

COLL

DIVISION OF COLLOID AND SURFACE CHEMISTRY

D. Miller and R. Gupta, *Program Chairs*

SUNDAY MORNING

San Diego Marriott Marquis
San Diego: Salon A

Basic Research in Colloids, Surfactants & Interfaces

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

8:00 Introductory Remarks.

8:03 . Real-time measurement of microgel deswelling and swelling via tunable resistive pulse sensing. **L.A. Lyon**, H. Hamilton, A. Caine, E. Narbay

8:23 . Understanding water dynamics in low-concentration cellulose nanofibre networks. **H. Holzinger**, A.R. Motezakker, K. Gordeyeva, S. Dvinskikh, T. Larsson, D. Soderberg

8:43 . Molecular-scale insights into the heterogeneous interactions between an *m*-terphenyl isocyanide ligand and noble metal nanoparticles. **L. Bi**, Y. Wang, Z. Wang, A. Do, A. Fuqua, K.P. Balto, Y. Zhang, J.S. Figueroa, T. Pascal, A.R. Tao, S. Li

9:03 . Withdrawn

9:23 . Rheological Study of sustainable lamellar gel networks (LGNs) to enhance efficiency of oleic acid and fish oil incorporation and delivery. **T. Shevtsova**, Z. Demchuk, R.D. Maalihan, E. Caldona, A.S. Voronov

9:43 Intermission.

9:53 . Interfacial shear rheology of oil-water interfaces: Investigating effects of aging, salt type, and concentration. **A. Alsmail**

10:13 . Mechanisms of amyloid fibril formation and their functional role. **T. John**

10:33 . *In-silico* and rheological characterization of ultra-low crosslinked (ULC) ionic microgel pastes. **E. Cardenas-Vasquez**, M. Hicks, L.A. Lyon

10:53 . Characterizing emulsion interfaces using vibrational sum frequency scattering spectroscopy. **S. Pullanchery**, S. Roke

11:13 Concluding Remarks.

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 12

PUNC

Nanomaterials Research at Primarily Undergraduate Institutions

S. Hughes, A. M. Munro, A. K. Sharma, C. Whitehead, *Organizers*
L. Hamachi, R. Sunasee, *Presiding*

8:00 Introductory Remarks.

8:05 . Role of oleic acid on the surface chemistry of cesium lead bromide perovskite nanocrystals. **C. Beimborn**, C. Timmons, A. Parikh, K. Wingnean, R. Oleszczuk, A. Pentland

8:25 . Size control of colloidal COF-300 particles synthesized with substituted benzoic acid catalysts. A. Mojica, Z. Jackson Delos Angeles, J. Johnson, A. Cherry, J. Arroyo, S. Tinkle, **L. Hamachi**

8:45 . Tunable synthesis of hexagonal CuInS₂ nanodiscs. **S. Hughes**, T.H. Edmunds, K. Willard

9:05 Break.

9:25 . Combined role of ligands and solvents in deformation and colloidal stability under pressure. S. Salas Sanabria, J. Boettner, **L. Hanson**

9:45 . Synthesis, characterization, and evaluation of metal–organic frameworks for oxidative desulfurization: an integrated experiment. E. Lucatero, R. Bashiri, **M.C. So**

10:05 . Computational exploration of asphaltene structures and aggregation. **A.K. Sharma**

10:25 Break.

10:45 . Metal ion sensing using water-soluble carbon quantum dots derived from mercaptosuccinic acid and ethylenediaminetetraacetic acid. H.I. Blair, R.E. Nemcek, **D.T. Miles**

11:05 . Design, synthesis and antibacterial properties of functionalized cationic cellulose nanocrystals. **R. Sunasee**

11:25 . 3D cell Culture and bioconjugation density analysis of surface-functionalized microgel particles. **M. Gaines**, A. Brooks, J. Burks, T. Ford, K. Smith, C. Sparkman, S. Williams, Z. Vulu

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 13

Responsive Colloidal Networks

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

8:00 . Particulate gel networks: topological data analysis, network architectures, and response to large deformation. **E. Del Gado**

8:30 . Pairing-specific microstructure in network gels of bidisperse colloids. R. Waheibi, **L. Hsiao**

9:00 . Colloidal gel formation via viscoelastic phase separation. **H. Tanaka**

9:30 intermission.

9:50 . From molecules to networks to emergent behaviors: Probing bimolecular condensates via molecular simulations. D. Tan, D. Aierken, **J.A. Joseph**

10:20 . Self-assembly of non-spherical colloids using coarse-grained simulations and machine learning approaches. **A. Statt**

10:50 . Effect of fimbriation on bacterial aggregation and network formation in polymer solutions. U. Ramesh Kumar, P. Cirino, **J. Conrad**

11:20 . Structure, function, and evolution of nanoparticle surfactant assemblies. **B. Helms**

San Diego Marriott Marquis
Marina Ballroom: Salon F

Surface, Interface & Coating Materials

Synthesis and Fabrication

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

8:00 . Withdrawn

8:15 . High-efficiency core-shell structured soft magnetic composites enabled by Rotary reactor-based advanced sputtering. **Y. Choi**, Y. Choi, M. Lee, H. Kim, **Y. Park**

8:30 . Innovative hydrogel design for improving the efficiency of surface-limited reactions. **X. Liu**, Y. Cheng, A. Lopez

9:05 Coffee break.

9:20 . Fine-tuning the surface and interfacial properties of nanoparticles to modulate and control assembly at interfaces. **E.P. Giannelis**

9:55 . Novel approach for synthesizing and controlling Janus particle morphology. Y. Li, S. Demirci, U. Dey, T. Rawah, E. Pirhadi, X. Yong, **S. Jiang**

10:30 Coffee break.

10:45 . Ambient printing of pristine oxide films enabled by liquid metals. **M.D. Dickey**

11:20 . Amphiphilic-driven self-assembly: Bottom-up fabrication of multifunctional nanostructured surfaces. **A. Asadi**

San Diego Marriott Marquis
Marina Ballroom: Salon G

Colloidal & Soft Metamaterials

Colloidal and Soft Metamaterials for Optics

J. Palomba, E. Runnerstrom, *Organizers, Presiding*

8:00 . Three-dimensional colloidal nanocrystal metamaterials. **C.R. Kagan**

8:30 . Design of soft optical metamaterials through multi-scale nanocrystal self-assembly. **C.B. Murray**, E. Marino, S. Neuhaus, C. Gonzalez, S. Yang, Y.C. Choi, G. Chen, C. Huang, C.R. Kagan

9:00 . Diffractive information processing and computational imaging. **A. Ozcan**

9:30 . Self-assembling microspheres with photoresponsive optical properties. W.M. Piedra, A. Tomassini, A. Singh, **F.M. Raymo**

10:00 Intermission.

10:10 . Withdrawn

10:35 . Active color switching in an inorganic photonic glass electrode. **R. Coridan**

11:05 . Chiral biotemplates for the fabrication of optical metamaterials. **B. Aydemir**, A. Dumanli

11:20 . One-step synthesis of monodisperse 2-propynylamine-stabilized gold nanoparticles via a mechanochemical method in aqueous solution. **A.L. Garcia**, B.S. Mitchell, A. Reusch, M.J. Fink, J.P. Hinestroza, J.P. Vanegas

11:35 . Chiroptical nanocomposites as metamaterials for extreme conditions. **N. Kotov**

San Diego Marriott Marquis
San Diego: Salon C

Nanoparticle Materials

Synthesis & Self-Assembly: Functional Nanoparticles and Engineering

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

8:00 . Chemically tailored two-dimensional materials for electronic and energy technologies. **M.C. Hersam**

8:30 . From potential to product: cost-effective, versatile, and sustainable methods for plasmonic & 2D nano-crystal Dispersions. **R.A. Vaia**, K. Park, N. Chalmers, A. Jawaid, M. Susner, E.P. Giannelis

9:00 . Making gold nanoparticles look like lipid vesicles. **C.J. Murphy**

9:30 Break.

9:40 . Assembly engineering of complex nanoparticle systems. **S.C. Glotzer**

10:10 . From nano to macro: Thinking bigger in nanoparticle Assembly. **R. Macfarlane**

10:40 . Layer-by-layer photonic metamaterials from colloidal metal oxide nanocrystals. **D.J. Milliron**

11:10 . Beyond nearest neighbors: Pathway engineering of complex nanoparticle assemblies. **Q. Chen**

11:40 . Block copolymer-directed assembly of nanoparticle architectures inside polymer colloids. **J. Chow**, J. Liu, N. Idris, P.J. Hurst, J.P. Patterson, G. Ren, S. Copp

Digital Meeting
Digital Session

General Virtual

R. Gupta, *Organizer*
D. Miller, *Organizer, Presiding*

10:00 . Fabrication and characterization of dual-functional surface-modified cotton gauze with antibacterial and antifouling properties for wound dressing application. **M. Sahoo**, D. Mitra

10:10 . Spectroscopic assessment of silver-based wound dressing quality and behavior. **K.G. Kaiser**

10:20 . Aromatic amines as ligands for developing anisotropic silver nanostructures. **A. Lohse**, D. Aligholizadeh, L. Frimpong, **M. Devadas**

10:30 . Atomic-scale engineering of Au₁₁ clusters for enhanced photoluminescence with sensing applications. **B. Raufman**, C. Connolly, D. Aligholizadeh, **M. Devadas**

10:40 . Barnacle-inspired self-assembled peptide nanofibers with excellent underwater adhesion. **H. Chang**, R. Su

10:50 . Withdrawn

11:00 . Exploring the Interactions of the Amyloid Beta Peptides with plant derived peptide conjugates. **A.R. Ren**, H.L. Hunt, A. Das, M.A. Biggs, **I.A. Banerjee**

11:10 . Depletion-induced crystallization for the separation of full and empty adeno-associated viral vectors. **D. Fadipe**

11:20 . Anti-biofilm polymer coating by VAT polymerisation. **H. Kanematsu**, D.M. Barry, H. Miura, T. Saiki, A. Otsu, A. Hirayama, A. Ogawa, N. Hirai, T. Kogo, T. Nakano

11:30 . Capacitance of electroactive gold clusters. **J. Winterle**, T. Snyder, Z. Qureshi, **M. Devadas**

11:40 . Tuning the photoluminescence of atomically-precise Au nanoclusters with Pt and Rh dopants. **E. D'Ambrosio**, **D. Dalsimer**, B. Raufman, **M. Devadas**

11:50 . Single atom alloy catalysts towards high-efficient activation of carbon-oxygen bond. **G. Cui**

12:00 . Cu/ZrO_{2-x} interface catalysis carbon-oxygen bond hydrogenation. **G. Cui**

12:10 . Chitosan and CuO-GO nanocomposite based antimicrobial coating on leather to enhance durability. **K.T. Tanzim Rahman**, M. Khan

12:20 . Stable and unstable tiling patterns formed by ABC miktoarm star triblock terpolymers of symmetric interactions. C. Hawthorne, J. He, R. Wu, R. Jiang, B. Li, **Q. WANG**

12:30 . DFT investigation of X₅₅ (X = Ni, Pd, Pt) clusters on ultrathin supported MgO films: Evidence of oxygen spillover and relevance for catalytic model studies. M. Jahangirzadeh Varjovi, **S. Tosoni**

12:40 . Dual nanoencapsulation of curcumin and quercetin in soy lecithin liposomes. L.T. Sanchez, J.A. Arboleda-Murillo, **C.C. Villa**

San Diego Marriott Marquis
Marina Ballroom: Salon E

Surface Chemistry of Colloidal Nanocrystals: A Tribute to the Legacy of Dr. Dong Qin

Metal and Metal Alloy Nanocatalysts

J. Chen, *Organizer*
S. Neretina, X. Xia, *Organizers, Presiding*

8:00 . Colloidal synthesis of noble-metal nanocrystals in metastable phases. **Y. Xia**

8:25 . Adhesion energies at metal nanoparticle / support interfaces: Key for predicting catalytic performance of supported nanoparticles, and a new way to estimate them. **C.T. Campbell**

8:50 . Withdrawn

9:15 . Enhanced catalysis using chemically ordered and disordered alloy nanoparticles. **S. Sun**

9:40 . Synthesis of alloy and intermetallic nanoparticles with designed properties using colloidal and non-colloidal approaches. **H. Yang**

10:05 Coffee Break.

10:20 . Developing multi-metallic platinum-based catalysts with enhanced resistance to carbon monoxide fouling for proton exchange membrane fuel cells. **B.D. Gates**, S. Gautam, A.M. Hadley

10:45 . Library of high-entropy-alloy nanocrystals for catalysis. **T. Yang**

11:10 . Porous nanofiber microspheres for alveolar bone regeneration. **J. Xie**

11:35 . Surface reactions on ultrafine metal nanoparticles under photoillumination. **Y. Sun**

12:00 . Withdrawn

Catalyst Degradation: New Advances from Experiment and Theory

Sponsored by CATL, Cosponsored by COLL, ENFL, ENVR and PHYS

Geochemical Pathways for Carbon Capture, Removal, Utilization, and Storage

Laboratory to Field

Sponsored by GEOC, Cosponsored by COLL, ENVR and I&EC

SUNDAY AFTERNOON

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 12

PUNC

Nanomaterials Research at Primarily Undergraduate Institutions

S. Hughes, A. M. Munro, A. K. Sharma, C. Whitehead, *Organizers*
J. G. Clar, W. E. Schatzberg, *Presiding*

2:00 Introductory Remarks.

2:05 . Exploring the photophysics of semiconducting polymeric nanoparticles encapsulated with dyes. H. Subbaiahgari, **D. Ghosh**

2:25 . Magnetic nanoparticle functional group density affects the performance of immobilized cellulase. **T. Le-Vasicek**

2:45 . Characterization of CuBDC surMOF film formation via infrared-reflectance and Absorbance spectroscopy. **C.M. Mauck**, M.E. Anderson, K. Coffin, S. Delozier, D. Maglich, K. Euston

3:05 Break.

3:25 . Gold nanoparticle-hydrogel interactions in dynamic environments. **M.B. Elinski**, B. Couturier, G. Kozak, A. Zini

3:45 . Withdrawn

4:05 . Catalytic activity of mixed metal nanocatalysts in reduction of nitrophenols and nitroanilines with NaBH₄. **J.K. Mbindyo**

4:25 Break.

4:45 . Control of colloidal metal and semiconductor nanoparticle properties by capping agent selection. **A.L. Marsh**

5:05 . Synthesis of silver and gold nanoparticles in AOT reverse micelles: Characterization via UV-VIS spectroscopy and SEM. **W.E. Schatzberg**

5:25 . Research with undergraduates towards *in situ* generation and applications of metal nanoparticle assemblies on functionalized surfaces. **K. Bandyopadhyay**

San Diego Marriott Marquis
Marina Ballroom: Salon F

Surface, Interface & Coating Materials

Surface and Interface

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

2:00 . Simulating surface interactions at the filler-matrix interface in silicone-matrix nanocomposites containing barium titanate nanoparticles. **B. Lynch Johnson**, N. Smith, V. Bartling, I. Osborne, W. Pham, A. Dato, T. Monson, R. Van Ginhoven

2:15 . Withdrawn

2:30 . Understanding and controlling the lithium metal anode/electrolyte interface for rechargeable lithium metal batteries. **Y. Yang**

3:05 Coffee break.

3:20 . Probing buried solid/solid and solid/liquid interfaces in situ nondestructively in real time at the molecular level. **Z. Chen**

3:55 . CaCO₃ nanoparticles at oil–water interfaces. **Y. Jun**, Y. Zhu, Y. Wang, P. Gupta, S. Singamaneni, B. Lee, X. Zuo, L. He

4:30 Coffee break.

