palmolive; Procter & Gamble
L. D. Zarzar, *Organizer*
D. Miller, *Organizer, Presiding*

2:00 . Silver nanowires: From serendipity to robust synthesis and commercial application. **Y. Xia**

3:00 . Award Address (ACS Award in Colloid Chemistry sponsored by the Colgate-Palmolive Company). Evaporation-induced self-assembly of inverse opals: From synthesis to applications. **J. Aizenberg**

4:00 . Award Address (ACS Award in Surface Chemistry sponsored by Procter & Gamble). The interaction of water with solid surfaces: Zeolites, metal oxides, metal-organic frameworks. **J. Sauer**

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

Colloids Intended for Biological Applications

N. Feliu Torres, W. J. Parak, *Organizers*
P. Snee, *Presiding*

2:00 . Lipid nanoparticles designed for DNA delivery via lipid rafts. S. Taylor, C. Johns, K. Thamatrakoln, K. Bidle, B. Van Mooy, **D.J. Hirsh**

2:20 . Rapid, one-step ligand-exchange method to conjugate quantum dots with DNA. P. Rahmani, M. Goodlad, Y. Zhang, **T. Ye**

2:40 . Developing novel bioprinted scaffolds from collagen mimics. **B.G. Goncalves**, R.M. Heise, M.E. Murray, **I.A. Banerjee**

3:00 . Development of stable liquid emulsions of spice oleoresin using modified surfactant based emulsifiers. **S. Murugesan**, G. Srinivaas, T. Nallamilli, K. Raghavarao, S. Tangutooru, V. Priya

3:20 . Acoustically responsive microparticles in a handheld pipette for rapid and sensitive biosensing. **C.P. Thome**, J.P. Fowle, A.K. Neumann, G.P. Lopez, C. Shields IV

3:40 . Elucidating the immunological effects of magnetically reconfiguring microrobots. **N. Day**, S. Adzema, K. Kreienbrink, A. Harrell, C. Shields IV

4:00 . Nanozymes for nitric oxide delivery from endogenous and exogenous prodrugs. **R. Chandrawati**

4:20 . Development of nano structured graphene oxide incorporated dexamethasone with enhanced Ddssolution. **M. Islam**, S. Mitra

4:40 . Deformation of magnetic polymer vesicles (polymersomes) under magnetic field and photo-crosslinking of their membrane in their deformed state. **D. Kazaryan**, S. Lacomme, E. Gontier, L. Laib, V. Gigoux, F. Peruch, O. Sandre

WEDNESDAY MORNING

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station B

Nanomaterials

R. M. Espinosa-Marzal, C. M. Sims, S. Sinha Ray, *Organizers*
J. A. Hollingsworth, *Presiding*

8:00 Introductory Remarks.

8:05 . Dispersive and aggregated states of single-wall carbon nanotubes in aqueous suspension of chitin nanofibers. **T. Guo**, Z. Wan, Y. Lu, J. Tian, G. Banvillet, O.J. Rojas

8:25 . Noble metal-nonstoichiometric copper chalcogenide dual-plasmonic hybrid heteronanostructures with tunable optical properties and optimized photocatalytic activities. M. Ivanchenko, A. Carroll, A.B. Brothers, A. Evangelista, **H. JING**

8:45 . Synthesis of polymer modified substituted ferrite nanomaterials guided by density functional theory.. **O.T. Mefford**, Z. Yan, V.R. Punyapu, S. FitzGerald, R.B. Getman, T. Crawford

9:05 . Structure-property relationships of ZIF-based porous liquids for CO_2 adsorption. **M. Hurlock**, J. Rimsza, T.M. Nenoff

Crown Plaza Indianapolis Downtown Union Square
Victoria Station B

Biomaterials and Biointerfaces

E. Andreescu, R. M. Espinosa-Marzal, S. Hunyadi Murph, S. Sinha Ray, *Organizers*

8:00 Introductory remarks.

8:05 . High-throughput platform for macromolecular transport. **P.M. Babiak**, M. Hakim, A. Ahmadzadegan, C. Li, L. Sanjuan, Q. Xu, A. Ardekani, P. Vlachos, L. Solorio, J.C. Liu

8:25 . Understanding the diffusion behaviour of fluorescent carbon dots in a complex media. **J. Wang**, L. Gil-Herrera, A. Dumanli

8:25 . Time resolved emission studies of amino acid partitioning into model biological membranes. **R. Trousdale**, K. Duncan, R.A. Walker

8:45 . Facial amphiphilicity index as a robust structure feature on antimicrobial efficacy. **L. Kurnaz**, **y. luo**, **C. Tang**

9:05 Intermission.