4:45 . Enhancing interfaces in sublayer systems via a unique 3D printing. A. Ramanathan, M.T. Sobczak, D. Patil, C. Yu, L.B. Chambers, **K. Song**

5:20 . Adhesion and sorting of colloids on dynamic interfaces. S. Makaev, R. Badenhorst, M. Parker, Y. Saijan, V. Reukov, **S. Minko**

San Diego Marriott Marquis
Marina Ballroom: Salon G

Colloidal & Soft Metamaterials

3D Metamaterials by Bottom-Up, Top-Down, and Hybrid Approaches

J. Palomba, E. Runnerstrom, *Organizers, Presiding*

2:00 . Driving nanofabrication with upconversion. **D. Congreve**, Q. Zhou, A. Gallegos, H. Yen, T.H. Schloemer

2:30 . 3D chiral plasmonic metamaterials through two-photon lithography of metallic nanoclusters. **W. Gu**, C. Wu, S. Cheung, D. Delghandi

3:00 . Granular material system with enhanced printing fidelity and tailored mechanical properties for volumetric additive manufacturing. **Y. Sun**, C. Morley, H. Taylor

3:30 . Towards new mechanical-metamaterial frontiers: Extreme compliance and dynamic responses. **C.M. Portela**

4:00 . Digital and additive assembly of soft metamaterials for robotics and robotic materials. **R.L. Truby**

4:30 . Assembly of braided materials using capillary forces. **V. Manoharan**

5:00 . Harnessing sequence-defined polymers for the dynamic assembly of colloidal quantum dots. **B.M. Cossairt**

5:30 . Directed assembly of colloidal solids via field-assisted processes. **T. Ray**

San Diego Marriott Marquis
Marina Ballroom: Salon D

Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

Charge Transport in Quantum Dot Solids/IR Sensing Materials and Devices

G. Jia, J. Macdonald, X. Yang, *Organizers*
F. DELPECH, M. K. Kuno, *Presiding*

2:00 . Toward colloidal nanocrystal superlattices with fully delocalized charge transport. **M. Law**

2:25 . Ultrahigh-gain colloidal quantum dot infrared photodetectors: Unraveling the potential of electro-kinetically pumped charge multiplication. **J. Lee**

2:50 . Infrared colloidal quantum dot imagers. **A. Sahu**

3:05 . Electrospray deposition of PbSe quantum dot superlattices with improved uniformity with structural perfection. **G. kim**, M. Law

3:20 . Designing nanocrystals for high performance and high resolution optoelectronic devices and sensors. **S. Oh**

3:45 . Colloidal ink development of two-dimensional transition metal dichalcogenides for printed-on-chip devices. **M. Tahir**

4:10 . Investigation of In₂O₃ nanocrystals as an acceptor for excited state electron transfer reactions. **M. Patel**, H. Premnathan, D. Badgurjar, D.A. Blank, W.L. Gladfelter

4:25 . Improved SWIR photodetection in quantum dot photodiodes through suppression of tunneling currents. **E. Jang**, H. Tran V., J. Kim, H. Jeong, T. Goo, S. Bae, S. Jeong

4:40 . Widely tunable and selectable infrared electronic transition by exploiting stoichiometry and parity of silver chalcogenide colloidal quantum dots. **K. Jeong**

5:05 . Mercury cadmium chalcogenide nanocrystals with tunable infrared bandgaps through interdiffusion-enhanced cation exchange. **A. Smith**, W. Lee

5:30 . Colloidal II-V semiconductor QDs as near-infrared emitters for telecommunication applications. **A. Halim**, I. Fedin

5:45 . Chemistry of underdeveloped metal phosphide quantum dots such as Cd_3P_2 and Zn_3P_2 Nanocrystals. **C. Nayral**

San Diego Marriott Marquis
San Diego: Salon C

Nanoparticle Materials

Synthesis & Self-Assembly: Nanoparticle Assembly and Characterizations

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

2:00 . High-performance superconducting wires via strain-driven self-assembly for large-scale applications in energy generation, transmission and storage. **A. Goyal**

2:30 . Site-selective Deposition of oxide materials: A new platform for forming asymmetric noble metal nanostructures. **S. Neretina**, R.A. Hughes, B. Nieu Kirk, W. Tuff, S. Golze, R. Tang

3:00 . Nanocomposite scaffolds with graded mechanical properties for tendon-to-bone insertion repair. **Y. Xia**

3:30 10 Mins-Break.

3:40 . Spanning the color gamut from the UV to the far infrared with semiconductor nanocrystal quantum dots. **B.A. Korgel**

4:10 . Synthesis and assembly of anisotropic structures. **Y. Huang**

4:40 . Nanostructures with chiral phonons. **N. Kotov**

5:10 . Endosomal organizations of nanoconstructs driven by their surface curvature. **K. Lee**

5:40 . Plasmonic chiroptical structures with high optical asymmetry and dynamically tunable responses. **C. Ye**

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 13

Responsive Colloidal Networks

D. J. Milliron, Z. Sherman, T. Truskett, *Organizers*
G. Yeh, *Presiding*

2:00 . Gels of gels within gels: ultrasoft microgel-based pastes in self-assembled collagen networks. **L.A. Lyon**, A. Caine, E. Narbay, H. Hamilton, E. C´rdenas-V´quez

2:20 . Photoresponsive polymer networks through photoswitchable dynamic bonds. E.A. Garcia Villatoro, **J.A. Kalow**

2:50 . Photochemical recycling of multi-arm star polymer networks. M. Burroughs, E.L. Quirk, B.M. Wirtz, T.H. Schloemer, D. Congreve, **D.J. Mai**

3:20 . Percolation induced gel–gel phase separation in a dilute polymer network. **T. Sakai**

3:50 intermission.

4:00 . Granular hydrogel actuators for biomedical interventions. **V. Feig**

4:30 . Stimuli-responsive dynamic covalent gels from star polymers. **A. Rosales**

5:00 . Missed connections: Network valence dictates dynamic tetraPEG hydrogel gelation pathway and viscoelasticity. **N. Conrad**, T. Holoman, T. Truskett, A. Rosales

5:20 . Simulating star polymer network formation using coarse-grained models. **T. Holoman**, C.L. Petix, T. Wilcoxson, G.M. Hocky, M.P. Howard, T. Truskett

5:40 . Atomic force microscopy measurements of ultra-low crosslinked microgel paste structure and dynamics. **E. Narbay**, L.A. Lyon, D. Mattar

San Diego Marriott Marquis
Marina Ballroom: Salon E

Surface Chemistry of Colloidal Nanocrystals: A Tribute to the Legacy of Dr. Dong Qin

Metal and Semiconductor Nanostructures

X. Xia, *Organizer*

J. Chen, S. Neretina, *Organizers, Presiding*

2:00 . Chemistry for life: Transient electronics and a tribute to Professor Dong Qin. **J.A. Rogers**

2:25 . Phase engineering of nanomaterials (PEN). **H. Zhang**

2:50 . Universal synthesis and self-assembly of patchy nanoparticles. **Q. Chen**

3:15 . Data-driven approach for the guided regulation of exposed facets in nanoparticles. **C.A. Mirkin**

3:40 . Surface chemistry of halide perovskites: quantum dots, quantum light, and QLEDs. **D.S. Ginger**

4:05 Coffee Break.

4:20 . Ultrafast study of exciton-plasmon interaction in CsPbBr₃ perovskite quantum dots coupled with gold nanoparticles. **J.Z. Zhang**

4:45 . Navigating charge separation at designer conjugated Polymer/Perovskite nanocrystal interface. **Z. Lin**

5:10 . Revisiting concepts of nucleation and growth to supersede structural limitations in multimetallic nanoparticle synthesis. **J. Millstone**

5:35 . Plasmon induced energy transfer in nanoparticle-polymer hybrids. **C. Landes**

Geochemical Pathways for Carbon Capture, Removal, Utilization, and Storage

Laboratory to Field

Sponsored by GEOC, Cosponsored by COLL, ENVR and I&EC

Catalyst Degradation: New Advances from Experiment and Theory

Sponsored by CATL, Cosponsored by COLL, ENFL, ENVR and PHYS

SUNDAY EVENING

San Diego Convention Center
Hall B2/C

Basic Research in Colloids, Surfactants & Interfaces

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

7:00 240. Comparison of two disaccharides and their saccharide components in AOT reverse micelles: Impacts of D-trehalose and D-sucrose. **D. Collier**, B.L. Gourley, N.E. Levinger

7:00 241. Morphology-adaptive Janus-adhesive dressing with dynamic lubrication overlayer for prevention of postoperative infection and adhesion. **S. Li**, J. Guo, X. Deng

7:00 . Withdrawn

7:00 242. Ultra- low fouling zwitterion-crosslinked hydrophilic surfaces. J. Hansen, **R. Steinbrecher**, A. Laschewsky, K. Ademmer, J. Karthäuser, A. Rosenhahn

7:00 243. Sustainable replacements for PFAS fluorochemicals in textile coatings by dual surfactant system. **K. Zhang**, J.M. Catchmark

7:00 244. Overcoming microfluidic interfacial tension in Aqueous Two-Phase emulsion systems. **S. Ogata**, B.H. Klitsner, C.P. Easterling, J. Watt, M. Kim, D. Huber

7:00 245. Kinetic study of the reactions of Imidazole derivatives with an N-hydroxysuccinimide ester tethered to a Silver nanoparticle surface using surface enhanced Raman spectroscopy (SERS). C. Haas, W. Nese, R. Lutz, **A. Deckert**

7:00 246. Interfacial interactions between cosolvents and cellulose substrates to enhance solute adsorption in supercritical impregnation processes. **W. Perera**, J. Sheehan, B. Prager

7:00 247. Adsorption of Bovine Serum Albumin on different mineral surfaces. **J. Zhou**, E. Hettiarachchi, V.H. Grassian

7:00 248. Effect of steric hindrance on the kinetics of surface-tethered NHS esters and pentapeptides. **A. Taddeo**, A. Deckert

7:00 249. Cmc values of gemini 12-5-12 surfactant with conjugated organic anions. **S.J. Bachofer**

7:00 250. Phenylboronic acid-modified liposomes for precision co-delivery of cisplatin prodrug and venetoclax: A next-generation approach in breast cancer treatment. **J. Akhtar**, T. Date, S. Jain

7:00 251. Physical characteristics of commercially produced cationic surfactants mixed with amino acid-based anionic surfactants. **R. Muniz**, F.H. Billiot, E. Billiot, M.A. Olson

7:00 252. Green synthetic procedure and characterization of novel bifurcated amino acid-based surfactants. **A. Garcia**, F.H. Billiot, M.A. Olson, E. Billiot

7:00 253. Impact of temperature on dicarboxylic amino acid based surfactant. **X. Gallegos-Cruz**, F.H. Billiot, E. Billiot, K. Morris, M.A. Olson

7:00 254. Distinctive thermoresponsive phase transition and hydrophobicity of short amphiphiles containing 1,2- or 1,3-diol moieties. **H. Joo**, Y. Lee

7:00 255. Molecular simulation study of the adsorption characteristics of uncharged vinyl polycarboxylic acids at air-water interface: Effect of stereo-chemistry and hydrophilicity. R. Kurapati, **U. Natarajan**

7:00 256. Development of a capillary microfluidic device for investigating the flow dynamics of calmodulin protein. **L. Yarbrough**, G. Toland, A.Z. Qamar

7:00 257. Evaluation of bioactivity in Curcumin-borate nanoformulations: Stability and therapeutic potential. **U. Mohammad**, J. Pereira, S. Santra

7:00 258. Interfacial structure and interactions of recyclable plastics at aqueous interfaces. **K. Ng**, M. Hua, W. Zhang, B. Helms, M. Salmeron

7:00 259. Comparative analysis of the impact of urea versus acetamide in AOT reverse micelles. **K. Walsh**, G. Virgen, N.E. Levinger, B.L. Gourley

7:00 260. STM: A tool to probe the CISS effect in well-defined self-assembled molecular networks?. **s. rana**, S. De Feyter

7:00 261. Chase behavior in enzyme chemotaxis: Exploring T-shaped microfluidic channels with hydrogel-based substrate gradients under flow-free conditions. **A. Sapre**, A. Sen

7:00 262. Solute-driven Online Preconcentration in Lateral Flow Assay (SOP-LFA) devices for ultrasensitive biochemical testing. **A. Farooq**

Biomaterials & Biointerfaces

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

7:00 263. Using AlphaFold and molecular dynamics simulations to characterize the structure of spider silk fibers. **B.A. Duarte, A.N. Flores, K. Chalek, G.P. Holland**

7:00 264. Use of differential scanning calorimetry and solid-state NMR to determine β -sheet crystallization of native *b. Mori* silkworm fibroin films assembled on various surfaces. **J. Malki, K. Chalek, G.P. Holland**

7:00 265. Investigating the binding constant of LRP1 and fibrinogen. **A. Vinay, K. Ye, D. Gao, M. Johal**

7:00 . Withdrawn

7:00 266. 3D-printable bio-based nanocomposites for smart food packaging and wearable biosensor applications. **B. Uzunoglu, O. Popoola, E.S. Andreescu**

7:00 267. Quartz crystal microbalance (QCM) analysis of collagen mineralization demonstrates reaction kinetics, mass deposition, and hydrogel rigidity. **J. Alejandro, A.E. Gerdon**

7:00 268. Preparation of high-density lipoprotein-mimicking nanoparticles with aggregation-prone phosphatidylcholine by microvortex-induced turbulent mixing. **K. Takata, S. Shibukawa, C. Morimoto, S. Hashioka, T. Murakami**

7:00 269. Effects of biochar on the performance and microbial interactions of an organohalide-respiring mixed culture. **H. Dang, W. Zhao, H. Cao, S. Hafeez, W. Xu, T. Mattes**

7:00 270. Quantitative, super-resolution microscopy imaging of the uptake and intracellular fate of lipid nanoparticles. **N.D. Gamage, H. Richman, Y. Xing, Y. Yu**

7:00 271. Functional particle size effects on the synergistic crosstalk between TLR2 and Dectin-1. **J. Cui, Y. Yu, Y. Xing, Y. Feng, S. Lee, Q. Xie**

7:00 272. Targeting bacterial biofilms with magnetic nanoparticles. **M. Shirjandi**

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Biomembrane Synthesis, Structure, Mechanics, & Dynamics

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

7:00 349. Probing the role of DAG in cell membranes and disease. **S.R. Chadwick**, N.K. Devaraj

7:00 350. Proliferation of artificial protocells by autocatalytic amphiphiles. **S.C. Douty**, A. Fracassi, N.K. Devaraj

7:00 351. Investigating oxidized lipid biology with aldehyde-reactive fluorescent probes. **J. Vance**, W. Chen, C. Knittel, N.K. Devaraj

7:00 352. Exploring protein energy landscapes via forced-based techniques. **Z.T. Bachler**, T.N. Luu, E.W. Cheng, A. Struts, M.F. Brown

7:00 353. Membrane elasticity explains rhodopsin activation. K.S. Hewage, **Z.T. Bachler**, A. Struts, M.F. Brown

7:00 354. Rhodopsin signal transduction affected by water and lipids. **S.J. Chen**, K.S. Hewage, H.F. Mann, A. Struts, M.F. Brown

7:00 355. Rivalry between cholesterol and antimicrobial peptides in lipid bilayers. F.T. Doole, M.N. Arruda, A. Struts, **M.F. Brown**

7:00 356. Investigating statins' effect on membrane fluidity of platinum resistant ovarian cancer cells using model membrane systems. **K. Graham**, A. Goach

7:00 379. Investigation of the HDL-cholesterol interactions and how these are affected by the change in membrane fluidity during chronic disease progression. **A. McDaniel**, A. Goach

7:00 380. Raf Membrane Association: Modulating activation through RBD and CRD interactions with Ras-GTP and Lipids. **k. Tevdorashvili**, A. Jimenez Salinas, J. Grim, Y. Lee

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Biomimetic and Bioinspired Design and Assembly of Nanostructures, Materials and Devices

G. J. Leggett, S. Zauscher, *Organizers*

7:00 649. Temperature-triggered mineralization of calcium phosphate utilizing thermosensitive liposomes. **K. Fernandez**, J.P. Armstrong, C. Bussola Tovani

- 7:00 650.** Cost-effective calligraphically-fabricated electrically polarized surfaces for the deactivation of microbes. **G.M. Kohli**
- 7:00 651.** Structure-function relationship of the β -sheet spacer in AIEgen-based peptide coacervates: A rational approach to design fluorescence light up probe. **M. Halder**, Z. Jin, K. Li, L. Amer, J.V. Jokerst
- 7:00 652.** Investigating the catalytic activity and cytotoxicity of palladium encapsulated apolipoprotein E3 lipid nanoparticle assemblies: Application towards drug delivery systems. **J. Garcia**, J.J. Zheng, A.M. Zivkovic, Y. Shon, V. Narayanaswami
- 7:00 653.** Enzymatic modification and supramolecular self-assembly of DNA nanoparticles. **H. Xu**, G. Yang, S. Wang, Y. Yang, P. Lin, M.M. Saikia, G. Arya, Y. Ke, S. Zauscher
- 7:00 654.** Exploring lipid diversity in Cephalopod chromatophore granules as a marker for color sequestration. **K. Bagwe**, L. Deravi
- 7:00 655.** Biologically-inspired pigment-polymer antenna complexes formed by the nucleation of J-aggregates of cyanine dyes within surface-grafted poly(2-(dimethyl amino)ethyl methacrylate) (PDMA) brushes. **K. Das**, E.C. Johnson, E. Csanyi, J.M. West, W.P. Wardley, G.J. Leggett, S.P. Armes, W.L. Barnes
- 7:00 656.** Unraveling spider silk structure and assembly: Solution NMR and modeling of biomimetic peptides. **A. de Loera**, D. Onofrei, C.D. Lorenz, G.P. Holland
- 7:00 657.** Development of synthetic cephalopod granules for bioinspired coloration in devices and displays. **K.R. Flynn**, L. Deravi
- 7:00 658.** Stimuli-responsive hydrogel-based engineered living materials. **T. Corazao**, A. Bharadwaj, J. Hoque, L. You, S. Varghese, S. Zauscher
- 7:00 659.** Microscale DNA brick crystal assembly with L-shaped connectors. **S. Mousavi**, L. Shen, Y. Ke
- 7:00 660.** Structural characterization of aciniform spider silk informs biomimetic materials design and synthesis. **D. Alimbarashvili**, H.R. Johnson, J. Aldana, B.A. Duarte, A.N. Flores, Y. Li, D. Onofrei, G.P. Holland
- 7:00 661.** Hydrolysis of aryl carbonates by zinc-containing artificial enzyme. **T. Bui**, Y. Zhao
- 7:00 662.** Biomimetic pigment polymer antenna complexes for Molecular Photonics based on chlorophyll binding to poly(2-(dimethylamino)ethyl methacrylate) scaffolds. **J.M. West**, A.A. Sari, E. Csanyi, D. Hammond, E.C. Johnson, A. Lishchuk, S.P. Armes, G.J. Leggett
- 7:00 663.** Understanding how viscoelastic parameters control trainability in chitosan and cellulose nanocrystal network materials. **K. Landy**, M. Gardel, S.J. Rowan

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Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

S. Jeong, G. Jia, J. Macdonald, X. Yang, *Organizers*

7:00 381. What is isomerization of magic-sized inorganic clusters?. **D. Shim**, M. Choi, J. Shin, J. Kang, S. Jeong

7:00 382. Pb-free infrared harvesting colloidal quantum dot solar cells using *n-p* homojunction architecture. **Y. Park**, S. Jeong

7:00 383. Synthesis of anisotropic wurtzite copper indium sulfide nanocrystals. **A. Kavanagh**, Y. Gunko

7:00 384. Equilibrium ligand solvent for electronic passivation in perovskite nanocrystals. **J.C. Hernandez**, M. Sheldon

7:00 385. Cellulose-based metal organic frameworks (MOFs) for semiconductor waste remediation and sustainable manufacturing. **M. Alwohaibi**, A. Kinnebrew, M.L. Curry

7:00 386. Synthesis, photophysical properties, and structural characterization of lead-free Cs_xMnBr_y perovskite nanocrystals. **A. Fraser**

7:00 387. DNA-based precision assembly for manufacturing carbon nanotube arrays. **T. Nguyen**, S. Sterling, S. Wang, H. Wang, Y. Li, Y. Ke, T. Ye, D. Zhong, T. Chao, G. Pitner

7:00 388. Synthesis of silver telluride quantum dot inks and their infrared photodetection at extended short-wavelength infrared regime. **J. Lee**, S. Eom, D. Choi, G. Kim, S. Kim, S. Jeon, K. Jeong

7:00 389. Exploring thermoelectric potential: Colloidal synthesis of perovskite-inspired alkali metal chalcogenides. **N.N. Patil**, R. Wu, N. Kapuria, K.M. Ryan, A. Ganose, S. Singh

7:00 390. Tailoring energy transfer pathways in Mn-doped perovskite-dye hybrid assemblies. **S. Murray**, A. Chemmangat, P.V. Kamat

7:00 391. Impact of crystal phase on electron-phonon interactions and polaron formation in 1-dimensional CsPbBr_3 nanorods. **G. Bauer**, M. Sheldon

7:00 392. Enhancing photoluminescence quantum yield and stability of CsPbCl₃ nanocrystals through deep eutectic solvent synthesis: a green approach for optoelectronic applications. **A. Roy**, J. Wallinger, P. Ishtaweera, C. Dzorkpata, N. Larm, p. Zhu, G.A. Baker

7:00 393. Mn-Doping of CsPbBr₃ quantum dots utilizing benzoyl bromide. **K. Zhang, I. Kolisch**, Y. Luan

7:00 394. Novel dual emission of CsPbBr₃ Perovskite quantum dots in dried state due to manganese incorporation. **H. Yeddu, H. Wilenzick, N. Chowdry**, Y. Luan

7:00 395. Withdrawn

7:00 396. High entropy chalcogenide nanocrystals: Colloidal synthesis and surface properties for sustainable energy generation. **S. Sen**, S. Singh

7:00 397. Engineering high entropy Cu-Sb-Ni-Ag-Zn-S colloidal nanocrystals via cation exchange for electrocatalytic applications. **A. Bora**, S. Singh, K.M. Ryan

7:00 398. Synthesis of ternary I-III-VI quantum dots for biomedical applications. **A. Kavanagh**, L. Branzi, V. Kuznetsova, Y. Gunko

7:00 399. Withdrawn

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Fundamental Research in Colloids, Surfaces & Nanomaterials

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

7:00 336. Crystallization of pharmaceutical glass in thin films. **S. Wolf**, C. Faherty, C. Klock, S.N. Kono, D. Izzo

7:00 337. Optimized polyphenol - polymeric nanoparticles for encapsulation and delivery of oxytetracycline-divalent cation complexes against *Escherichia coli* and *Staphylococcus aureus*. **C.U. Ezeanya**, J. Pereira, E.D. Barahona, S. Santra

7:00 338. Bioconjugation of 4-Phenylbutyric Acid (4-PBA) to gold nanoparticle. **K. Bandyopadhyay, N. Ebrahim, A. Small**, A. Nkrumah, Z. Zhang

7:00 339. Systematic study of the stability and dissolution of calcium silicate-sealed porous silicon nanoparticles. **J. Byun**, M.J. Sailor

7:00 340. Tunable size control in the non-seeded photochemical growth of large silver nanoparticles. **J.R. Charlonis**, D.P. Pullman

7:00 341. Investigating dicarboxylic amino acid-based micelle behavior with molecular dynamic simulations. **T. Kraft**, X. Gallegos-Cruz, N. Black, E. Billiot, F.H. Billiot, K. Morris, Y. Fang

7:00 342. Development of systematic optimization of diffusion ordered spectroscopy (DOSY) NMR. **S. Blanco**, M. Alvarez, S. Fritz, N. Black, K. Morris, E. Billiot, F.H. Billiot

7:00 343. Surface-mediated inhibition of Calcium Oxalate crystallization: Investigating synergistic effects of cooperative growth modifiers. **V. Chauhan**, D. Kim, J.D. Rimer

7:00 344. Graphene aerogels as oil adsorbents. **Y. Payano Lora**, A.M. Anderson, M.K. Carroll

7:00 345. Exploring mutagenesis as a method to modify HRP for enhanced activity and adsorption to gold nanoparticles. **F. Breausche**, A. Somerlot, J. Walder, J.A. Friesen, J.D. Driskell

7:00 . Withdrawn

7:00 346. Site-specific monoclonal antibody modification via microbial transglutaminase to improve adsorption onto gold nanoparticles. **E. Beitello**, K. Osei, T. Kobulnicky, J.A. Friesen, J.D. Driskell

7:00 347. Exploring charge transfer mechanisms at oil–water interfaces: implications for surface charge and hydrophobic droplet stability. **R. Zhao**, T.L. Head-Gordon

7:00 348. Generation of two dimensional arrays of copper nanoparticles on functionalized surfaces. **E. Diakiw**, Y. Aljaber, K. Bandyopadhyay

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Nanohybrid Materials

From Fundamental Research Towards Applications

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

7:00 600. Nano-carbon / TiO₂ spin-assisted layer-by-layer assembled films for the photo-degradation of emerging pollutants. **R. Rupert**

7:00 601. Design of ZIF-8 xerogel by controlling colloidal self-assembly. **K. Kasem, S. Thomas**, T. Jongert, F. Tian

7:00 . Withdrawn

7:00 602. Characterization and functional activity of hybrid silica matrices and nanogels. A. Fried, R. Ramnauth, H. Ariel, **U. Samuni**

7:00 603. Nano-carbon/ β -lactoglobulin amyloid fibril composite membranes for the preparation of sustainable filtration media. **H.A. Khan**

7:00 604. Development of persistent luminescent nanoparticle-enhanced textiles and filaments for advanced applications. **B. Yust**, B. George, A. Sk

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Nanomaterials

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

7:00 273. Nanowire assemblies to dynamically tune disordered optical phenomenon: Random lasing. **K. Ranasinghe**, J. Yang, Z. Liu, C.D. Keating

7:00 274. Engineering exotic electronic states and large positive magneto-transport intrinsically in carbon nanoscrolls. **Y. Zhong**, X. Huang, T. Chen, J. Zhang, J. Li, A. Huang, H. Hsu, C. Ortix, C. Chang

7:00 275. Synthesis and deposition of copper nanocubes for selective CO₂ reduction to high-value C₂₊ products. **R. Lam**, J.S. Glass-Hussain, M. Enright

7:00 276. Molecular structure and dynamics of basic amino acids and peptides adsorbed on various silica nanostructured surfaces. **L. Shaphakidze**, K. Chalek, G.P. Holland

7:00 . Withdrawn

7:00 277. Photocatalytic efficiency of pure and iron-doped ZnS nanoparticles in cephalixin degradation. **S.J. Bailon**, Y. Cedeño-Mattei

7:00 278. One-step microwave-assisted synthesis of pure and iron (II)-doped zinc sulfide quantum dots for advanced cleaning technologies. **Y. Cedeño-Mattei**, S.J. Bailon

7:00 279. Synergistic photothermal-photocatalytic approach for sunlight-driven eradication of superbugs using plasmonic GNP-decorated WO₃ nanowire heterojunctions. **S. Kundu**, A. Pramanik, K. Gates, S. Rai, O. Kolawole, P.C. Ray

7:00 320. Influence of Cu doping on the structural and morphological properties of ZnO. **E.G. ALNAHARI**, **A. Hendi**, **A.M. Osman**

7:00 321. Nitrogen doping of reduced graphene oxide by amino group reducing agents and the oxygen reduction reaction activity. **C. Belman**, R. Ponce Perez, J. Ruiz Mariscal, G. Alonso Nuñez, J. Romo Herrera

7:00 322. Probing the dynamics and structural morphology of biomembrane- nanoclay 2D film on various subphases. **A. Mishra**, S. Srivastava

7:00 323. Influence of substrate wettability on ordered assembly of gold nanorods at various length scale. **V. N P**, S. Srivastava

7:00 . Withdrawn

7:00 324. Green synthesis of gold nanoparticles using native plant extracts and their antioxidant and catalytic activities. **B. Griggs**, T.F. Arroyo, J.P. Vanegas

7:00 325. Surface enhanced Raman scattering (SERS) and surface enhanced infrared absorption (SEIRA) spectroscopies for the study of chemical and biological threats adsorbed on gold nanorods on substrates. **T. Felix-Massa**, T. Vega-Reyes, J. Centeno-Ortiz, S.P. Hernandez

7:00 326. Antibacterial efficacy of glutathione-functionalized silver nanoparticles. **M. Reyes**

7:00 327. SERS and SEIRA study of chemical threats adsorbed on gold nanorods surfaces. **M.B. Pabon**, M.N. Maceira, T. Felix-Massa, T. Vega-Reyes, J. Centeno-Ortiz, S.P. Hernandez

7:00 328. Surface enhanced Raman Scattering for the sensitive detection of pentaerythritol tetranitrate (PETN). **A. Negron-Hernandez**, T. Felix-Massa, T. Vega-Reyes, J. Centeno-Ortiz, S.P. Hernandez

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Nanomaterials & Sustainability

A Chemistry Perspective: Sustainable Nanotechnology

R. J. Hamers, C. L. Haynes, *Organizers*

- 7:00 515.** Silica nanoparticles loaded with dsRNA for plant pathogen management. **W.R. Alvarez**, R. Jamous, R. El-Tanbouly, J. Milagres, R. Muthuramalingam, W. da Silva, C.L. Haynes
- 7:00 516.** Interactions of proteins with anionic ligand-coated gold nanoparticles. **W. Xu**, R. Hernandez
- 7:00 517.** Optimizing amine functionalizations on silica nanoparticle for enhanced per- and polyfluoroalkyl substances affinity. **C. Huang**, R.E. Lewis, S. Mohamud, B. Jaynes, J.J. Dalluge, J.C. White, C.L. Haynes
- 7:00 518.** Hydrophobic effect on silica surfaces with different functional groups. **Z. Tang**, C. Huang, Z.A. Piskulich, C.L. Haynes, Q. Cui
- 7:00 519.** Tracking dynamic nanoparticle transformations with microelectrochemistry. **E.M. Spanolios**, F. Tawakalna, A. Hernandez, D. Ajayi, C. Green, C.E. Kruszynski, R.J. Hamers, V. Feng, C.L. Haynes
- 7:00 520.** Developing workflows for DFT + thermodynamics predictions of metal release from complex metal oxides under aqueous conditions. **N. Mena-Santiago**, A. Tauraso, J. Bjorklund, J.A. Santana, X. Qu, S.E. Mason
- 7:00 521.** Monitoring protein corona formation on the surface of unmodified and surface-modified luminescent polymer dots using dynamic light scattering. **H. Le**, K. Mendis, Z. Rosenzweig
- 7:00 522.** Synthesizing and characterizing alginate-based Nanohydrogels for foliar fertilization. **A. Schroeder**, C. Jalomo, E. Hernandez, C.J. Murphy
- 7:00 523.** Surface modifications of $Ti_3C_2T_x$ MXene and their impact on its physiochemical properties. **L.E. Posada Escobar**, S. Sengupta, C. Anastasia, H. Fairbrother, Z. Rosenzweig
- 7:00 524.** Real-time monitoring of protein adsorption and corona formation on synthetic nanoparticles using fluorescence techniques. **K. Mendis**, H. Le, Z. Rosenzweig
- 7:00 525.** pH-driven interactions in nanoparticle-facilitated transport of PFAS in *Lemna minor*. **A. Tiu**, R.E. Lewis, C.L. Haynes
- 7:00 526.** Surface chemistry influences carbon dot-induced production of neutral lipid droplets in the microalgae *Raphidocelis subcapitata*. **E. McKeel**, S. Jeon, H. Kim, B. McKinnon, J. Giraldo, R. Klaper
- 7:00 527.** Enhanced disease suppression and nutrient delivery in soybean using citric acid-coated CuO nanoparticles. **C. Deng**, Y. Wang, J. Bjorklund, S.E. Mason, J.C. White

- 7:00 568.** Structure and electric potential of ligand-coated engineered nanoparticles revealed through computational modelling. **X. Wei**, A. Alam, Q. Mo, R. Hernandez
- 7:00 569.** Conformational effects of gold nanoparticle exposure on enzyme creatine phosphokinase. **T. Anand**, M. Unnikrishnan, C.J. Murphy
- 7:00 570.** QM/MM analysis of carbon dot fluorescence and redox processes. **A. Sahu**, X. Yao, Q. Cui, C.L. Haynes
- 7:00 571.** Tracking nanoparticle infiltration into soybean seeds via confocal microscopy. **B. Tuga**, T. O'Keefe, C. Deng, J.C. White, C.L. Haynes
- 7:00 572.** CUS core-mesoporous silica shell nanoparticles for enhanced soybean plant cultivation. **R. Jamous**, B. Tuga, C. Deng, A. Ligocki, J.C. White, C.L. Haynes
- 7:00 573.** Understanding the interactions between metal oxide nanomaterials and reducing sugars. **A. Sakwa**, C.E. Kruszynski, P. Doolittle, R.J. Hamers
- 7:00 574.** Ultraporous mesostructured silica nanoparticles with tuned hydrophobicity facilitate interaction and internalization with *Raphidocelis subcapitata* cells. **E. Ostovich**, C. Huang, C.L. Haynes, R. Klaper
- 7:00 575.** *In vivo* transformations of positively charged Fe₃O₄ nanoparticles alter the formation and function of RuBisCO photosynthetic protein corona. **C. Castillo**, J. Giraldo, S. Jeon, C. Alford, E. Svendahl, C. Deng, Y. Wang, R. Hernandez, J.C. White, K. Wheeler, C.J. Murphy, K.L. Hoang
- 7:00 576.** Sublethal concentrations of polystyrene nanoplastics of varying surface charge induce morphological perturbations in rainbow trout gill epithelia. **L.G. Diaz**, R. Klaper
- 7:00 577.** Machine learning aided enhanced sampling of nanoparticle transport across biological interfaces. **Z. WAN**, Q. Cui
- 7:00 578.** Nanoparticle size dependent interactions with dynamic pectin model plant cell walls. **C. Anastasia**, S. Paul, H. Kim, Q. Cui, H. Fairbrother, J. Giraldo
- 7:00 579.** Foliar delivery of copper-embedded Phytyglycogens nanoparticles: Improving yield in watermelon plants. **H. ashraf**
- 7:00 580.** Investigating cyanine-3-amine carbon dots for reactive oxygen species (ROS) fluorescence detection. **S.Z. Jilani**, E.M. Spanolios, R.E. Lewis, H.N. Muentner, A. Stitgen, C.L. Haynes
- 7:00 581.** Carbon dot-based sensors for the rapid detection of foodborne pathogenic bacteria. **A. Stitgen**, A. Rodriguez-Nazario, H.N. Muentner, C.L. Haynes

7:00 582. Analytical methods for bio-imaging and quantum sensing using fluorescent diamond nanoparticles. **Z. Jones**

7:00 583. Simulating large-scale biomolecule-nanoparticle systems using dissipative particle dynamics (DPD) models. **Y. Wang**, R. Hernandez, C. Castillo, J. Giraldo, C. Deng, J.C. White, A. Northwick, E.E. Carlson

7:00 584. Enhanced detection of neurotransmitters using carbon dot & nafion-coated carbon fiber microelectrodes. **R.N. Caldwell**, E.M. Spanolios, C.L. Haynes

7:00 585. Na-promoted bimetallic hydroxide nanoparticles for aerobic C-H activation: Catalyst design principles and insights into reaction mechanism. B. Erdivan, E. Calikyilmaz, S. Bilgin, A. Erdali, D. Gul, K. Ercan, Y.E. Turkmen, **E. Ozensoy**

7:00 586. Ion transport at polymer–argyrodite interfaces: A molecular dynamics approach. **D. Liang**, Y. Chen, E.M. Lee, S. Mui, M. Guillaume, M. Braidia, A. Emery, N. Marzari, J.J. De Pablo

7:00 587. fliFISH 2.0: A high-resolution method to investigate gene expression heterogeneity in zebrafish tissue exposed to nanoparticles. **F. Li**, H. Mitchell, B. Curtis, A. Henke, L. Truong, M. Simonich, R. Tanguay, R.J. Hamers, R. Klaper, M. Schwartz

7:00 588. Introducing nanomaterials in the General Chemistry Laboratory via a multiweek environmental nanosensor lab. **E. Tollefson**, M. Gessel

7:00 589. Real-time subcellular imaging of plant signaling molecules and biocoronas by near-infrared nanosensors. **S. Sivaraj**, S. Jeon, H. Kim, C. Ma, M. Unnikrishnan, C.J. Murphy, S. Kruss, J. Giraldo

7:00 590. Advances in MOF-based magnetic composites and MOF-derived nanomaterials: synthesis and catalysis. **P. Priyanka**, A. Srivastava, R.K. Sharma

7:00 591. Gene amplification-mediated cobalt and nickel resistance in *Shewanella oneidensis* MR-1. **Z. Sarkozi**, A. Gavin, S. Mitchell, E.E. Carlson

7:00 592. Tracking reactive oxygen species generation with electrochemistry. **Z. Melichar**, E.M. Spanolios, C.L. Haynes

7:00 . Withdrawn

7:00 593. Predicting the aqueous transformations of nanoscale copper(II) oxide (CuO) and Cu release profiles. **J.L. Bjorklund**, S.E. Mason, C. Deng, J.C. White, R.J. Hamers