9:15 . Surface chemistry of gecko toe pads. **M.H. Rasmussen**, K.R. Holler, J. Baio, C. Jaye, D.A. Fischer, S. Gorb, T. Weidner

9:35 . Probing fibrin's molecular response to tensile loading *via* FRET-FLIM. **Y. Chen**, M. Hedayati, T. Yeh, S. Parekh

9:55 . Establishing structure-nanomechanical property relationships for *de novo* synthetic amyloid peptides. **H.G. Abernathy**, J. Saha, V. Rangachari, T. Clemons, L. Kemp, S.E. Morgan

10:15 . Control of C2C12 murine myoblast adhesion and differentiation by hierarchically patterned elastomeric surfaces. **L. Williams**, S. Libring, T. Tirey, T. Davis, A. Miller, R. Tatlock, S. Calve, L. Solorio, S. Claridge

Crown Plaza Indianapolis Downtown Union Square
Haymarket Station A

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

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

8:00 . Investigating the effect of vaping additives on the biophysical nature of pulmonary surfactant lipid systems. **M. Dziura**, S. Castillo, O. Gbadamosi, M. DiPasquale, D. Marquardt

8:30 . Second harmonic generation: An investigation of molecule-membrane dynamics across living bacterial species. **M. Blake**, T.R. Calhoun

9:00 . Stimuli-responsive liposomes for triggered cargo release and activated cell delivery. **M. Best**, J. Lou, M. Qualls, R. Sagar, J. Schuster, D. McBee, J.A. Baccile, F. Barrera

9:30 . Short-term, long-term, and heterosynaptic plasticity of memristive and memcapacitive lipid bilayer membranes for neuromorphic applications. **C.P. Collier**, B.T. McClintic, H. Scott, J. Katsaras

10:00 . Elucidating the phase behavior of ternary model membrane mixtures containing halogenated cholesterol analogues. **D. Mehta**, E. Crumley, J. Lou, M. Best, N. Waxham, F. Heberle

10:30 . Utilizing asymmetric giant unilamellar vesicles to determine how low-melting phospholipids affect interleaflet coupling strength. **K.B. Kennison**, H. Scott, T.A. Enoki, N. Waxham, F. Heberle

11:00 . Investigating the role of pancratistatin in mitochondrial apoptosis via neutron scattering. **S. Castillo**, M. Dziura, O. Gbadamosi, M.H. Nguyen, D. Marquardt

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station D

Colloidal Nanoparticle Synthesis and Assembly

D. Huber, T. Li, Y. Sun, *Organizers*
H. Fan, *Organizer, Presiding*

8:00 . Atomic interactions of dislocations and twin boundaries with nanoscale precipitates in magnesium alloys. D. shi, C. Cepeda-Jiménez, **M. Pérez Prado**

8:30 . Metal nanocrystals and their assembly: How shape matters. **F. Lu**

9:00 . Transmitting molecular chirality into nanoscale: Versatile approaches to fetch chiral light emission in carbon nanomaterials and assemblies. **J. Kumar**, S. Maniappan, K.L. Reddy

9:20 . Self-assembly of atomically aligned nanoparticle superlattices from Pt-Fe_3O_4heterodimer-nanoparticles. **S. Yang**, R.A. LaCour, S.C. Glotzer, C.B. Murray

9:40 Intermission.

9:50 . Self-assembly of colloidal particles in electrophotographic printing applications. **C. Cheng**

10:20 . Quantum shells: An emerging class of 2D colloidal semiconductors. **M. Zamkov**

10:40 . Self-assembly of linear trimeric plasmonic molecules using a 3D DNA origami template. Y. Zhang, Z. Petrek, W. Zhang, **T. Ye**

11:00 . Photoelectrochemical hydrogen generation with cys-CdS/β-$Pb_{0.33}V_2O_5$ photocathodes and cobalt phosphate anodes for efficient water splitting. **A. Rothfuss**, D. Watson

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

Functionalized Nanoparticles for Medical Applications

S. Zanganeh, *Organizer*
T. Webster, *Organizer, Presiding*

8:00 . Nano-based strategy for precise tumor stroma modulation and improved therapeutic efficacy to treat pancreatic cancer. **J.L. Vivero**

8:30 . Bacterial-synthesized nanomaterials as antimicrobials: when the disease becomes the solution. **D. Medina Cruz**

9:00 . Targeted delivery of eugenol by enzyme-responsive mesoporous silica nanoassemblies for colorectal cancer therapy. **N. Wellala Wijewantha**, S. Sane, R.A. Potts, K. Rezvani, G. Sereda

9:15 . Targeted photothermal ablation of biofilms using functionalized gold nanoparticles. **d.L. amarasekara**, R. Somarathne, T.K. Shaikh, E.R. McCaffrey, M. Hejny, N.C. Fitzkee

9:30 . Bandgap engineering of carbon-based nanoparticles enables efficient photothermal PCR for rapid and portable medical diagnostics. **S. Balou**, A. Priye

9:45 . Inactivation of SARS-CoV-2 virus infection using ACE2-tethered gold nanorods under near-infrared laser irradiation. **I. Peng**, s. jokhio, S. Alkhaldi, **C. Peng**

10:00 Intermission.