7:00 594. Copper (II) release from alginate-based hydrogel nanoparticles for foliar fertilization. **C. Jalomo**, A. Schroeder, E. Hernandez, C.J. Murphy

7:00 595. Understanding interactions between carbon dots and per- and polyfluoroalkyl substances (PFAS) using ^{19}F NMR. **R.E. Lewis**, C. Huang, A. Tiu, C.L. Haynes

7:00 596. Environmentally relevant salt effects alter protein corona formation on engineered silver-coated nanoparticles (AgNPs). **R. Gardner**, E. Svendahl, B. Hong, K.L. Hoang, C. Jalomo, C.J. Murphy, K. Wheeler

7:00 597. Lithiated nickel manganese cobalt oxide (NMC) elicits specific cellular perturbations in *Shewanella oneidensis*. **A. Gavin**, Z. Sarkozi, S. Mitchell, E.E. Carlson

7:00 . Withdrawn

7:00 598. Implementing workflows to study metal release from complex metal oxide surfaces. **A. Tauraso**, N. Mena-Santiago, J. Bjorklund, X. Qu, J.A. Santana, S.E. Mason

7:00 599. Redox-sensitive carbon dots for nanoscale reactive oxygen species detection and imaging. **H.N. Muentner**, S.Z. Jilani, E.M. Spanolios, R.E. Lewis, A. Stitgen, C.L. Haynes

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Nanoparticle Materials

Synthesis & Self-Assembly

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

7:00 639. Mechanism of hierarchical plasmonic biomaterials engineered through peptide-directed self-assembly. **L. Amer**, M. Retout, Z. Jin, S. Kakanar, J.V. Jokerst

7:00 640. Programmable assembly of gold nanoparticle nanoclusters and lattices. **L. Shen**, V. Pan, Y. Zhang, P. Wang, Y. Ke

7:00 641. Synthesis and study of triazole-modified silver nanoparticles for chemosensing of toxic ions. **M. Castillo Vega**, D. Ghosh

7:00 642. Automated synthesis of silver nanocrystals. **K. Tiddle**, N. Kaplan, G. Didway, D. Quispe Vilcahuaman, C. Hermanson, N. Myers, C. Hansen, M.P. Hendricks

7:00 643. TGA-FTIR-GC/MS studies of octanethiol-functionalized gold nanoparticles for assembly into peptoid nano-sandwiches. **C. James**, E.J. Robertson

7:00 644. Controlled gas flow microwave-assisted synthesis of Bi_2O_3 nanoparticles for x-ray contrast enhancement applications. **A.M. Osman**, A. Hendi, E.G. ALNAHARI

7:00 645. Functionalization of stainless-steel surfaces with metal-organic frameworks by solvothermal synthesis and self-assembly modification. **E. Lucsik**, F. Tian, L. Hang

7:00 646. Experimental and computational investigation of nanoparticle ligand shell morphology. **J. Kennedy**, D.L. Green

7:00 647. Intelligent tumor microenvironment responsive nanoplatfrom assembled from Heteroatom-doped-carbon dot and Mn^{2+} for imaging and cooperative cancer therapy. **W. Girma**

7:00 648. Reaction power effects in microwave-assisted carbon dot synthesis. **Y. Yang**, D. O'Carroll

7:00 . Withdrawn

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PUNC

Nanomaterials Research at Primarily Undergraduate Institutions

S. Hughes, A. M. Munro, A. K. Sharma, C. Whitehead, *Organizers*

7:00 400. Protein corona formation on functionalized fullerenes. R. Gardner, R. An, C. Alford, S. Billow, M. Serda, **K. Wheeler**

7:00 401. Investigating the synthesis of ZnSe nanorods. **A.M. Munro**

7:00 402. Small molecule studies on COF-300 colloid formation. **H. Negri**, S. Valencia, J. Arroyo, L. Hamachi

7:00 403. Cellulase immobilized to iron magnetic nanoparticles: Enzyme stability due to functional group length. **A. Angela**, T. Le-Vasicek

7:00 404. Investigation of cytoskeletal protein reconstruction of vulvar cancer with surface-enhanced raman spectroscopy. **N. Mathewson**, K. Yokoyama, J. Lewis

7:00 405. Characterization of reversible aggregation of amyloid beta 1-40 coated gold nanoparticles. K. Yokoyama, **C. Kolilias**

- 7:00 406.** Ionic layering of KOH in AOT reverse micelles. **O. McMillan**, D. Woodbridge, S.K. Gandhok, A.K. Sharma
- 7:00 407.** Analysis of ion exchange in lead decontaminating metal-organic frameworks (MOFs). **E. Reznick**, M.C. So
- 7:00 408.** Progress towards iron-based lithium ion selective nanosensor. **D.M. Shintani**, E. Tollefson
- 7:00 409.** Analysis of asphalt binder aging through molecular spectroscopy. **Y. Ndiaye**, D. Ghosh, S. Ullah, A. Sadiq
- 7:00 410.** Effects of ligand chain length on the binding behavior of CsPbBr₃ perovskite nanocrystals. **C. Timmons**, A. Parikh, K. Hahn, A. Pentland, R. Oleszczuk, K. Wingnean, C. Beimborn
- 7:00 411.** Impact of silver nanoparticles on phospholipid vesicles. **M.R. Miller**, I.M. Allen, A.C. Mensch
- 7:00 412.** SAPT0 analysis to determine binding energy of Asphaltene Dimers. **R. Young**, S. Arsala, A.K. Sharma
- 7:00 435.** Effect of linker length and linker density on enzyme attachment to magnetic nanoparticles. **G. Coulter**, T. Le-Vasicek
- 7:00 436.** Quantifying the adsorption of polyelectrolytes to gold nanoparticles with stable surface charges. **C.D. Springer**, L.B. Thompson
- 7:00 437.** Analyzing the effect of sterically hindered carboxylic acid catalysts in colloidal COF-300 synthesis utilizing scanning electron microscopy. **Z. Jackson Delos Angeles**, A. Mojica, A. Chew, L. Hamachi
- 7:00 438.** Examination of the carrier lifetime and diffusion length in PbS quantum dot solar cells employing PbS-I,Cl photoactive layers. **N. Hall**, J. Boyle, C. Stuvland, L.G. Shomali, T.J. Forbord, H. Van Ryswyk
- 7:00 439.** Boron nitride nanocomposites for water treatment. **G. London**, J.G. Clar
- 7:00 440.** Investigation of post-synthetic exchange in defect-free UiO-66 by ball-milling. **H. Pham**, L.B. Benz
- 7:00 441.** Automated syntheses of silver nanocrystals with surfactants. **N. Myers**, C. Hermanson, C. Hansen, K. Tiddle, G. Didway, D. Quispe Vilcahuaman, N. Kaplan, M.P. Hendricks
- 7:00 442.** Modeling wear and repair of microtubules propelled by surface-adhered kinesin motor proteins. **A. Berman**, **S. Ranjan**, A. Dhar, H. Hess, D. Lindo

- 7:00 443.** Immobilizing enzymes on magnetic nanoparticles: A comparison of desorption solutions. **S. Fink**, T. Le-Vasicek
- 7:00 444.** Zwitterionic ligand gold nanoparticle synthesis produces biomimetic templates to control calcium phosphate mineralization. **M. Diplacido**, A.E. Gerdon
- 7:00 445.** Methods for predicting precursor conversion rate in nanocrystal synthesis. **A. Walker**, V. Edwards, K. Woodburn, K. Martin, M.P. Hendricks
- 7:00 446.** COF colloid synthesis using substituted carboxylic acids. **J. Johnson**, A. Mojica, Z. Jackson Delos Angeles, E. Wang, A. Cherry, L. Hamachi
- 7:00 447.** Optimization of synthesis parameters for the ligand-assisted reprecipitation method for cesium lead bromide. **A. Parikh**, R. Oleszczuk, K. Wingnean, A. Pentland, K. Hahn, C. Beimborn
- 7:00 448.** Non-hydrostatic compression of gold and silver core-shell nanoparticles. **S. Salas Sanabria**, L. Hanson
- 7:00 449.** Investigating gold nanorod Assembly using pH-responsive polymer functionalized gold nanorods. **H.A. Konno**, L.B. Thompson
- 7:00 450.** Impact of pristine and transformed polystyrene nanoparticles on *B. subtilis* growth. **V.A. DeMaria**, S.R. Weibel, M.C. Downs, M.A. Bertucci, A.C. Mensch
- 7:00 451.** Examination of gold colloid aggregate formations within the hippocampus of the Alzheimer's disease rat. **V. Brzezinski**, K. Yokoyama, L.S. Neuwirth
- 7:00 452.** Room-temperature, sonochemical synthesis of ss-DNA functionalized gold nanoparticles. **P. Olsen**, K. Conlan, C. Duong, K. Wagner
- 7:00 453.** Creating conductive polymer nanofibers for biological sensing applications. **N. Romano**, K. Liu, R.A. Hunter
- 7:00 454.** Measurement and modeling of plasmonic nanoparticles pressurized in a solid medium. **R. Barthel**, L. Hanson
- 7:00 455.** Gold nanoparticle surface chemistry impacts BSA secondary structure. **Y. Posada Cruz**, S.E. Lohse, L.B. Thompson
- 7:00 456.** Scalable PbS quantum dot solar cell production by blade coating PbS-I,Cl from stable inks. **T.J. Forbord**, L.G. Shomali, J. Boyle, C. Stuvland, J. Ho, H. Van Ryswyk
- 7:00 457.** Synthesis and characterization of MPA and EG4 coated bismuth nanoparticles. **C. Turetzky**, E. Tollefson

- 7:00 458.** Optimization of the electron and hole transport layers in PbS quantum dot solar cells employing PbS-I,Cl photoactive layers. **A. Jordan, C. Stuvland**, J. Boyle, L.G. Shomali, T.J. Forbord, H. Van Ryswyk
- 7:00 459.** Impact of pristine and transformed polystyrene nanoparticles on model membranes. **I.M. Allen**, M.R. Miller, A.C. Mensch
- 7:00 460.** Developing 3D cell scaffolds from colloidal microgel particle blends. M. Gaines, **C. Sparkman**, Z. Vulu, J. Burks, K. Smith, S. Williams
- 7:00 461.** Detection of micro- and nano-plastic contaminants using surface-enhanced Raman scattering spectroscopy. **O. Caldwell**, Q. Hardy, S.R. Emory
- 7:00 462.** Mineralization of calcium phosphate with different-sized and aptamer-attached gold nanoparticles. **D. Nguyen**, A.E. Gerdon
- 7:00 463.** Optimizing colloidal COF-300 reaction conditions. **J. Arroyo**, E. Wang, L. Hamachi
- 7:00 464.** Effect of ligand exchange reactions on fluorescent properties of CdSe nanoparticles. **M. Custer**, A.L. Marsh
- 7:00 465.** Analysis of citrate-capped gold nanoparticle uptake during tadpole metamorphosis at varying temperatures. **K.C. Banks**, P.P. Fong, L.B. Thompson
- 7:00 466.** Characterizing the permeability of abiotic protocells using fluorescence decay. **A. Glagovich**, S.E. Maurer
- 7:00 467.** Amorphous core-shell GeO₂-SiO₂ nanoparticle growth in the presence of polyols. **M.K. Schaefer**, Z. Alhejaj, J.F. Destino
- 7:00 468.** Computationally modeling Adsorption of polyalcohols over Pd(111) for unstrained C-C bond scission in fuel cells. **C. Belland**, M. Groves
- 7:00 491.** Investigation of post-synthetic exchange in defect-rich UiO-66 by ball-milling. **A. Dela Merced**, L.B. Benz
- 7:00 492.** Exploring the photophysical properties of anilino-triazole molecule for model drug delivery strategy in a biomimetic environment. **S. Sadiq**, D. Ghosh
- 7:00 493.** Interaction of non-ionic surfactants with polycyclic aromatic hydrocarbons (PAHS) as a strategy for enhanced oil recovery (EOR). **D. Lakhani**, D. Ghosh
- 7:00 494.** GeO₂ nanoparticle growth in the presence of polyols. **A.G. Fernandes**, Z. Alhejaj, B.J. Schauer, J.F. Destino

7:00 495. Layered GeO₂-SiO₂ nanoparticle synthesis for use in 3D-printing glass optics. **R.M. Wayne**, S. Garapati, L. O'Keefe, J. Chou, S. Luna, J.F. Destino

7:00 496. 3D printed stained glass: Acetylacetonate transition metal complexes as chromophoric dopants to silica. **A.R. Carr**, N. Tobin, J. Chou, M. Murthi, J.F. Destino

7:00 497. NaCl nanoparticles and biofilm dynamics: investigating morphological changes in *E. coli*. **M. Gasper**, J. De Miguel Solaguren, M. Machado

7:00 498. Controlling the kinetics of silver nanoparticle growth on graphene oxide. **S. Wendling**, **S. Burkert**

7:00 499. Formulation of a cactus mucilage nanoparticle cream for the treatment of eczema. **A. Maher**, R. Sullivan, M. Machado

7:00 500. Generation of gold nanoparticle assemblies: A possible experiment for undergraduate physical chemistry laboratory. **D. Nelluri**, **A. Deb**, E. Diakiw, K. Bandyopadhyay

San Diego Convention Center
Hall B2/C

Structure and Dynamics of Polymer in Solutions and at Interfaces

J. Hipp, M. Lynch, *Organizers*

7:00 664. Polyelectrolyte ion complexation binding kinetics via gravimetric and optical methods. **R. Mooney**, C. Brainin, M.S. Johal

San Diego Convention Center
Hall B2/C

Surface, Interface & Coating Materials

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

7:00 501. Electrically-polarized 3D-nanoporous microscale silicon oxide antimicrobial surfaces: Investigations of copper species in the generation of ROS and RCS. **A.Y. Vargas-Lizarazo**, D. Hedrick, G.K. Mora-Rodriguez, C.N. Tran, M. Atienza-Parcon, A.R. Bechtel, A. Fakhoury, A. Pond, J. Vargas Muñiz, D. Majumandar, P. Sivakumar, S. Hamilton-Brehm, P. Kohli

7:00 502. Graphite-enhanced electrically-polarized antimicrobial surface: An approach to effective bacterial suppression on diverse materials. **N. Mazumder**, A.Y. Vargas-Lizarazo, M. Atienza-Parcon, A. Fakhoury, S. Hamilton-Brehm, P. Kohli

7:00 503. Low-temperature, eco-friendly alumina nanolaminate formation via deep UV-assisted Photoannealing. **A. Evans**, A. Rosen, D.W. Johnson

7:00 504. Removal of heavy metals by thin film composite membranes fabricated via interfacial polymerization. **D.T. Oyekunle**, A.J. Moment, A.A. Park

7:00 505. 3D silicon based electrically-polarized surface for microbe deactivation by the generation of reactive species. **D. Hedrick**, A.Y. Vargas-Lizarazo, G.K. Mora-Rodriguez, S. Hamilton-Brehm, A. Pond, P. Kohli

7:00 506. Glucose biosensor. **M. Sarlak**

7:00 507. Characteristics of poly(vinyl alcohol) thin films with different degrees of hydrolysis fabricated on polydimethylsiloxane substrates. **M. Evans**, W. Chen

7:00 508. Exploring interactions of polyvinylpyrrolidone adsorption and stability on various substrates. **M. Mim**, W. Chen

7:00 509. Investigation of the effect of substrate flexibility on thin film stability. **M. Mulder**, W. Chen

7:00 . Withdrawn

7:00 510. Carbohydrate functionalized nanopatterned hydrogel surfaces having multivalent binding sites for biomolecular recognition. **A. DEY**, S. Claridge

7:00 . Withdrawn

7:00 511. Enhancing the stability of poly(vinyl alcohol) thin films using succinyl chloride crosslinking. **C. Danese**, W. Chen

7:00 512. Shelling of CsPbBr₃ perovskite quantum dots with atomic PbS overlayer. **M. Li**, C. James, H. Adamu, P. Wu, R. Adeyemi, Y. Luan

San Diego Convention Center
Hall B2/C

Surface Chemistry

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

7:00 329. Influence on sliding behavior of gold nanoparticle capping ligand structure within hydrogel nanocomposites. **A. Zini**, G. Kozak, M.B. Elinski

7:00 330. Molecular control of soft sliding interfaces based on gold nanoparticle capping ligand structure. **G. Kozak**, A. Zini, M.B. Elinski

7:00 . Withdrawn

7:00 331. Plasmon-promoted CO₂ reduction in amine-CO₂ adducts. **C. Turchiano**, J. Gu, D.P. Pullman

7:00 332. Adsorption mechanism of Pb(II) ions on Cu-BTC metal–organic frameworks. J. Weyrich, **H. Yang**

7:00 333. Modeling ammonia adsorption microcalorimetry to determine acidity of graphene oxide functional groups as a function of physical hole defect size. **S. Herrera**, M. Groves

7:00 334. Membrane enzyme activity monitored through zeta potential. **S. Eshelman**, S. Majd

7:00 335. Utilizing lipid phase separation to control ligand density. **S. Eshelman**, Y. Wang, S. Majd

San Diego Convention Center
Hall B2/C

Surface Chemistry of Colloidal Nanocrystals: A Tribute to the Legacy of Dr. Dong Qin

J. Chen, S. Neretina, X. Xia, *Organizers*

7:00 513. Precise control of Pd deposition on Au nanorods for enhanced catalytic performance. **S. Mandal**, Z. Lyu, J.R. Crockett, G. Hazen, S. Das, J. Rodriguez Lopez, Q. Chen

7:00 514. Seeing is believing: What is on the surface of silver nanocrystals suspended in their original reaction solution. **Q. Huang**, D. Qin, Y. Xia

MONDAY MORNING

San Diego Marriott Marquis
Balboa/Mission Hills

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

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

8:00 . Langmuir monolayers and optical density growth plots as methods for investigating the healing effects of CAPE, the main bioactive component of bee propolis. **I. Hawkins**, A. Goach

8:15 . Model membrane systems for the investigation of sex hormones, cholesterol, and sildenafil (ViagraTM) in the progression of Alzheimer's disease. **C. Nolasco**, A. Goach

8:30 . Computational investigation of cholesterol dynamics in liposomal drug delivery systems: A coarse-grained simulation study. **E. Khodadadi**, E. Khodadadi, M. Derakhshani-Molayousefi, M. Moradi

8:45 . Uncovering the origins of emergent membrane dynamics using sterol-lipid conjugation. **D. Hathnagoda**, T. Kumarage, S. Buti, R. Ashkar

9:00 . Formation and separation of soft biomolecular synapses through coupled electrowetting events. **S. Shrestha**, **E. Freeman**

9:15 . Determine conformation and orientation of membrane peptides and proteins. **Z. Chen**

9:30 . Charge hydration asymmetry at model lipid membrane surfaces. **S. Pullanchery**, N. Dupertuis, S. Roke

9:45 . Synaptic plasticity in phospholipid membranes of artificial neurons. **P. Podar**, C.P. Collier, D. Bolmatov, J. Katsaras

10:00 . Self-assembly of lipids into macroscopically aligned nanotubular bilayers when confined in anodic aluminum oxide nanopores. **A.I. Smirnov**

10:15 . Engineering of bioinspired membrane curvature sensors. **R. Freeman**

10:30 . Sterol-lipid conjugation as a modulator of lateral phase separation in model cell membrane. **S. BUTI**, N. Morris, D. Hathnagoda, T. Kumarage, R. Ashkar

10:45 . Quantitative functional analysis of Raf kinases on model membrane platforms at the single-molecule level. **Y. Lee**

11:00 . Magnetically aligned peptoid-based Lipodiscs for structure-function studies of membrane proteins. **A. Nevzorov**, A. Galiakhmetov, A. Shah

11:15 . Atomistic modeling and simulation of complex curved cellular membranes with xMAS builder. N. Trebesch, **E. Tajkhorshid**

11:30 . Direct imaging with multidimensional labeling and high-content analysis allows quantitative categorization and characterizations of individual small extracellular vesicles and nanoparticles (sEVs). **S. Sun**, S.J. Cox-Vazquez, G.C. Bazan, J.T. Groves

San Diego Marriott Marquis
Marina Ballroom: Salon D

Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

Exciton Dynamics in Semiconductor Nanocrystals: Materials and Characterizations

G. Jia, J. Macdonald, X. Yang, *Organizers*

S. Jeong, *Organizer, Presiding*

Y. Kim, A. Smith, *Presiding*

8:00 . What is missing in our understanding of quantum dot size focusing?. **O. Voznyy**

8:25 . Tracking colloidal nanoparticle structures by atomic resolution graphene liquid Cell TEM. **J. Park**

8:50 . Withdrawn

9:05 . Tuning the electron-phonon coupling in semiconductor nanorod heterostructures. **A. Mews**, F. Johst, T. Kipp, C. Strelow, J. Rebmann, G. Bester

9:30 . Revisiting heteroepitaxial growth and defect formation in heterostructured quantum dots. **J. Lim**

9:55 . Landau-Levich scaling for optimization of quantum dot layer morphology and thickness for enhanced quantum-dot light-emitting diodes performance. **Y. Xu**, G. Dixon, Q. Xie, J.F. Gilchrist, B.M. Cossairt, D.S. Ginger, E. Reichmanis

10:10 . Polaron paradigm for perovskite nanocrystal emitting states. **M.K. Kuno**

10:35 . Mechanism of optical cooling in CsPbBr₃ Perovskite nanocrystals. **K. Lytle**, M. Sheldon

10:50 . Collective interactions of quantum confined excitons in halide perovskite nanocrystal superlattices. **s. levy**, O. Be'er, Y. Bekenstein

11:05 . Characterizing energy transfer processes in CsPbBr₃ Perovskite Quantum dot-dye pairs. S.E. Donmez, S. Wang, U. Vorajee, **H.M. Mattoussi**

San Diego Marriott Marquis
Marina Ballroom: Salon G

PUNC

Nanomaterials Research at Primarily Undergraduate Institutions

S. Hughes, A. M. Munro, A. K. Sharma, C. Whitehead, *Organizers*
L. Hanson, E. Tollefson, *Presiding*

8:00 Introductory Remarks.

8:05 . Colloidal oxide chemistry: Towards building blocks for glass additive manufacturing. **J.F. Destino**, R.M. Wayne, R.M. Vires, S. Luna, J. Chou, S. Garapati, L. O'Keefe

8:25 . Synthesis of novel bismuth nanoparticles and initial investigations of protein corona formation. **E. Tollefson**

8:45 . Mechanochemical-aging synthesis of bismuth oxide nanosheets for efficient adsorption and photodegradation of PFOA. **P. Lyu**, D. Hennes

9:05 Break.

9:25 . Electrodeposition of metal oxide composite electrodes as a platform for understanding structure/function relationships in ion insertion reactions in aqueous electrolytes. **E. Gillette**

9:45 . Role of surface functionalization in quantum dot-based photocatalytic CO₂ reduction: Balancing efficiency and stability. **J.H. Olshansky**

10:05 . Versatility of gold monolayer protected nanoparticles to control calcium materials. **A.E. Gerdon**

10:25 Break.

10:45 . Packages of sensing: Processing the material of the outer membrane vesicle to sense environmental change in response to nanomaterials. **M. Machado**

11:05 . Microalgal long-chain alkenones for solid lipid nanoparticle systems. C. Garzon, J. Balila, G.W. O'Neil, **D.A. Rider**

11:25 . Boron nitride nanomaterial composites for water treatment. **J.G. Clar**, G. London, A. Sheffield

San Diego Marriott Marquis
Marina Ballroom: Salon F

Surface, Interface & Coating Materials

Biomedical Applications

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

8:00 . Engineering the microenvironment of surface-immobilized enzymes: Synthesis, activity, and potential applications. **Y. Cheng**

8:15 . Transforming conventional fabrics into effective UV-sensing wearables: Photochromic coatings for repeatable UV detection. **A. Lawrynowicz**, S. Vuori, E. Palo, M. Winther, M. Lastusaari, K. Miettunen

8:30 . Bioresorbable bone adhesive-infused 3D-printed scaffolds for biomedical use. **A. Kirillova**

9:05 Coffee break.

9:20 . Development of cryomicroneedles for the transdermal delivery of biologics. **C. XU**

9:55 . Genetically engineered cellular nanoparticles for targeted drug delivery. **L. Zhang**

10:30 Coffee Break.

10:45 . Zwitterionic polymer interfaces for biological applications. **Z. Cao**

11:20 . Lipid-polymer hybrid nanoparticle depots for sustained gene delivery and mRNA-based vaccine development. **X. Xu**

San Diego Marriott Marquis
San Diego: Salon C

Nanoparticle Materials

Synthesis & Self-Assembly: Nanoparticles for Biomedical Applications

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

8:00 . Emergent nanoscale architecture and function arising from precision peptide-polymer bioconjugates. **N.C. Gianneschi**

8:30 . Structural nanomedicine: Advancing the future of therapeutics. **N. Artzi**

9:00 . Repurposing the blueprint of life through spherical nucleic acids and structural nanomedicine. **C.A. Mirkin**

9:30 10 Mins-Break.

9:40 . Self-assembly dynamics in mRNA lipid nanoparticles. **J.W. Schneider**, B. Chaudhry

10:10 . Withdrawn

10:40 . Interactions in highly concentrated electrolytes. **R.M. Espinosa-Marzal**

11:10 . Harnessing magnetic anisotropy for precise control of nanostructure assembly. **Y. Yin**

11:40 . Synthesis of patchy nanoparticle libraries. **C. Kim**, A. Kim, T. Waltmann, T. Vo, E. Kim, J. Kim, K. Fichthorn, S.C. Glotzer, Q. Chen

San Diego Marriott Marquis
Torrey Pines 1-3

Structure and Dynamics of Polymer in Solutions and at Interfaces

Hydrogels and Polymers in Solution

J. Hipp, M. Lynch, *Organizers, Presiding*

8:00 Break.

8:20 . Hydrogel particles and capsules: their properties and applications. **D.A. Weitz**

9:00 . Dynamic functionality and shape memory effect in mussel-inspired hydrogels. **B. Keshavarz**

9:20 . Adsorption and repulsion effect in hyaluronic acid gels as a function of salt concentration and surface ionization. **S. Dhakal**, S. Chandrasekhar, S. Morozova

9:40 . Advanced analytical techniques characterising water soluble polymer environmental behaviour, classification/definition, and impact. **K. Goodall**, V. Agostiniano, M. Hayes

10:00 Break.

10:10 . Withdrawn

10:40 . Leveraging biopolymer scaffolding to create a sprayable yield stress fluid. **B. Illie**, M. Lynch

11:00 . Engineering stringiness and yield stress of macromolecular formulations. **V. Sharma**

11:20 . Microstructure-informed rheological models: guiding polymer selection in complex formulations. **M. Caggioni**, J. Hipp, E. Martin

11:40 . Impact of single methyl group position on the behavior of thermoresponsive copolymers in aqueous solutions. **S. Dergunov**, G.A. Mun, **R. Shaikhutdinov**, E. Pinkhassik

San Diego Marriott Marquis
Marina Ballroom: Salon E

Surface Chemistry of Colloidal Nanocrystals: A Tribute to the Legacy of Dr. Dong Qin

Anisotropic Nanostructures

J. Chen, *Organizer*

S. Neretina, X. Xia, *Organizers, Presiding*

8:00 . Surface-engineering of functional plasmonic nanoparticles. **Y. Yin**

8:25 . Designing nanoscale heterostructures by chemical nanofabrication. **T.W. Odom**

8:50 . Chiroptical activity of symmetric and asymmetric gold and aluminum plasmonic nanostructures. A. Nguyen, A. Ballance, **J.S. Shumaker-Parry**

9:15 . Surface chemistry drives handedness in chiral colloidal nanocrystals. **L. Liz Marzan**

9:40 . Rapid detection of cancer using complexes of exosomes with nanoparticles with multiscale chirality. **N. Kotov**, Y. Kang, J. Kim, E.S. Turali-Emre, A. Kumari, C.M. Lim, R. Reddy, S. Nagrath

10:05 Coffee Break.

10:20 . Surface-modified gold nanocrystals for sensing. **C.L. Haynes**

10:45 . Deciphering Raman enhancements on gold nanobipyramids. **H. Wang**

11:10 . Plasmon-mediated synthesis of Au nanostructures and beyond. **W. Wei**

11:35 . Gold nanoplates derived from unconventional light-mediated synthetic pathways. **R. Hughes**, Z. Lawson, L. Ciambriello, S. Neretina

Geochemical Pathways for Carbon Capture, Removal, Utilization, and Storage

Laboratory to Field

Sponsored by GEOC, Cosponsored by COLL, ENVR and I&EC

MONDAY AFTERNOON

San Diego Marriott Marquis
Balboa/Mission Hills

Basic Research in Colloids, Surfactants & Interfaces

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

2:00 Introductory Remarks.

2:02 . Weak connection between hydrophobicity and hydrogen bonding network perturbation. **E. Casalini**, S. Skoko, A. Vila Verde

2:22 . Phosphorylation in a primordial soup: Wet-dry cycling with protocells. **S. Zsoldos**, J. Pei, C.D. Keating

2:42 . Fatty alcohol-induced transition from spherical micelles to lamellar phases in alkyl Polyglucoside surfactants. L. Veronico, G. Colafemmina, **L. Gentile**

3:02 . *In-situ* rheology of aqueous foams. A. Puget, M. Piquand, M. Passedat, F. Vercauteren, E. Craenmehr, J. Trimboli, **H. Fischer**

3:22 Intermission.

3:32 . Accelerating the discovery of abiotic vesicles with AI-guided automated experimentation. **H. Liu**, J. Schrier, C. Ekosso, S.E. Maurer

3:52 . Tuning the surface chemistry of graphene with biocompatible flavin as an alternative to chemical surfactant. **A. Kotal, R. Kar**

4:12 . Surface tension of ultra-pure water in its pure vapour. **P. Ryan**, J. Pavelec, U. Diebold

4:32 . Curcumin-loaded BSA nanoemulsions: Evaluation of Sacha inchi oil for enhanced nanoemulsion performance. **C.A. Zavaleta**, M. Elgegren, J. Nakamatsu, S. Kim

4:52 . Architecture design of bottlebrush polymer amphiphiles at the water/air interfaces. **Y. An**, T. Wang, J. Lawrence, T. Oluwole

5:12 . Micellization of poly(methacrylic acid)-block-poly(styrene) polyelectrolyte-neutral diblock copolymer in water by molecular dynamics simulations: Structure, hydration and thermodynamics. P. Sahu, **U. Natarajan**

5:32 . Dynamic wetting of a homologous series of imidazolium-based ionic liquids. **F. Mangolini**, O.M. Johnson

5:52 Concluding Remarks.

San Diego Marriott Marquis
Marina Ballroom: Salon D

Colloidal Semiconductor Nanocrystals (Including Perovskite Nanocrystals)

Surface Chemistry of Colloidal Nanocrystals

S. Jeong, G. Jia, J. Macdonald, X. Yang, *Organizers*
K. Jeong, M. Law, *Presiding*

2:00 . Hybrid-ligand-stabilized lead-halide perovskite quantum dots for efficient and stable optoelectronic devices. **Y. Kim**

2:25 . Active learning of ligands that enhance perovskite nanocrystal luminescence. **A.J. Norquist**, M.A. Kim, Q. Ai, J. Schrier, E. Chan

2:50 . Design principles for surface-passivating ligands of cesium lead halide perovskite nanocrystals. S. Cha, C. Brea, A. Malinoski, C. Wang, **G. Hu**

3:15 . Ligand assisted colloidal synthesis of alkali metal-based ternary chalcogenide: nanostructuring and phase control in Na-Cu-S system. **H. McKeever**, N. Kapuria, A. Nicolson, D. Scanlon, K.M. Ryan, S. Singh

3:30 . Exploring facet-dependent surface chemistry at the molecular level: photo-assisted oxidation of indium phosphide nanocrystals. **F. DELPECH**, S. Jeong

3:55 . Quantifying multiple ligand binding modes and exchange kinetics on a PbS quantum dot surface. **V. Uppala**, J.E. Kelm, C.Y. Lassalle, J.L. Dempsey, L.A. Madsen

4:10 . Essential role of surface Lewis acid sites in quantum dot photocatalysts. J. Yuan, J. Pan, A. Malinoski, **C. Wang**

4:35 . Choose your dopant – manipulating the fate of photo generated charge carriers. **M.J. Shultz**, Z. Lin

4:50 . Synthesis of surface engineered quantum dots for optoelectronic and biological applications. **J. Park**, Y. Jang

5:15 . Non-cadmium-based quantum dots-molecularly imprinted polymer technology for virus detection on screen-printed electrodes. **O. Adegoke**

San Diego Marriott Marquis
Marina Ballroom: Salon F

Surface, Interface & Coating Materials

Funcational Coatings

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

2:00 . Withdrawn

2:15 . Catecholamine chemistries as adhesives for multifunctional polymeric coatings. **C. Harms**, J. Kim, A. Tuteja, A. Pena-Francesch

2:30 . Development of advanced materials for traffic paint. **E. Morado**, J. Grant, B. Li, J. Bohling

3:05 Coffee break.

3:20 . Biopolymer composites of seaweed and plant extracts: Formulation and shelf-life extension of perishable fruits. **A. Purohit**, Y. Zhang, M. Qiao

3:55 . Silicone oil additives provide coatings with ice-releasing properties. **D.C. Webster**, R. Pandey, S. Ghasemi, D. Boucher, J. Huang, A. Tuteja

4:30 Coffee break.

4:45 . Breaking the Ice: Controlling ice formation and adhesion on surfaces. **S. Anand**

5:20 . Extraordinarily slippery liquid-repellent surfaces. **R. Ras**

San Diego Marriott Marquis
Marina Ballroom: Salon G

Colloidal & Soft Metamaterials

Polymeric and Liquid-Crystalline Metamaterials

J. Palomba, E. Runnerstrom, *Organizers, Presiding*

2:00 . Layers and order in liquid crystalline biopolymers. **C.A. Chazot**, S.G. Fine, E.C. Grosvenor, E.M. Sellin, S.R. France Tribe, P.X. Lee

2:30 . Electrically tunable structural colors of liquid crystals. **O. Lavrentovich**, K. Thapa, S. Shiyanovskii

3:00 . Optical poling of ferroelectric liquids. **L. Lucchetti**

3:25 . Controlling and visualizing polymer photonic nanostructures through in situ synthesis and optical imaging. **M. Wang**

3:55 Intermission.

4:05 . Confocal visualization of brittle-to-ductile rheology in composite network hydrogels. **L. Hsiao**, Y. Saraswat, C. Xu

4:35 . Rapid, quantitative characterization of solid sorbents for gas separations using a thin film composite approach. **J. Moreton**, M. Chen, K. Fielder

5:05 . Polyoxometalate Assembly as a route to complex, atomically precise metal oxide materials. **A.M. Schimpf**, L. Chen, E. Samolova

5:35 . TBD. A. Baumann

San Diego Marriott Marquis
San Diego: Salon C

Nanoparticle Materials

Synthesis & Self-Assembly: Nanoparticles and Surfactant Process

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

2:00 . Semiconductor nanoclusters: from magic size to atomic precision. **C. Zeng**

2:30 . Developing nanomaterials by molten-salt synthesis method. **Y. Mao**

3:00 . Nanometric complexes of negatively charged surfactants and cationic dextran polymer: Morphology and deposition. **D. Miller**, H. Faizi, J.K. Riley, L. Leal

3:30 10 Mins-Break.