10:15 . Fine-tuning of nanosponges to optimize the delivery of lipophilic drugs. **Q. Khalid**, M.U. Minhas, N.S. Malik, S. Meer, F. Tariq

10:45 . Magnetic nanodisc-macrophage complexes for adoptive cell transfers. **N. Day**, C. Orear, C. Rinaldi-Ramos, C. Shields IV

11:00 . Surface functionalized fullerene-based nanomaterials for drug delivery and anti-oxidant activity. **R. Biswas**, **M. Siringan**, B. Manley, S. Yang, L. Jin, Z. Shi, X. Li, **J. Zhang**

11:15 . Optical nanosensors for pH measurements in model biofluids. **N. Sultana**

11:30 . Hybrid human serum albumin nanoparticles co-encapsulating near infrared ionic dye and chemotherapeutic drug for theranostics. **T. Alonge**, D. Anum, **D. Bwambok**

Crown Plaza Indianapolis Downtown Union Square
Victoria Station A

Surface Chemistry

Colloids, Liquid-Liquid Interfaces, and Dissolution

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

8:00 . Ion concentration at the liquid/vapor interface of aqueous salt solutions studied by liquid flat jet APXPS measurements and MD simulations. **A. Siebert**, K. Goodman, M. Blum

8:20 . pH dependent interfacial adhesion of hydroxypyridinone based wet adhesives. **S. Ahmed**, G. Degen, P. Stow, M. Susman, R. C. Andresen Eguiluz, A. Butler

9:00 . Time-domain NMR as a driving force for innovative interfacial science. **M. Suekuni**, A.M. Allgeier

9:20 Intermission.

9:40 . Adsorption of fuchsine on desilication products and the effect of templating organic molecules. E. Kása, I. Petri, M. Szabados, K. Baán, P. Sipos, **B. Kutus**

10:00 . Thermodynamics of hydrophobic interactions in foam films. M. Gupta, K. Huang, **R. Yoon**

10:20 . Controlling human touch through surface chemistry. **C. Dhong**

10:40 . Determination of surface functional groups on polydopamine particles and its influence on antioxidant properties. **G. Rey**, T. Fricker, A.N. Dhinojwala

11:00 . Selective interrogation of polar and nonpolar regions in the 1-Decyl-1-methylpyrrolidinium bis(trifluoromethylsulfonyl)imide ($DMPyrr^{+}TFSI^{-}$) and 1-decanol binary system. **M. Hossain**

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Surface Chemistry in Heterogeneous Catalysis

L. Chen, *Organizer, Presiding*

8:00 . Unlocking synergy in bimetallic catalysts towards high-efficient glycerol hydrogenolysis. **G. Cui**

8:20 . Ligand coordinated Pt single-atom catalyst allows adsorbed CO to extract oxygen from the support during water-gas shift reaction. **F. Rezvani**, D. Austin, D. Le, T.S. Rahman, S.L. Tait

8:40 . Machine-learned force-fields for the thermal and adsorbate-induced dynamic structural evolution of mono- and bi-metallic nanoparticles. **C.J. Owen**, Y. Xie, J. Lim, L. Sun, B. Kozinsky

9:00 . Unraveling the oxidative redispersion of Pt nanoparticles supported on ceria via an explorative DFT study. **A. Salcedo**, D. Loffreda, C. Michel

9:20 . Infrared spectroscopic studies of the reducibility of metal oxides for supported transition metal catalysts. **K.N. Knight**, M. Yousuf, N.S. Sapienza, M. Neurock, A. Karim, J.R. Morris

9:40 Intermission.

10:00 . Elucidating the active site in heterogeneous OH-directed hydrogenation using Pt-Cu bimetallic alloy catalysts. W. Hong, **W.A. Swann**, V. Yadav, C.W. Li

10:20 . Green synthesis and electrocatalytic activity of semiconducting WS_2 nanosheets for hydrogen evolution reaction.. **N. Kothalawala**, M. De Alwis Goonatilleke, S. Shrestha, U. Kodithuwakku, A. Seo, B. S Guiton, F. Yang, D. Kim

10:40 . *Artificial* strong metal-support interaction on plasmonic core-shell nanostructures for photo(electro)catalytic reactions. **V.V. QUACH**, M. Spadaro, M. Knezevic, H.T. Hoang, J. Arbiol, C. Colbeau-Justin, N.M. Ghazzal

11:00 . Tuning microstructural aspects of high-entropy alloy nanomaterials to elucidate electrocatalytic structure/activity relationships. C. Laber, **M. Glasscott**

11:20 . Carbon-nanodots-derived single atom catalysts: Synthesis and catalytic activity for oxygen reduction reaction. **P. Sharma**, A.A. Thisera, J. Rector, B. S Guiton, D. Kim

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

Synthetic Amphiphiles and Formulation Development for the Delivery of Drugs, Nucleic Acids, and Proteins

L. Philips, *Organizer*
M. A. Ilies, *Organizer, Presiding*

8:00 . COVID-19 vaccines: Technology transfer and licensing facilitated rapid deployment. **E.R. Nesbitt**

8:30 . Modular DNA micelles for the controlled delivery of therapeutic DNA-surfactant conjugates. **I. de la Fuente**, S. Pal, S.S. Sawant, K. Kho, N. Sarangi, J. Cannata, L. Liang, T. Keyes, J.L. Rouge

9:00 . Thermal analysis use in characterization of delivery systems for drugs and nucleic acids. **M.A. Ilies**

9:30 Intermission.