3:40 . Enhancing polymers with graphene synthesized in atmospheric plasmas. **A. Dato**

4:10 . Polymer and polyelectrolyte self-assembled patterns as model substrates for tribological studies. **M. Ruths**

4:40 . Synthesis of asymmetric silica gold nanostructures and their applications. **T. Hamlett**, R. Stevens, J.E. Doebler, X. Wang, Y. Bao

4:55 . Validating with TEM and Numerical Calculations the monitoring of core@shell (plasmonic@TiO₂) nanoparticles synthesis by UV-Visible spectroscopy. **I.G. morales valenzuela**, P. Segovia Olvera, J. Romo Herrera

5:10 . Surface-driven colloidal assembly of nanoscale tetrahedra. **F. Lu**

5:25 . Chemical Bath Deposition of iron sulfide onto alkanethiolate self-assembled monolayers. **T. Truong**

5:40 . Seeded growth of Au nanocups using magnetic nanorods fo directional light scattering. **Z. Cai**, Y. Yin

San Diego Marriott Marquis
Torrey Pines 1-3

Structure and Dynamics of Polymer in Solutions and at Interfaces

Applications of Polymers in Energy and Biomedical

J. Hipp, M. Lynch, *Organizers, Presiding*

2:00 . Macromolecular architecture affects complexation and delivery of nucleic acid drugs: comparing polymer, micelle, and bottlebrush vehicles. **T.M. Reineke**

2:40 . Effects of glycopolymer hydrogel structure and composition on cargo release kinetics. **Z. Lequeux**, A.N. Simmons, C. Faulkner, L.K. Kemp, s. karim, S.E. Morgan

3:00 . Decellularized extracellular matrix derived biomaterial for an intravascularly delivered treatment for acute myocardial infarction. **M. Nguyen**, A. Chen, C. Luo, K. Christman

3:20 . Free-solution method to measure physiological interactions of lipid and lipid G-protein coupled receptors (GPCRs). **M. Ray**, Y. Kihara, J. Chun

3:40 Break.

3:50 . Structure-property characteristics of pyrolyzed polyacrylonitrile binders for Silicon-based Li-ion batteries. **S.L. Biswal**

4:20 . Making stretchable, transparent, and biodegradable films for soft electronics by bio-based polymer plasticization. **M. Ahmad**, D. Shukla, Y. Liu, Y. Zhu, O.D. Velev

4:40 . Polarization phenomena in soft zwitterionic dielectrics. **D.M. Barber**, M.D. Nelwood, J.A. Lewis

5:00 Break.

Digital Meeting
Digital Session

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

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

3:00 . Lipid raft formation in the plasma membrane of the yeast *Saccharomyces cerevisiae*. **B.B. Du**, E. London

3:25 . Design of new bioactive peptide amphiphiles and their interactions with phospholipid membranes. **S.A. Frantzeskos, I.A. Banerjee**

3:50 . Cholesterol inhibits the assembly and oncogenic signaling of the EphA2 receptor. **F.N. Barrera**

4:15 . Lipid-dependent oligomerization of an intramembrane aspartyl protease detected via size exclusion chromatography small angle neutron scattering. G. Thomas, Y. Wu, W. Leite, S. Pingali, K.L. Weiss, A. Grant, M. Diggs, I. Schmidt-Krey, G. Gutishvili, J. Gumbart, V. Urban, **R.L. Lieberman**

4:40 . Mixtures of intrinsically disordered neuronal protein tau and anionic liposomes reveal distinct anionic liposome-tau complexes coexisting with tau liquid-liquid phase separated self-coacervates. **C.R. Safinya**, C. Tchounwou, A.J. Jobanputra, W.S. Fisher, K.K. Ewert, S.C. Feinstein, Y. Li

5:05 . Calculation of orientation-dependent lipid dynamics from molecular simulations. **M.F. Brown**, M. Doktorova, G. Khelashvili

5:30 . Lipid packing in biological membranes governs protein localization and membrane permeability. M. Tripathy, **A. Srivastava**

5:55 . Withdrawn

6:20 . Withdrawn

6:45 . Artificial models of membrane proteins using giant polymer vesicles based on microphase separation by polymerization-induced self-assembly. **E. Yoshida**

Digital Meeting

Digital Session

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

Cosponsored by PRES

C. Chen, *Organizer*

D. Ding, Y. Liu, C. Zheng, *Organizers, Presiding*

5:30 Opening.

- 5:33** . Bacterial DNA-targeting AIE photosensitizer for efficient eradication of intracellular bacteria and biofilm-associated infections. **Y. Lv**
- 5:46** . DNA-DISK: Automated end-to-end data storage via enzymatic single-nucleotide DNA synthesis and sequencing on digital microfluidics. **K. Li, Z. Zhu, H. Zhang, C. Yang**
- 5:59** . AMAR-seq: automated multimodal sequencing of DNA methylation, chromatin accessibility, and RNA expression with single-cell resolution. **X. Zeng, Z. Zhu, C. Yang**
- 6:12** . DNA nanomaterials for the controlled delivery of nucleic acid drugs. **Z. Lv**
- 6:25** . High-brightness transition metal-sensitized lanthanide near-infrared luminescent nanoparticles. **m. jiang, Z. Fan**
- 6:38** . 2X-rhodamine: A bright and fluorogenic scaffold for developing near-infrared chemigenetic indicators. **W. Wu, Z. Fan**
- 6:51** . Surface structure change properties: Auto-soft bionic fibrous membrane in reducing postoperative adhesion. **W. Zhou, Y. Liu, C. Chen**
- 7:04** . Regulating the in vivo fates of gold nanoparticles by chiral polyprolines. **M. Hu, Y. He, R. Cai, H. Lu, C. Chen**
- 7:17** . Harnessing Mn^{2+} ions and antitumor peptides: A robust hydrogel for enhanced tumor immunotherapy. **t. Guan**
- 7:30** . Neutrophil-derived microvesicle based gene therapy for osteoarthritis treatment. **Y. Chen**
- 7:43** . Controlled interfacial polymer self-assembly coordinates ultrahigh drug loading and zero-order release in particles prepared under continuous flow. **y. lu**
- 7:56** . Multi-responsive peptide-based ultrathin nanosheets prepared by a horizontal monolayer Assembly. **Y. He, D. Wu, X. Zhang**
- 8:09** . Administration-agnostic poly(disulfide)s for efficient and safe mRNA delivery. **R. Wu, Z. Tu, K. Hao, H. Tian**
- 8:22** . Engineering a mechanically tunable liver regeneration chip to decipher the role of mechanical forces. **X. Shu, N. Li, Y. Du, M. Long**
- 8:35** . Rechargeable coating with temporal-sequence antibacterial activity and soft tissue sealing. **F. Wang, S. Guan, M. Xing, W. Qian, J. Qiu, X. Liu**
- 8:48** . Nir emissive functional nanoparticles promote cancer therapy. **z. yang**

9:01 . Nanoreceptors promote mutant p53 protein degradation by mimicking selective autophagy receptors. **H. Zhang**

9:14 . Purified *Astragalus* polysaccharide combined with inactivated vaccine markedly prevent infectious haematopoietic necrosis virus infection in rainbow trout (*Oncorhynchus mykiss*). **Y. Pan, Z. Liu, J. Quan, G. Zhao, J. Lun, J. Wang**

San Diego Marriott Marquis
Marina Ballroom: Salon E

Surface Chemistry of Colloidal Nanocrystals: A Tribute to the Legacy of Dr. Dong Qin

Plasmonic Sensing, Imaging, and Detection

S. Neretina, *Organizer*
J. Chen, X. Xia, *Organizers, Presiding*

2:00 . Ag nano-particles/platelets as efficient photosensitizers and super bright Luminants. **H. Dai**

2:25 . Coulomb repulsion determines the near-infrared response of WO₃: from trap state transition to plasmonic resonance. **E. Borguet**

2:50 . Plasmon dephasing, hot electrons and energy transfer in gold nanostructures. **G.V. Hartland, J. Bhandari, B. Ghosh**

3:15 . Insights from single particle spectroscopy of plasmonic nanostructures. **S. Link**

3:40 . Thermodynamic and kinetic shapes in metal nanocrystal growth: Multi-scale theoretical studies with machine learning. **K. Fichthorn**

4:05 Coffee Break.

4:20 . Seeing what's hidden in nanoparticle optical imaging. **K.A. Willets**

4:45 . Plasmonic Fluors: A novel colloidal nanoconstruct for ultrasensitive and minimally-invasive bio-diagnostics. **S. Singamaneni**

5:10 . Gold nanoparticles as labels in unconventional sandwiched immunoassay and deep-learning assisted detection. **J. Zhao, C. Song**

5:35 . *In vivo* colloids formation for cancer therapy. **W. Tan, M. Yi, Q. Zhang, Y. Qiao, Z. Liu, B. Xu**

Bridging Surface Science to Catalysis

Towards Mechanistic Understandings of Catalysis

Sponsored by CATL, Cosponsored by COLL and PHYS

Catalyst Degradation: New Advances from Experiment and Theory

Sponsored by CATL, Cosponsored by COLL, ENFL, ENVR and PHYS

TUESDAY MORNING

San Diego Marriott Marquis
San Diego: Salon C

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

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

8:00 . New means to generate liposomes by rehydrating engineered lipid nanoconstructs. Y. Huang, **Z. Xu**, U. Celik, C.F. Carnahan, R. Faller, A.N. Parikh, G. Liu

8:15 . AFM-based single-cell activation of cardiomyocytes. **A. Morales Maldonado**, D.A. Diloretto, V.Y. Timofeyev, A. Karsai, E. Ogorodnik, Y. Huang, N. Zong, G. Liu, N. Chiamvimonvat, X. Zhang

8:30 . Electric, fluorescence microscopic, and computational studies of permeation and dissolution of neuronal-stimulant molecules: Methylamphetamine, in Phospholipid bilayers and cell membranes. **H. Ranasinghe Sri Eheliyagoda**, L. Alvarez, H. Lu

8:45 . Smart red blood cells: engineering red blood cells for targeted drug delivery in Alzheimer's disease. **H. Krivic**, S. Himbert, M. Fahnestock, M. Rheinstadter

9:00 . Analysis of lipid peroxidation kinetics in the presence of graphene quantum dots. **J. Kim**, W.F. Zeno

9:15 . Anisotropic microplastics interaction with membrane vesicles. D.A. Redwan, **X. Yong**

9:30 . Polymer gel-supported lipid bilayer built using droplet-assisted assembly: characterization and potential applications. K. Chuduang, M. Page, J. Jannat, F. Deiss, **C. Naumann**

9:45 . Nanoparticle-membrane interactions in the context of environmental nanoplastics. R. Chairil, **N. Malmstadt**

10:00 . Temperature-dependent membrane transport in living bacteria cells and their mimetic liposomes. **H. Dai**

10:15 . Electromechanical energy conversion in phospholipid bilayers. **D. Bolmatov**, J. Katsaras, M. Lavrentovich, C.P. Collier

10:30 . Impact of biomimetic membranes on peptide self-assembly into amyloid fibrils. **T. John**, B. Abel, L.L. Martin

10:45 . Influence of small molecules on liposomes. S. Gupta, **G.J. Schneider**

11:00 . Global and local effects of peripheral protein binding on lipid membranes. **T.K. Rostovtseva**, D.P. Hoogerheide, S.M. Bezrukov

11:15 . Structural characterization on liposomes before and after lyophilization by using DLS, XRD, SAXS and DSC. **K. Shih**, Z. Zhen, M. Brown, X. Lu

11:30 . Ergosterol's distinct membrane interactions: insights from neutron scattering. **S. Qian**, P. Zolnierczuk, E. Mamontov, G. Nagy, R.F. Standaert

San Diego Marriott Marquis
Marina Ballroom: Salon D

Colloidal & Soft Metamaterials

Self-Assembly, Data-, and Theory-Driven 3D Metamaterials Design

J. Palomba, E. Runnerstrom, *Organizers, Presiding*

8:00 . Machine learning based computational methods for analyzing small angle scattering data from colloidal materials. **A. Jayaraman**, N. Gupta, R. Adhikari

8:30 . Direct observation and control of non-classical crystallization pathways in binary colloidal systems. S. Zang, S. Paul, C. Leung, M.s. Chen, T. Hueckel, G.M. Hocky, **S. Sacanna**

9:00 . Modelling crystallization by polymer attenuated coulombic self-assembly. S. Paul, P. Hocky, M.s. Chen, N. Smina, S. Zang, C. Leung, T. Hueckel, S. Sacanna, **G.M. Hocky**

9:30 Intermission.

9:40 . Computational self-assembly design of colloidal crystals. **J. Dshemuchadse**

10:10 . Flexicles - hierarchical assemblies of colloidal particle systems as soft, dynamic, metamaterials. **S.C. Glotzer**, S.Y. Lee, P.W. Schoenhofer

10:40 Intermission.

10:50 . Magnetic micrometamaterials through Monte Carlo simulation, middle-out fabrication, and genetic algorithms. **C. Kemper**, K.M. Kreienbrink, W. Shields

11:05 . Crystallization of calcium oxalate in presence of citrate and Ni ions. **P. Rehak**, P. Kral

11:20 . Analyzing the energetic costs of directing self-assembly. **J.C. Williams**, P. Katira, H. Hess

11:35 . Spatially and temporally tunable self-organization in active cytoskeletal networks. **C. Gunter**, R.M. Robertson-Anderson, **P. Katira**

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 13

Nanoparticle Materials

Synthesis & Self-Assembly: Nanoparticles Contribution

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

8:00 . Introduction to *Journal of Physics: Materials*. **M. Lloyd**

8:30 . Chemical strategies for metal doping, anchoring, and perforation of graphene derivatives. A. Mikhralieva, J. Rodrigues, M. Couto, **V. Zaitsev**

8:45 . Layered Assembly of covellite nanodisks and graphene oxide. **A. Fuqua**, C. Fleischer, A. Birch, V. Kovas, F. Tian, A.R. Tao

9:00 . Cross-shaped patch formation on gold nanoparticle templates. **J. Kim**, C. Kim, Q. Chen

9:15 . Three-atom-wide gold quantum rods with periodic elongation: structures and optical properties. **L. Luo**, Z. Liu, R. Jin

9:30 . Encapsulation of curcumin in Poloxamer-407 nanoparticles and their incorporation into chitosan-gelatin dressings for chronic wound treatment. **S. Cespedes**, L. Torres-Ayala, J. Nakamatsu, d. Castillo pareja, S. Kim

9:45 Intermission.

10:00 . Production of scalable tea-derived polyphenols nanoparticles as food-safe colorants. **W. Chang**, J. Lee, L. Deravi

10:15 . Withdrawn

10:30 . Investigating structure-properties relationships in polymer-matrix nanocomposites containing barium titanate nanoparticles. **V. Bartling**, I. Osborne, W. Pham, B. Lynch Johnson, N. Smith, A. Dato, R. Van Ginhoven, T. Monson

10:45 . Colloidal approach to various iron and iron-nickel nitride nanoparticles for the oxygen evolution reaction. C. Delaney, S. O'Leary, J. Watt, **S. Ivanov**

11:00 . Precise fabrication of discrete nanostructures by biomolecule-directed self-assembly. **Q. WANG**

11:15 . Withdrawn

San Diego Marriott Marquis
Marina Ballroom: Salon G

Nanohybrid Materials

From Fundamental Research Towards Applications

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

8:00 . Withdrawn

8:30 . Hybrid nano-emulsion: Advancing forensic investigations with biologically equivalent simulant for forensic tracedrop agents. **J.L. Liu**, E.D. Rancourt, **S. Bashir**

8:50 . Simulation of charge-carrier transport in cadmium sulfide nanowires. **C. Hoehmann**, M. Wehrmeister, D. Lengle, A. Mews, T. Kipp

9:10 . Synthesis of dual emitting dot-in-a-rod nanoparticles made from Manganese doped ZnSe/ZnS via a sequence of cation-exchange and doping. **J. Schattschneider**, A. Mews

9:30 . Engineered coacervates for ultrasensitive Raman sensing of analytes. **K. Ranasinghe**, J. Yang, Z. Liu, C.D. Keating

9:50 Break.

10:20 . Biohybrid nanomaterials based on 3D assembly of protein nanocages and inorganic nanoparticles. M. Rütten, L. Lang, T. Katenkamp, H. Wagler, **T. Beck**

10:50 . Semiconductor-based gel networks and their photoelectrochemical properties. **P.J. Thomsen**, J. Schlenkrich, R.T. Graf, J.G. Eckert, F. Lübkekmann-Warwas, C. Wesemann, M. Rosebrock, N. Bigall

11:10 . Multi-component nanostructured materials for optoelectronics and photocatalysis. **M. Law**

11:40 . Encapsulation of quantum dots into protein cages for the assembly of biohybrid materials. **M. Ruffer**, N. Mucke, T. Beck

San Diego Marriott Marquis
Torrey Pines 1-3

Structure and Dynamics of Polymer in Solutions and at Interfaces

J. Hipp, M. Lynch, *Organizers, Presiding*

8:00 Break.

8:20 . Dynamics of multicomponent systems: from complex fluid flows to thermodynamics. **H.A. Stone**

9:00 . Harnessing chaotic advection to order contrasting polymer solutions and program hydrogel actuation. M. Tran, **A. Bayles**

9:20 . Interfacial flows of polymeric solutions with elasto-viscoplastic properties. H. Franca, **M. Jalaal**

9:40 . Spreading dynamics and layer uniformity in direct ink writing of high-performance thermoset parts. **N. Alvarez**

10:00 . Surface properties of polyacrylamide gel coatings. **A.D. Adedeji**, B.K. Roopnarine, S. Suresh, S. Morozova

10:20 Break.