9:45 . Use of targeted mRNA-lipid nanoparticles in the context of acuteiInflammatory conditions. **H. Parhiz**

10:15 . Bridging the pharmacokinetic-pharmacodynamic gap for nucleic acid delivery. H. Parhiz, V.V. Shuvaev, D. Weissman, V.R. Muzykantov, **P.M. Glassman**

10:45 . Quantifying how dozens of LNPs deliver mRNA *in vivo* with single-cell resolution using multiomics. **H. Kim**, R. Zenhausern, J.E. Dahlman

11:15 . Branched lipid architecture improves lipid-nanoparticle-based mRNA delivery to the liver via enhanced endosomal escape. **M.S. Padilla**, M. Mitchell

Virtual Only
Virtual Session

Basic Research in Colloids, Surfactants and Interfaces

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

10:00 . Encapsulation of a single small molecule therapeutic using peptide-based polymers. **Z. Habeeb**

10:20 . Magnetic liposomal phase convertible nanodroplets as bimodal contrast agent for ultrasound and magnetic resonance imaging. **H. Waqar**, R. Riaz, N.M. Ahmad, A.I. Majeed, S.R. Abbas

10:40 . Complex supramolecular fiber formed by coordination-induced self-assembly of benzene-1,3,5-tricarboxamide. **B. Wu**, M. Cohen Stuart, J. Wang

11:00 . Pyridine based gemini and hetero gemini amphiphile: Synthesis, organogel formation, bioinspired catalysis, hydroxyl ion sensing and removal of hazardous Pb (II) and Cd (II) ions. **S. Roy**, A. Roy

11:20 . Colloidal suspensions displaying anomalous phoretic behavior: field- and mobility reversal. **V. Tricoli**, F.F. Corinaldesi

11:40 Intermission.

12:00 . Entropy-driven crystallization of flexible chains of hard spheres under confinement. **D. Martínez-Fernández**, P.M. Ramos, M. Herranz, K. Foteinopoulou, N. Karayiannis, M. Laso

12:20 . Effects of solvent on nucleation and growth of CaS nanostructure: A DFT approach. **J. Caswell**, D. LeBlanc, D. Rivera

12:40 . Synthesis and characterization of iron-doped biicosahedral Au_{25} nanoclusters. **Z. Qureshi**, D. Aligholizadeh, E. McDuffie, **M. Devadas**

1:00 . Numerical simulation of liquid droplet impact on a superhydrophobic surface. **L. xin**, Z. Rui

1:20 . Marine aerosols and urban aerosols are different in surface properties -- using second harmonic scattering to observe the organic sufactant partition at the aerosol surface. **Y. Wu**, M.J. Wilhelm, Y. Li, T. Wu, H. Dai

1:40 . Molecular dynamics simulations of the self-assembly of polypeptoid nanocrystals. **X. Luo**, T. Yu, X. Jiang, R.N. Zuckermann, N.P. Balsara, D. Prendergast

Interfacial Reactivity of Nanoconfined Surfaces

Sponsored by GEOC, Cosponsored by CEI, COLL and ENVR

WEDNESDAY AFTERNOON

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station B

Colloids Intended for Biological Applications

W. J. Parak, *Organizer*
N. Feliu Torres, *Organizer, Presiding*

2:00 . Optimization of iodine labelling for cell tracking. **N. Feliu Torres**, W.J. Parak

2:20 . Virus-inspired transfection of a marine alga. **B. Singer**, **M. Harinath**, C. Johns, K. Bidle, K. Thamatrakoln, B. Van Mooy, D.J. Hirsh

2:40 . Multiplexing strategy for single-step colloidal noble metal nanoparticle synthesis and bioconjugation. **A. Backhaus**, L. Ratjen, J.B. Zimmerman

3:00 . Synthesis of multi-core virus-like particles. **A. Amjad**

3:20 . Delivery of proteins to endosomes/lysosomes via protein corona formation effects. N. Feliu Torres, **W.J. Parak**

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station D

Basic Research in Colloids, Surfactants and Interfaces

S. Hunyadi Murph, A. Mallia, Z. Niroobakhsh, *Organizers*
B. Nojabaei, *Presiding*

2:00 . Computational study of the effects of zwitterions on forces between silica surfaces in water. **A. Nair**, N. Maharjan, T. Pascal, H. Mishra

2:20 . Fundamental studies of the oil/brine/surfactant microemulsion phase viscosity using molecular dynamics simulation. A. Talapatra, **B. Nojabaei**

2:40 . Anomalously stable mixtures of water and oil. **C. Nannette**, A. Chen, Y. Song, J. Baudry, J. Bibette, D.A. Weitz, D. Demoulin

3:00 . Adventitious airborne contamination and its impact on conductive atomic force microscopy. **H. Liu**

3:20 Intermission.