10:30 . Polyelectrolyte dynamics near charged interfaces. B.K. Roopnarine, **S. Morozova**

11:00 . Role of hydrophobicity, tacticity and concentration on structure of polymers adsorbed at oil-water interface: Poly(acrylic acid) and poly(methacrylic acid). R. Kurapati, **U. Natarajan**

11:20 . Steady and dynamic Poisson's ratio of polymer-Laden interfaces. **B.R. Thompson**, K. Pham, M. Gottlieb, N.J. Wagner

11:40 . Unraveling early-stage dynamics of imine cage-to-covalent organic framework transformation at liquid-liquid interface. **G. Shreeraj**, M. Tiwari, V.R. Dugyala, A. Patra

San Diego Marriott Marquis
Marina Ballroom: Salon F

Surface, Interface & Coating Materials

Applied Surfaces

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

8:00 Late start break.

8:30 . Withdrawn

8:45 . Chemically-triggered dopant release from surface modified polypyrrole films. **T.W. Hanks**, G. Richter, A. Knepper, P. Molino

9:00 . Super liquid-repellent hierarchical porous membrane for enhanced membrane distillation. Y. Hou, P. Shah, **M. Kappl**, H. Butt

9:35 Coffee break.

9:50 . Zwitterionic polymers to address long-lasting biofouling challenges. **G. Cheng**

10:25 . Many benefits of halides for control of metal nanocrystal shapes and assembly in solution. **K. Fichthorn**

11:00 Coffee break.

11:15 . Reversible glue based on emulsion formulations with clay additives. A. Sierra-Romero, E. Abotsi, K. Novakovic, **M. Geoghegan**

11:30 . Random copolymers based on 2-Ethylhexyl acrylate exhibit unusual glass transition breadth and facile autonomous self-healing over a broad composition range. **J.M. Torkelson**

11:45 . Development of a universal superhydrophobic coating inspired by mussel-adhesive protein. **D. Chu**, D. Hong

San Diego Marriott Marquis
Marina Ballroom: Salon E

Surface Chemistry of Colloidal Nanocrystals: A Tribute to the Legacy of Dr. Dong Qin

Colloidal and Electrochemical Syntheses

X. Xia, *Organizer*

J. Chen, S. Neretina, *Organizers, Presiding*

8:00 . Differential ligand density and its impact on gold nanorod assembly. **C.J. Murphy**

8:25 . Carbohydrate-presenting nanoparticles. **M. Yan**

8:50 . Imaging and tuning surface chemistry of gold nanoparticles. **S. Zhou**, J. Marquardt, Y. Cui, J. Yue

9:15 . Synthesis of core/shell nanocrystals with ordered intermetallic shells for enhanced catalysis. **H. Zhu**

9:40 . Synthesis and catalytic applications of shape-precise dilute metal alloy nanocrystals. **X. Ye**

10:05 Coffee Break.

10:20 . Electroanalytical tools for benchmarking and disentangling the complex chemistry of metal nanoparticle synthesis. **M.L. Personick**

10:45 . Designing inorganic nanomaterials for hydrogen production and utilization. **T. Hyeon**

11:10 . Multiscale modulation of electrocatalysts for Advanced hydroxide exchange membrane electrolysis. **S. Zhang**

11:35 . Bridging colloidal and electrochemical syntheses of metal nanocrystals with seeded electrodeposition. **S.E. Skrabalak**

Data Analytics and AI for Manufacturing and Healthcare

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Data Analytics and AI for Manufacturing and Healthcare

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TUESDAY AFTERNOON

San Diego Marriott Marquis
Balboa/Mission Hills

ACS Award Lectures 2025

D. Miller, C. Wirth, *Organizers*
J. Schneider, *Organizer, Presiding*
M. E. Helgeson, *Presiding*

2:00 Introduction.

2:10 . Development and commercialization of a novel label-free ultra-high throughput acoustic-ejection-mass-spectrometer (AEMS): Applications for chemical and biochemical discovery. **S.S. Datwani**

San Diego Marriott Marquis
San Diego: Salon C

Biomembrane Synthesis, Structure, Mechanics, & Dynamics

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

2:00 . Reconstitution of rhodopsin photoreceptor into a supported lipid bilayer using peptide nanodisc. **M. Koezuka**, K. Morigaki, F. Hayashi

2:15 . Model membrane arrays generated by self-spreading of lipid bilayers in a polymerized lipid bilayer framework. **M. Fujii**, K. Morigaki

2:30 . Phosphatidylserine affinity for and flip-flop dependence on calcium and magnesium ions. **P. Hymas**, J. Conboy

2:45 . Issues with fluorescent lipid probes: A comparative study using sum-frequency vibrational spectroscopy and second harmonic generation. **J. Taylor**, J. Conboy

3:00 . Biomimetic membrane system composed of patterned lipid bilayers and nanometer-sized fluidic channels. **K. Morigaki**

3:15 . Determination of membrane bending moduli from thermal fluctuations of lipid orientation. **F.L. Brown**

3:30 . Making, breaking, and traversing lipid membranes in synthetic and living cells. **N.K. Devaraj**

3:45 Intermission.

4:00 . Polymer based nanodiscs. **A. Ramamoorthy**

4:15 . Lipid-based nanoparticle functionalization with coiled-coil peptides for efficient *In vitro* and *In vivo* drug delivery. **A. Kros**

4:30 . Withdrawn

4:45 . Membrane dynamics under electric fields: Flexoelectric effects and oil lens formation. **J. Carrillo**, D. Bolmatov, M. Lavrentovich

5:00 . Effect of lipids with charged and PEGylated headgroups on the formation of lipid mesophases and giant vesicle assembly. **A.B. Subramaniam**

5:15 . Molecular basis for memory in biological membranes. **C.P. Collier**, J. Katsaras, D. Bolmatov, P. Podar

5:30 . Capturing lipid-protein interactions using machine learning-driven multiscale simulations facilitated by an anisotropic continuum model; showcased for RAS-RAF activation. **H. Ingolfsson**, T. Ooppelstrup, L. Stanton, J. Tempkin, T. Ozturk, F. Lightstone, T. Carpenter

San Diego Marriott Marquis
Marina Ballroom: Salon G

Nanohybrid Materials

From Fundamental Research Towards Applications

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

2:00 . Circularly polarized black body radiation from chiral nanofilaments. **N. Kotov**, J. Lu, H. Jung, J. Kim

2:30 . Investigation of synthesis parameters and characterization of protein-templated semiconductor quantum dots. **T. Katenkamp**, H. Böhler, T. Beck

2:50 . Comparison of different methods for quantifying the protein corona. **W.J. Parak**, N. Feliu

3:20 . Plasmon-based colorimetric screening for the activity of the cancer biomarker, MMP-14. N. Dridi, Z. Jin, J.V. Jokerst, Q.A. Sang, **H.M. Mattoussi**

3:50 Break.

4:20 . Optical properties of cargo-loaded binary protein crystals. **A. Busler**, M. Rütten, C. Strelow, A. Mews, T. Beck, T. Kipp

4:40 . Bioconjugation of nanoparticles. **N. Feliu**, W.J. Parak

5:10 . Drug delivery platform for glioblastoma based on reduced graphene oxide and quaternary ammonium pillar[5]arene. **I. Alves de Albuquerque Bessa**, J.R. Cruz, M. Sousa, L.R. Pinto, N.d. da Cosra, C. Machado Ronconi

5:30 . Turning semi-metal into metallic plasmonic nanoparticle photocatalysts by alloying strategy. **P. Lyu**, L. Hoffman

San Diego Marriott Marquis
Marina Ballroom: Salon D

Colloidal & Soft Metamaterials

Bio-Inspired, Dynamic, Multi-Functional, and Active Matter-Based Metamaterials

J. Palomba, E. Runnerstrom, *Organizers, Presiding*

2:00 . Dynamic Materials and systems inspired by cephalopods. **A.A. Gorodetsky**

2:25 . Withdrawn

2:55 . Enhancing pollutant removal and driving on-the-fly chemistry with active colloids. **B. Bharti**

3:25 Intermission.

3:35 . Bio-inspired cholesteric templates for chirality transfer. **S. Perea**, S. Vignolini

3:50 . Soft magnetically responsive microvoxels, hierarchical assemblies and active microstructures. **O.D. Velev**, A. Basu

4:20 . Energy management in kerf structures. K. Mantri, a. darnal, s. crawford, M. Cooper, **A. Muliana**

4:50 . Cautionary perspective on hydrogel-induced concentration gradient generation for studying chemotaxis. **A. Sapre**, A. Sen

5:05 Intermission.

5:15 . On the emergence of complex phases in nanoparticle self-assembly. **M.R. Jones**

5:30 . Withdrawn

5:45 . Magnetic kirigami dome metasheet with high deformability and stiffness for dynamic shape-shifting and multimodal manipulation. Y. Chi, E.E. Evans, M.R. Clary, F. Qi, H. Sun, S.N. Cantú, C.M. Capodanno, **J.B. Tracy**, J. Yin

San Diego Marriott Marquis
Torrey Pines 1-3

Structure and Dynamics of Polymer in Solutions and at Interfaces

J. Hipp, M. Lynch, *Organizers, Presiding*

2:00 . Time resolved thickness and concentration profiles in thin liquid films. L. Bidoire, **J. Vermant**

2:40 . Adsorption and selectivity of Acd-modified lanthanide-binding peptides at the air-water interface quantified by confocal laser scanning microscopy. S. Crane, J. Marmorstein, E.J. Petersson, I.J. Dmochowski, **K.J. Stebe**

3:00 . Hysteretic behavior in weak polybasic brushes with various ionizable fractions. F. Safi Samghabadi, S. Ramezani Bajgiran, **J. Conrad**, A. Marciel

3:20 . Diffusion of dextran near surface grafted polyethylene glycol brushes. **D.G. Gagnon**, K. Maxwell, S. Suresh, B.K. Roopnarine, T. Coughlin, S. Morozova

3:40 Break.

4:00 Reception.

Digital Meeting
Digital Session

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

Cosponsored by PRES

C. Chen, *Organizer*

D. Ding, Y. Liu, C. Zheng, *Organizers, Presiding*

5:30 Opening.

5:33 . Nanometer thin films of Bi₂Se₃ : deposition , characterization and analysis of nano-morphology. **s. sharmin**

5:45 . Unselective hepatic clearance of in vivo delivery systems: mechanisms, manipulation and application. **Z. Chen**

5:57 . Combretastatin A4-bound albumin activate the tumor immune microenvironment and potentiate T-cell immunotherapy. **y. wang**, J. Wu

6:09 . Zn²⁺-driven siRNA delivery system enhances CD47 blockade-Induced immune response by facilitating phagocytosis and mtDNA sensing. **Z. Zou**, J. Li

6:21 . Ultrasound irradiation-induced superoxide anion radical mediates the reduction of tetravalent platinum prodrug for anti-tumor therapy. **C. Kong**, N. Shen, Z. Tang

6:33 . Design of TLR7/8 nanoagonist with selective activation for anti-tumor study. **X. Ren**, N. Shen, Z. Tang

6:45 . Osteogenic polyetheretherketone bone implants enabled by plasma-induced hierarchical porous structure. **Y. Zhang**

6:57 . Multifunctional polypeptide nanocomposites to unify ferroptosis, nitric oxide and photothermia for amplifying antitumor immunity. **M. He**

- 7:09** . Bacteria-derived outer-membrane vesicles hitchhike neutrophils to enhance ischemic stroke therapy. **J. Pan**
- 7:21** . Actin cytoskeleton remodeling of Kupffer cells enhanced nano-therapeutic delivery to hepatocytes. **x. meng**, G. Zhu, Y. Yang, T. Sun
- 7:33** . Study on the effect and mechanism of CaCO₃ nanoparticles in enhancing anti-tumor immunity. **H. Tan**, T. Sun
- 7:45** . Protective effectiveness of electrospinning fibrous membrane in inguinal hernia repair. **Y. Ren**, Y. Liu, C. Chen
- 7:57** . Study on the effect of particulate matter on the malignant progression of lung cancer. **X. Wang**, Y. Liu, C. Chen
- 8:09** . Sequential fluorescence screening of fingerprint-implanted nanodots (FIND) for inducing heterogeneous cell transcytosis and overcoming tumor delivery barriers. **Z. Wang**, Z. Zhou
- 8:21** . Mechanotransduction of matrix stiffness-regulated liver sinusoidal endothelial cell defenestration through FAK-p38 signaling. **X. Zhang**, N. Li, M. Long
- 8:33** . Nickel nitride-mediated nitric oxide generation for combating implant-associated infections. **C. Wei**, X. Liu
- 8:45** . Self-amplified Cascade degradation and oxidative stress via rational pH regulation of oxidation-responsive Poly(ferrocene) aggregates. **M. Hou**, C. Song, X. Hu, S. Liu
- 8:57** . Glucosylated nanovaccines for dendritic cell-targeted antigen delivery and amplified cancer immunotherapy. **J. Liu**
- 9:09** . Withdrawn

San Diego Marriott Marquis
Marina Ballroom: Salon F

Biomimetic and Bioinspired Design and Assembly of Nanostructures, Materials and Devices

Biological Molecules in Engineered Systems

S. Zauscher, *Organizer*
G. J. Leggett, *Organizer, Presiding*
R. Golestanian, *Presiding*

2:00 . Bioinspired processing of bioinspired advanced materials. **H. Le Ferrand**

2:30 . Development of an elastin-like polypeptide-based nucleic acid delivery system targeted to EGFR+ bladder cancer cells using a layer-by-layer approach. **D.H. Thompson**

2:50 . Supramolecular polymer prodrugs for drug-induced tissue regeneration. **P.B. Messersmith**

3:20 . Peptoids as biomimetic building blocks to create functional hydrogels. **J. Kim**

3:40 . Withdrawn

4:00 . Functional and structural gradients via bioinspired mineralization in reactive multiphase emulsions. **H. De Silva**, C.D. Keating

4:20 Coffee Break.

4:30 . Principles of capsomer Assembly in de novo designed proteins. **S. Fraden**, H. Yang, W. Wei

5:00 . Higher-order assembly of virus-like particles (VLPs) into protein superlattices. **M. Uchida**, N. Brunk, N. Hewagama, B. Lee, V. Jadhao, T. Douglas

5:20 . *In situ* GISAXS investigation of different protein-templated titania nanostructures. **L.F. Huber**, S.V. Roth, P. Mueller-Buschbaum

5:40 . Design and characterisation of programmable pigment-polymer antenna complexes using chlorophyll-functionalized poly(cysteine methacrylate) and erythrosine-coupled PAGEO5MA brushes for enhanced exciton transfer in solar energy capture. **E. Csanyi**, E.C. Johnson, C. Ma, D. Bates, A. Lishchuk, N.H. Williams, S.P. Armes, G.J. Leggett

San Diego Marriott Marquis
Marina Ballroom: Salon E

Surface Chemistry of Colloidal Nanocrystals: A Tribute to the Legacy of Dr. Dong Qin

Nanomaterials for Energy Applications

X. Xia, *Organizer*

J. Chen, S. Neretina, *Organizers, Presiding*

2:00 . Cathode materials for high energy conversion efficiency aqueous zinc ion batteries. **G. Cao**

2:25 . Achieving high-performance sodium metal batteries by regulating the electrode structure and interface. **W. Li**

2:50 . Bioinspired engineering of surfaces and interfaces for thermal applications. **T. Deng**

3:15 . Crystallinity and structural water effect in metal oxide nanoparticle materials for energy storage systems. **H. Xiong**

3:40 . Facile synthesis and characterization of uniform au nanospheres capped by citrate for biomedical applications. **K. Li, Y. Xia**

4:05 Coffee Break.