3:40 . Extension of the site-identification by ligand competitive saturation (SILCS)-biologics approach for structure-based protein charge prediction. **A.A. Orr**, A. Tao, O. Guvench, A.D. Mackerell

4:00 . Efficient resonance energy transfer between a single Cu_2O nanoparticle and Au surface. **K. Kalkan**, M. Andiappan, N. Khatri

4:20 . Observing membrane interactions and antibacterial properties of American propolis constituents with lipids via the Langmuir monolayer technique and *E. coli* bacteria cultures. **G.P. Peterson**, A. Goach

4:40 . Halogen-bonding capable functionalized gold nanoparticles: An avenue for molecular detection schemes. **Q. Dang**, S. Gilmore, K. Lalwani, R. Conk, J. Simpson, M.C. Leopold

5:00 . Molecular insights into topological distribution of functionalized moieties in polymeric nanoparticles. **Y. Lin**, J. Tsavalas

Crown Plaza Indianapolis Downtown Union Square
Victoria Station B

Biomembrane Synthesis, Structure, Mechanics, and Dynamics

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

2:00 . Investigating vitamin E's lipid partitioning preference by utilizing fluorescent techniques. **I. Dib**, I. Luciw, D. Marquardt

2:30 . Probing dynamics in droplet interface bilayer using dynamic impedance spectroscopy. **R.L. Sacci**, H. Scott, Z. Liu, D. Bolmatov, B. Doughty, J. Katsaras, C.P. Collier

3:00 . Evidence for long-term potentiation in phospholipid membranes. **H. Scott**, D. Bolmatov, P.T. Podar, Z. Liu, J.J. Kinnun, B. Doughty, R. Lydic, R.L. Sacci, C.P. Collier, J. Katsaras

3:30 . Microstructure of photosynthetic membranes. **G. Nagy**

4:00 . Examination of the asymmetric transbilayer organization of phosphatidylcholine and phosphatidylethanolamine phospholipids in synthetic liposomes using ^{1}H NMR and spectrophotometric analysis. **D. Dziura**, E.G. Kelley, D. Marquardt

4:30 . Influence of shor-chain lipid (detergent-like molecules) on the morphology of bicelles. **C. Liu**, L. Nemecek, K. Shih, A. Kurkju, M. Nieh

5:00 . Development and optimization of Alzheimer's-specific MRI and PET imaging agent. **O. Gbadamosi**, D. Marquardt, C. Chandrasekera

Crown Plaza Indianapolis Downtown Union Square
Victoria Station A

Colloidal Nanoparticle Synthesis and Assembly

H. Fan, D. Huber, Y. Sun, *Organizers*
T. Li*, Organizer, Presiding*

2:00 . Functional plasmonic-photonic hybrid materials enabled by colloidal synthesis and assembly. **J.A. Hollingsworth**

2:30 . Quantifying structural heterogeneity in individual $CsPbBr_3$ quantum dot superlattices. **D. Clark**, V. Lumsargis, D. Blach, K. Zhu, A. Shumski, L. Yao, Q. Chen, L. Huang, C.W. Li

2:50 . Programming "atomic substitution" in alloy colloidal crystals using DNA. **K. Landy**, K. Gibson, Z. Urbach, S. Park, E. Roth, S. Weigand, C.A. Mirkin

3:10 . Mycosynthesis of zinc oxide nanoparticles exhibits fungal species dependent morphological preference. **N.G. Brady**

3:30 . Enabling hydrothermal ZnO nanowire synthesis on non-planar surfaces using surface-directed assembly. **A.M. Ortiz-Ortiz**, J. Wang, A. Gayle, H. Faustyn, D. Penley, C. Sherwood, N.P. Dasgupta

3:50 Intermission.

4:00 . Material properties of mono- and di- substituted tetrahedrite nanoparticles synthesized by a modified polyol method. **J. Daniel**, A. Espinosa, M. Nguyen, K. Plass, M.E. Anderson

4:20 . Phase transition of polymer-grafted octahedral nanocrystal superlattices. **B. Zhu**, J. Chen, R. Li, Y. WANG, Y. Zhong, X. Ye

4:40 . Controlling nucleation and growth in colloidal crystals using DNA. **K. Gibson**, C.A. Mirkin

5:00 . Generation of monodisperse, submicrometer, self-assembled superparticles with microfluidic devices. **T.W. Young**, B. Zhu, X. Ye, S.C. Jacobson

Crown Plaza Indianapolis Downtown Union Square
Grand Central Station C

Functionalized Nanoparticles for Medical Applications

S. Zanganeh, *Organizer*
T. Webster, *Organizer, Presiding*

2:00 . Biocompatible nanoparticles for engineering multifunctional nanocomposites and surfaces for medical applications. **H.H. Liu**

2:30 . Oxygen-generating micro and nanoparticles to improve cell viability and proliferation inside bioprinted GelMA/click-chemistry hydrogels constructions reinforced with graphene and nanofibers layers. **A. Oliveira Lobo**, G. Fernandes de Sousa, E. Sousa Araujo, T. Domingues Stocco, M. de Cassia Sousa e Silva, M. das Virgens Santana

3:00 . Bioactive principle functionalized nanomaterials for anticancer applications. **S. Ghosh**, S. Thongmee, T. Webster

3:30 . 25 years of functionalizing nanoparticles for COVID, infection, cancer, and tissue growth: Gains and losses. **T. Webster**

4:00 Intermission.

4:15 . Nanoparticle-tunable magnetic levitation cytometry for biomarker-free sorting of rare cells and extracellular vesicles. **G. Durmus**

4:45 . Omega-3 fatty acids-rich oils as biofunctional carriers of water-insoluble drugs. **M. Rehman**, A. Madni, A. Ahmad, N. Tahir

5:15 . Use of a chemical barcoding strategy for pooled screening and imaging of targeted nanocarriers. M. Regan, K. Vaidya, J. Houle, S. Stopka, N. Agar, P.T. Hammond, **N. Boehnke**

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Nanomaterials

R. M. Espinosa-Marzal, S. Sinha Ray, *Organizers*
C. M. Sims, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Mechanochemical molecular motion on curved graphene. **S. Banerjee**, A.M. Rappe

2:25 . Study on interface performance and hydrophilic-lipophilic regulation of amphiphilic Silicon-based Janus nanoparticles. **K. Xu**, Z. Yang

2:45 . Electronic and optical properties of graphitic carbon nitride quantum dots. O. Olademehin, T.L. Ellington, **K.L. Shuford**

3:05 . Ag/Ag_2S Janus nanoparticles are dispersed in an zwitterionic polymer to form a transparent antifouling coating. **T. Yu**

3:25 . Modes of motion of chemically and acoustically powered nanobots. **S. Ahmed**, T. Afsari

3:45 . Artificially intelligent investigations on transistion metal dichalcogenide with scanning probe microscopy. **J.C. Thomas**, A. Rossi, D. Smalley, L. Francaviglia, Z. Yu, T. Zhang, S. Kumari, J. Robinson, M. Terrones, M. Ishigami, E. Rotenberg, E. Barnard, A. Raja, E. Wong, D. Ogletree, M. Noack, A. Weber-Bargioni

4:05 . Electrolyte adsorption in graphene and hexagonal boron nitride nanochannels. **n. anousheh**, A. Shamloo, S. Jalili, J. Tuszynski

4:25 . Antagonistic mixing in micelles of amphiphilic polyoxometalates and hexaethylene glycol monododecyl ether. **A. Di**, K. Edler

4:45 . Zein plant-based antibiotic nanocarriers investigation in the simultaneous reduction of pathogenic intestinal infections in humans. **J. Pena-Bahamonde**, G. Herrera, D.F. Rodrigues

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

Synthetic Amphiphiles and Formulation Development for the Delivery of Drugs, Nucleic Acids, and Proteins

L. Philips, *Organizer*
M. A. Ilies, *Organizer, Presiding*

2:00 . Anticancer activity of nano-formulated orlistat-dopamine conjugates through self-assembly. **S. Chen**, J. Liang

2:30 . Carbamoylated guanidine derivatives for non-covalent intracellular protein delivery. **J. Moon**

3:00 . Gold nanoparticles synthesis, ligand exchange and cargo loading optimization for drug delivery. **M. Sanchez**, A. Vo, M.A. Ilies

3:30 . Bacterial cellulose based magnetic composites for transdermal patches. **A. ALAM**, M. Khandelwal

4:00 . Microfluidic-assisted self-assembly of polymersomes: Size control and drug loading. A. Martin, C. Lebleu, A. Vax, A. Mutschler, **S. Lecommandoux**

4:30 . Synthesis of amphiphilic peptide-containing dendritic tri-block copolymers as nanocarriers. **A.M. Weather**, T. Clemons, D.L. Watkins

5:00 . Surface functionalized C_{60} β-cyclodextrin nanoparticles as a drug-delivery system. **R. Biswas**, **M. Siringan**, S. Yang, Z. Shi, **J. Zhang**

5:30 . Impact of cholesterol and PEGylation on the PLA1- and PLA2-mediated hydrolysis of glycerophospholipids-made liposomes. **S.A. Khan**, M.A. Ilies

Virtual Only
Virtual Session

Surface Chemistry

Perovskites and Nucleation

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

3:00 . Robust nanoscopic encapsulation of hybrid perovskites via surface molecular modification and combined thermal/plasma ALD. **J. Gong**, M. Adnani, B.T. Jones, Y. Xin, S. Wang, S.V. Patel, E. Lochner, H.M. Mattoussi, Y. Hu, H. Gao

3:20 . Nucleation curves of carbon dioxide clathrate hydrate. **Y. Wei**, N. Maeda

3:40 . Fast halide exchange of Cl/Br co-insertion into the perovskite lattice thin films at room temperature. **B. Akbari**

4:00 . Modeling interactions of carbon bearing species on mineral surfaces. **L. Tribe**, W. Chen

Interfacial Reactivity of Nanoconfined Surfaces

Sponsored by GEOC, Cosponsored by CEI, COLL and ENVR

WEDNESDAY EVENING

Virtual Only
Virtual Session

Virtual Graduate Students Symposium in Asia-Pacific Region on Biomaterials & Biointerfaces

C. Chen, C. Zheng, *Organizers, Presiding*
D. Ding, *Presiding*

8:00 Introductory Remarks.

8:05 . Tumor vasculature microenvironment regulating nanodrugs and their anti-tumor effects. **B. Li**, S. Li, G. Nie

8:15 . Engineered zinc-based nanoparticles enhanced chemotherapy of p53-mutated cancer by inducing ubiquitination-dependent proteasomal degradation of mutant p53 proteins. **J. Qian**, Y. Ye

8:25 . Superstable pure-nanomedicine formulation for enhanced HCC therapy. **Y. Zhang**, G. Liu

8:35 . Amino-acid-encoded supramolecular photothermal nanomedicine for enhanced cancer therapy. **C. Rui**

8:45 Intermission.

8:55 . Design of a biofluid-absorbing bioactive sandwich-structured Zn–Si bioceramic composite wound dressing for hair follicle regeneration and skin burn wound healing. **Z. Zhang**, J. Chang

9:05 . Microsized, low surface energy cocrystal for high-efficient pulmonary delivery and acute lung Injury treatment. **h. shen**, E. Liu, Y. Huang

9:15 . Activatable near-infrared afterglow theranostic prodrug with self-sustainable magnification effect of immunogenic cell death. **Z. Gao**

9:25 . *In-situ* clickable prodrug nanoplatform locally activates T lymphocytes to potentiate cancer immunotherapy. **B. Hou**, J. Ye, Z. Xu, H. Yu

9:35 Intermission.

9:45 . Aggregation of thermo-responsive nanoparticles into macroscopic materials. **M. Liu**, S. Wang

9:55 . Mitochondria-specific nanocatalysts for chemotherapy-augmented sequential chemoreactive tumor therapy. **H. Huang**, Y. Chen

10:05 . Supragel for efficient production of cell spheroids. **S. Ai**

10:15 . Tumor microenvironment-responsive arsenic-loaded layered double hydroxides film with synergistic anticancer and bactericidal activity for gallbladder cancer treatment. **S. Xing**, D. Wang, H. Zhang, F. Peng, L. Wu, L. Liu, Y. Qiao, N. Ge, X. Liu

10:25 . Nano-enabled approach to manipulate immunological tumor microenvironment for effective cancer treatment. **Z. Feng**, H. Meng

10:35 Intermission.

10:45 . Polysulfobetaine-derived zwitterionic micelles with appropriate cell-membrane affinity for efficient cancer drug delivery. **L. Minghui**

10:55 . Hypoxia-activatable nanocarriers for tumor precision diagnosis, stratification and effective chemotherapy, radiotherapy and immunotherapy. **j. liu**, P. Mi

11:05 . pH-/enzyme-responsive nanoparticles selectively targets endosomal Toll-like receptors to potentiate robust cancer vaccination. **H. Xia**, M. Qin, B. Chen, Y. Wang

11:15 . Anion-engineered water structure dictates proton-coupled electron transfer. X. Cheng, **Q. Liu**, L. Wu, X. Jiang

11:25 Concluding Remarks.

THURSDAY MORNING

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm West

Biomaterials and Biointerfaces

E. Andreescu, C. P. Collier, R. M. Espinosa-Marzal, S. Hunyadi Murph, *Organizers*
S. Sinha Ray, *Organizer, Presiding*

8:00 Introductory remarks.

8:05 . Competitive adsorption between monoclonal antibodies and non-ionic surfactants at the air-water interface. **B. Thompson**, K. Pham, T. Wang, K. Qian, Y. Liu, **N.J. Wagner**

8:25 . Quantifying the mechanism of gold nanoparticle radiosensitization. **S.V. Jenkins**, S. Jung, R.J. Griffin

8:45 . Conductive cellulose nanocomposites for electrochemical sensing of biological bontamination on high-touch surfaces. K.A. Cahue, J.D. Goetsch, K.M. Sheets, D. Walkosz, I. Deninger, **J.J. Keleher**

9:05 . mAb-surfactant stability and rheology at the air-water interface under controlled dilation and shear deformations. Y. Tein, **N.J. Wagner**

9:25 Intermission.

9:35 . Insights into mechanical and tribological performance of nanolubricants during boundary mode lubrication between cartilage surfaces. **A.T. Joenathan**, M. Gillis, T. Lawson, M.W. Grinstaff, B. Snyder

9:55 . Applications of silica based hybrid matrices and nanogels. A. Fried, K. Alsaedi, J. Ramos, H. Ariel, **U. Samuni**

10:15 . Extracting cellular stiffness *in situ* for microfluidic disease models. **C. Dhong**

10:35 . Anti-fouling surfaces from glassy polyelectrolyte multilayers. **J.O. Akintola**, J.B. Schlenoff

Crown Plaza Indianapolis Downtown Union Square
Illinois Street Ballrm East

Controlled Assembly of Charged Soft Matter

C. P. Collier, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 . Origin of life as a problem in colloidal biochemistry and geochemistry. **J.J. Spitzer**

8:30 . Coupling of charge regulation and geometry in soft ionizable molecular assemblies. **J. McCourt**, S. Kewalramani, L. Lopez-Flores, M.J. Bedzyk, M. Olvera De La Cruz

8:50 . Assembly mechanism of interfacial membranes formed via polyelectrolyte-nanoparticle complexation at a water-water interface. W. Mendez, K.J. Stebe, **D. Lee**

9:10 . Crystalline order propagates across thick layers of water in solutions of supramolecular nanotubes. N. huang, **G. Ungar**

9:30 . Assembly mechanism of the Janus particles at the interface – experimental and molecular insights. **M. Nedyalkova**

9:50 . Guiding assembly and placement of 3D DNA-nanoparticle superlattices by charged micro-patterned surfaces. **F. Teng**, H. Zhang, D. Nykypanchuk, O. Gang

10:10 . Counterion induced assembly: computationally designed coiled coil "bundlemer" peptides as a model colloidal nanoparticle system. **Y. Shi**, R. Guo, C.J. Kloxin, J.G. Saven, D.J. Pochan

10:30 . Protamine-controlled reversible DNA packaging: A molecular glue. A. Mukherjee, J. Degrouard, E. Raspaud, Y. Jang, **Y. Lansac**

10:50 . Effect of copolymer chemistry on the material properties of polyelectrolyte complex materials. **I. Ramirez**, E. Ng, N. Kaiser, B.U. von Vacano, R. Konradi, S.L. Perry

11:10 . How ionenes fold in ionic liquid: Effect of ether versus alkyl linkages. **S. Chatterjee**, J.E. Bara, S. Seifert, C. Baltier

11:30 Concluding Remarks.

THURSDAY EVENING

Virtual Only
Virtual Session

Virtual Graduate Students Symposium in Asia-Pacific Region on Biomaterials & Biointerfaces

C. Chen, C. Zheng, *Organizers, Presiding*
G. Liu, *Presiding*

8:00 Introductory Remarks.

8:05 . Glutathionylation-dependent proteasomal degradation of wide-spectrum mutant p53 proteins by engineered zeolitic imidazolate framework-8. **X. Huang**

8:15 . "Chinese paintings" on gel surface through a wetting-enabled-transfer (WET) strategy. **X. Wan**, S. Wang

8:25 . Anti-tumor applications of graphdiyne-based nanocomposite designed for modulating tumor immune microenvironment. **M. Guo**, J. Xie

8:35 . Repair of myocardial infarction based on series antioxidant hydrogels. **W. Liu**, Q. Yin, J. Zhou, C. Wang

8:45 . Antigen-bearing outer membrane vesicles as tumour vaccines produced *in situ* by ingested genetically engineered bacteria. **J. Xu**, X. Zhao, G. Nie

8:55 Intermission.

9:05 . Semiconducting polymer nanoparticles with surface-mimicking protein secondary structure as lysosome-targeting chimaeras for self-synergistic cancer immunotherapy. **s. jia**

9:15 . Visualized TEMPO-based polymers for hepatocellular carcinoma therapy. **H. Cheng**

9:25 . Magnetically actuated active deep tumor penetration of deformable nanocarriers for enhanced cancer therapy. **Y. Zhu**, X. Yang

9:35 . Gut microbiota regulator polycarboxybetaine: Therapeutic nanoparticle for different stages type 2 diabetes mellitus oral treatment. **R. Zhao**

9:45 Intermission.

9:55 . Dual targeted assembled nanoparticles enables photothermal and antitumor immunity for suppressed tumor metastasis. **K. Zhao**

10:05 . Sequential macrophage activation switch controlled by NIR for infected percutaneous tissue repair of Ppy coated sulfonated PEEK. **X. Liu**, X. Liu

10:15 . Novel bispecific nanomaterials with PD-L1/TIGIT dual immune checkpoint blockade by peptide-co-assembled. **C. yumiao**

10:25 . Organ-selective mRNA delivery of esterase-responsive lipid nanoparticles for tumor immunotherapy. **R. Zhang**

10:35 . Nanoparticle-enabled dual modulation of phagocytic signals to improve macrophage-mediated cancer immunotherapy. **J. Luo**, J. Du, J. Wang

10:45 Intermission.

10:55 . pH-responsive nanoparticle library with precise pH tunability by co-polymerization with non-ionizable monomers. **R. Zhao**

11:05 . Biodegradable polymeric occluder for closure of atrial septal defect with interventional treatment of cardiovascular disease. **Q. Wang**, J. Ding, B. Li, Z. Xie, X. Chen, D. Zhang, C. Liu, S. Wang, Y. Xie, Z. Zhang

11:15 . Engineered bioorthogonal poly-protac nanoparticles for tumour-specific protein degradation and precise cancer therapy. **J. Gao**, H. Yu

11:25 . Self-assembled Aza-Boron-dipyrromethene for ferroptosis-boosted sonodynamic therapy. **Y. Youchangwen**, Y. Chen, H. Xiang

11:35 Concluding Remarks.