4:20 . Engineering of colloidal nanocrystals for multifunctional coatings. **H. Fan**

4:45 . Rapid functionalization of electrospun nanofiber yarns with noble metal nanoparticles and nanostructures for gas sensing and conversion. **J. Ahn, I. Kim**

5:10 . Tailored metallic hollow nanoparticles and their applications in in-vitro diagnostics. **X. Xia**

5:35 . AI-guided fluidics for autonomous synthesis and optimization of colloidal nanoparticles. **Y. Zhang, h. Kim, M. Carbone, F. Lu, X. Qu, K. Reyes**

Data Analytics and AI for Manufacturing and Healthcare

Sponsored by I&EC, Cosponsored by COLL

WEDNESDAY MORNING

San Diego Marriott Marquis
Marina Ballroom: Salon D

Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, S. Lim, R. Nagarajan, C. M. Sims, D. L. Watkins,
Organizers
V. A. Davis, S. Jang, *Presiding*

8:00 . Tailoring of liquid crystal self-assembly in aqueous mixtures of cellulose nanocrystals and MXenes. F. Mekunye, M.L. Woodmansee, **V.A. Davis**

8:20 . Chemical functionalization and characterization of hexagonal Boron Nitride nanosheets. **G. Ratnayake**, G. Bepete, C. Qu, M. Terrones

8:40 . Engineering polymorphs in colloidal metal dichalcogenides: Precursor mediated phase control, molecular insights into crystallisation kinetics and promising electrochemical activity. **N.N. Patil**, N. Kapuria, M.X. Pham, A. Sankaran, K.M. Ryan, S. Singh

9:00 . Epitaxial high-k dielectric oxide Gd_2O_3 substrate for 2D TMDCs : Realizing and controlling high-quality optical emission. **K. Ghosh**, A. Dhara, S. Dhara, A. Fissel, H. Osten, A. Roy Chaudhuri

9:20 . Atomic-electronic properties of single layer of Pt-graphene 2D system: First-principles approach. J. Choi, **S. Jang**

9:40 . On-Surface synthesis and growth kinetics of prochiral 2D covalent organic framework at the solution-graphite Interface. **V. Mishra**, K. Strutyński, M. Melle-Franco, K.S. Mali, S. De Feyter

10:00 . Enthalpic and entropic controls on 2D self-assembly of proteins on substrates. **Y. Xia**, Z. Zhang, S. Zhao, M. Zhang, T. Moore, S. Zhang, S.C. Glotzer, F.A. Tezcan, J.J. De Yoreo

10:20 . Facile wet-chemical synthesis of fractal-like dendritic Ag nanoplates via control of reduction kinetics and solution equilibria. **D. Aligholizadeh**, A. Lohse, L. Frimpong, **M. Devadas**

10:40 . Tribochemical nanolithography: Fast, simple molecular nanopatterning with 20 nm resolution. **C. Ma**, G.J. Leggett

11:00 . Impact of filler dimensionality on the processing and properties of thermoset nanocomposites containing carbon nanomaterials. **V. Lopez**, A. Dato

San Diego Marriott Marquis
Marina Ballroom: Salon E

Responsive Colloidal Networks

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

8:00 . Micro- and macro-rheology of colloidal rods used to characterize rod formation and suspension dynamics. **R. McGorty**

8:30 . The microstructure and shear rheology of a model thermoreversible colloidal suspension by 4D Rheo-SANS. **N.J. Wagner**, K. Suman, T. Egnacyzk@udel.edu, M. Kabra

9:00 . Active colloidal structures induced by elasticity during liquid-liquid crystal phase separation. Y. Morimitsu, C. Browne, Z. Liu, P. Severino, M. Gopinadhan, E. Sirota, O. Altintas, K. Edmond, **C.O. Osuji**

9:30 . Alignment and disordering of gold nanorods in shape memory polymer films. Z.A. Watts, D.J. Sawyer, A.N. Simpson, T.N. Robinson, B. Niebuur, M.H. Rizvi, M.M. Ghelardini, T. Kraus, A.L. Oldenburg, **J.B. Tracy**

9:50 intermission.

10:10 . Hierarchical control over liquid crystalline material assembly via flow-induced ordering and molecular design. **E. Davidson**

10:40 . On-demand elastic structuring of emulsion networks. **Y. Ha**, S. Roh, N.L. Abbott

11:00 . Organically cross-linked metal nanoparticle networks: Anisotropic strain sensitivity and selective gas sensing utilizing molecular transport phenomena. **H. Schlicke**, T. Vossmeier

11:20 . Delayed recovery in a dense suspension of core-shell attractive particles. J. Henry, L. Feige, C. Paillard, **T. Divoux**

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 13

Biomaterials & Biointerfaces

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

8:00 Introduction.

8:05 . Tale of a snail: Researching the multiple functions of mucus. **M. Gabler**, A. Beig Mohammadi, B. Steigenberger, A. Yeroslaviz, M.F. Gholami, J.P. Raabe, P. Fratzl, F. Jehle

8:25 . Ligand-mediated adsorption of functionalized nanoparticles to lipid membranes: Effects of ligand lipophilicity and architecture on adsorption thermodynamics. C.A. Huang-Zhu, **R. Van Lehn**

8:45 . Stabilizing gold nanospheres for biological applications using peptoid capping ligands. **A.A. Fuller**, H. Goldberg, J. Hong, M. Batek, I. Matusich, N. Raman

9:05 . Nano-enabled hybrid "mussel"- inspired coating prevent biofilm-associated urinary infections. **A. Puertas**, G. Ciardelli, T. Tzanov

9:25 . Polymer-assisted assembly of giant unilamellar vesicles in physiological ionic solutions. **A. Cooper**

9:45 Intermission.

10:00 . Degradation tunes ECM stress-relaxation and cellular mechanics. **B. Narasimhan**, S.I. Fraley

10:20 . Polyphenols as structural and functional components of self-assembling injectable hydrogels. **T. Tzanov**

10:40 . Leveraging Janus nanoparticles to disrupt bacterial poles for targeted antimicrobial action. **S. Bhattacharyya**, D. Nguyen, H. Richman, Y. Li, Y. Yu

11:00 . Nano-enabled layer-by-layer coating prevents biofilm formation on urinary catheters. **A. Puertas**, R. Costa, D. Peixoto, n. Alves, R. Reis, G. Ciardelli, I. Pashkuleva, T. Tzanov

11:20 . Borophene oligonucleotide interaction towards novel sensing platform for infectious diseases. **T. Aditya**

11:40 . Biomolecular condensates as intracellular targeted protein degradation tools. **Y. Li**, S. Kelley

San Diego Marriott Marquis
Marina Ballroom: Salon G

Nanohybrid Materials

From Fundamental Research Towards Applications

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

8:00 . Encapsulin-cargo assemblies for targeted applications. **N. Mucke**, T. Beck

8:20 . Inorganic-organic hybrid nanoparticles as high-load drug carriers. **C. Feldmann**

8:50 . Fabrication and investigation of the mechanical properties of gold-doped thermo-reversible polymer networks and their bond exchange *via* plasmonic heating. **P. Schütz**, S. Weerathaworn, B. Hankiewicz, V. Abetz

9:10 . Dynamic light scattering: A tool for virus diagnosis from particle to biomarkers. d. leite, I. Bessa, A.C. Souza, C.C. Mello, M.C. Oliveira, C.B. Ligiero, **C. Machado Ronconi**

9:30 . Micromagnet-assisted delivery strategy for safe and efficient transport of hybrid nanoformulations into solid tumors. **S.R. Panikkanvalappil**

9:50 break.

10:20 . Formation and catalytic property of Pt-based multi-metallic nanocatalysts with a large surface area. **Y. Bao**

10:40 . Revisiting the impact of nanoparticle morphology, surface charge, and charge distribution in vivo. **M. Barz**

11:10 . Withdrawn

11:30 . Heterostructures from two-dimensional colloidal metal chalcogenides. **A. Mews, J. Schulz, C. Ruhmlieb, M. Wehrmeister, T. Tsangas**

San Diego Marriott Marquis
Pacific Ballroom: Section 14

Surface Chemistry

Reactions at Solid Surfaces

A. V. Teplyakov, L. Tribe, *Organizers*
I. Waluyo, Z. Wu, *Presiding*

8:00 . Reducing resistivity and inhibiting metal interdiffusion in advanced interconnects through self-assembled monolayer functionalization. **P. Keng, B. Hsu, H. Wu, Y. Chen, M. Lu, S. Chang**

8:20 . Surface chemistry of metal atomic layer deposition (ALD). **F. Zaera**

8:50 . Monitoring the ultrafast carbon-carbon bond formation in photoinduced reactions on oxide surfaces. **A. Gupta, K. Blackman, E. Segrest, A. Daniels, M. Hall, M.E. Vaida**

9:10 . Catalytic CO conversion by excess electrons on defected thorium dioxide ThO₂ surface from first principles. **S. Yao, G. Wang, E.R. Batista, P. Yang**

9:30 . Forming chemisorbed junctions via Lewis acid-mediated bond cleavage reactions. **J. Prana, M.S. Inkpen**

9:50 Break.

10:00 . Local characterization of Kagome-type MOFs at the surface of graphite. **Z. Wang**, R. Zuzak, W. Tang, Y. Qiao, Y. Yan, S.G. Louie, M. Crommie

10:20 . Withdrawn

10:40 . Monitoring the formation of C_n ($n=2,3,4$) products after photodissociation of CH_3I on fully oxidized and partially reduced $TiO_2(110)$ surface. **K. Blackman**, A. Gupta, A. Daniels, E. Segrest, M. Hall, A. Rodriguez, M.E. Vaida

11:00 . Visible-light responsive reversible photoswitching Hemithioindigo-self-assembled monolayers on surfaces and their application potential. **J. Byun**, H. Park, M. Halik

11:20 . Tunable Sn_xS_y deposition onto functionalized alkanethiolate self-assembled monolayers by chemical bath deposition. **C.R. Brewer**, H. Nguyen, R. Woolard, H. Nguyen, A.V. Walker

11:40 . Hydrogen evolution reaction on a single atom doped double transition metal MXene-based catalyst: First principles investigation. **T. Dinadayalane**, P. Kumar, T. Riggins, S. Ramasamy

San Diego Marriott Marquis
Marina Ballroom: Salon F

Biomimetic and Bioinspired Design and Assembly of Nanostructures, Materials and Devices

Biological Molecules in Engineered Systems

G. J. Leggett, *Organizer*
S. Zauscher, *Organizer, Presiding*
J. Brujic, *Presiding*

8:00 . Programmable DNA-templated chiral metamaterials for bio-electronic information storage and optical readout. D. Satyabola, P. Chopade, S. Feng, S. Yang, R. Hariadi, **H. Yan**

8:30 . Investigating and programming self-assembled DNA origami nanorobots. **Y. Ke**

8:50 . Brush-mediated precision placement of DNA nanostructures on surfaces. M. DeLuca, J. Pombo, Y. Shao, A. Gopinath, Y. Ke, S. Zauscher, **G. Arya**

9:10 . PEN-DNA toolbox guides the spatio-temporal organization of emulsion droplets. L. Sixdenier, N. Judd, G. Gines, Y. Rondelez, **J. Brujic**

9:40 . Formation and nanomechanical properties of silver(I)-mediated guanine DNA duplexes in aqueous solution. **E. Bethur**, R. GUHA, Z. Zhao, B. Katz, P.D. Ashby, H. Zeng, S. Copp

10:00 Coffee Break.

10:10 . Spatiotemporal mechanical modulation of non-equilibrium DNA-polymer composites via topological tuning. **A. McGovern**, D. Protopapas, F. Safi Samghabadi, N. Oldenhuis, J. Conrad, R.M. Robertson-Anderson

10:30 . Bioinspired design and assembly of nanomaterials using liposwitches. **D. Mozhdehi**

10:50 . Universal mechanistic rules for de novo design of enzymes. M. Chatzittofi, J. Agudo-Canalejo, **R. Golestanian**

11:20 . Tuning the dynamics of active cytoskeleton composites via microtubule stabilization. **K. Matic**, M. Hendija, Q. Chen, M. Rust, M. Valentine, M. Das, J. Ross, R.M. Robertson-Anderson

11:40 . Withdrawn

San Diego Marriott Marquis
San Diego: Salon C

Nanomaterials & Sustainability

A Chemistry Perspective: Center for Sustainable Nanotechnology: Introduction and Scientific Impacts

Cosponsored by PRES
R. J. Hamers, C. L. Haynes, *Organizers, Presiding*

8:00 . NSF Center for sustainable nanotechnology. **R.J. Hamers**

8:20 . Environmental impact of transition metal oxides: From atoms to organisms. **R.J. Hamers**, S.E. Mason, C.L. Haynes, V. Feng, E.E. Carlson, R. Klaper

8:45 . Enabling integrated theory and modeling in the the NSF Center for Sustainable Nanotechnology for compositional tuning of complex metal oxides. **S.E. Mason**, J. Bjorklund, R.J. Hamers, C.L. Haynes, R. Klaper

9:10 Break.

9:20 . From molecules to ecosystems-the interactions of transition metal oxides nanomaterials and their impacts. R. Klaper, **E. Ostovich**, H. Fairbrother, J.C. White, R.J. Hamers

9:45 . Bacterial adaptation to complex metal oxide nanomaterials. **E.E. Carlson**, R.J. Hamers, V. Feng, C.L. Haynes

10:10 . Investigating the biological impact of transition metal oxide nanomaterials: Dynamic transformations and molecular responses. **V. Feng**, R.J. Hamers, C.L. Haynes, S. Balbo, E.E. Carlson, G. Orr

10:35 Break.

10:45 . Direct and indirect effects of colloidal nanoparticles on biological systems: A corona story. **C.J. Murphy**, E.E. Carlson, F. Geiger, R.J. Hamers, R. Hernandez, R. Klaper, K. Wheeler

11:10 . Impact of surface chemistry on the interactions between nanomaterials and model and intact cellular membranes. **A.C. Mensch**, E.S. Melby, V. Feng, J.A. Pedersen, R.J. Hamers, G. Orr

11:35 . Spectroscopic studies of the interactions between polymer nanoparticles and phospholipid vesicles. K. Mendis, L.A. Kesner, H. Le, Z.A. Piskulich, Q. Cui, J. Shirley, K.A. Rex, C. Baiz, D. Nykypanchuk, O. Gang, **Z. Rosenzweig**

Bridging Surface Science to Catalysis

Wanted: Single Atoms and Surfaces in Catalysis

Sponsored by CATL, Cosponsored by COLL and PHYS

Data Analytics and AI for Manufacturing and Healthcare

Sponsored by I&EC, Cosponsored by COLL

WEDNESDAY AFTERNOON

San Diego Marriott Marquis
Marina Ballroom: Salon G

Nanohybrid Materials

From Fundamental Research Towards Applications

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

2:00 . Synthesis of metal-alloy tipped CdS nanorod heterostructures. **C. Frost**, A. Mews

2:20 . Hybrid nanomaterials for X-ray photon correlation spectroscopy towards biological applications. **N. Dageförde**, F. Otto, F. Schulz, F. LehmÃ¼hler, W.J. Parak

2:40 . Chalcopyrite-noble metal hybrid nanostructures: Resonant interactions and implications for photoreactivity. T. Ouyang, **B.M. Reinhard**

3:10 . Optically tunable catalytic cancer therapy using enzyme-like chiral plasmonic nanoparticles. **H. Kang**, S. Yu, R. Kim, D. Kim

3:30 . Matrix-insensitive sensor arrays via peptide-coated nanoparticles: Rapid saliva screening for pathogens in oral and respiratory diseases. **B. Lam**, M. Retout, J.V. Jokerst

3:50 break.

4:20 . Synthesis and surface coordination chemistry of colloidal nanoscale metal organic frameworks. **J.S. Owen**, S. Park, J. Kemp

4:50 . Withdrawn

5:10 . Reversible assembly of iron oxide nanoparticles on gold nanorods for magnetic alignment and plasmonic control. M.H. Rizvi, R. Wang, J. Schubert, W.D. Crumpler, C. Rossner, A.L. Oldenburg, A. Fery, **J.B. Tracy**

San Diego Marriott Marquis
Marina Ballroom: Salon D

Nanomaterials

J. A. Hollingsworth, S. Hunyadi Murph, S. Lim, R. Nagarajan, C. M. Sims, D. L. Watkins,
Organizers
G. Chen, J. P. Vanegas, *Presiding*

2:00 . Preparation of a glycerol-based carbon / cobalt ferrite nanocomposite for the removal of emerging contaminants in aqueous systems. **J. Kreck**, F. Webster

2:20 . Withdrawn

2:40 . Precision-controlled synthesis and tailored growth of gold nanostructures on alkyne-functionalized silicon nanoparticles. **J.P. Vanegas**, A.K. Quezada

3:00 . Generation of diamond-gold nanoparticle assemblies with Sulfo-NHS/EDC coupling for enhancement of nitrogen-vacancy center fluorescence. **N. Sugal**

3:20 . Controllable synthesis of one-dimensional plasmonic gold nanoparticles and their applications in colorimetric sensing. **G. Chen**

3:40 . Interfacial charge transfer dynamics in chromophore-functionalized quantum-sized gold clusters. **S. Saxena**, R. Guda

4:00 . Dynamic interfacial assembly of nanoparticles: Effect of shape anisotropy. **S. Bhattacharjee**, C. Kumar, S. Srivastava

4:20 . Does lattice mismatch play a role in the seeded electrochemical synthesis of bimetallic nanocrystals?. **N. Kapuria**, E. Verma, N. Kar, X. Ye, S.E. Skrabalak

4:40 . Withdrawn

5:00 . General strategy for synthesizing Pt-Ni-M ternary alloy nanoframes embedded with rational design for electrochemical catalyses. **Y. Luan**, Y. Hu, C. Wendling, S. Lin, B. Colucciello, M. Stancampiano, S. Wang, E. Jiang, R. Hudson, D. James

5:20 . Withdrawn

San Diego Marriott Marquis
Pacific Ballroom: Section 14

Surface Chemistry

Liquid-Solid Interfaces and Interfacial Dynamics

A. V. Teplyakov, L. Tribe, *Organizers*
X. Deng, A. Frenkel, *Presiding*

2:00 . Surface chemistry, water adsorption/desorption, and electrostatic charging behavior of display glass panel. **S.H. Kim**

2:20 . Adsorption interactions between polar and non-polar solutes on cellulose substrates for food packaging development. W. Perera, B. David, J. Sheehan, **B. Prager**

2:40 . Magnetic *tagetes spp* biochar (Fe₃O₄@TSB) for efficient removal of cationic dye from wastewater: a sustainable and economical approach. **A. Mishra**

3:00 . Immobilization of Ca²⁺ by OH⁻ ions explains the positive zeta potential of calcium silicate hydrate. **Z. Casar**, L. Mismetti, M. Harris, M. Predota, P. Bowen

3:20 . Tuning porous liquid functionalities for emergent carbon capture properties. **D.C. Robinson Brown**, M. Hurlock, T.M. Nenoff, J.M. Rimsza

3:40 . Interfacial dynamics of calcium oxalate dihydrate surface growth: insights into modifier-crystal interactions. **V. Chauhan**, G. Grobman, N. Vidavsky, J.D. Rimer

4:00 Break.

4:20 . Interfacial structure and reactivity of immobilized ruthenium molecular complexes on TiO₂ as models for electrochemical water remediation. **A. Wanhala**, C. Williams, J. Kupferberg, P. Sarkar, K.L. Mulfort, P. Papa Lopes, A.B. Martinson, P. Fenter

4:40 . Withdrawn

5:00 . Adsorption behavior of volatile organic compounds in microporous coordination polymer thin films. H. Matherne, J. Poulos, **G. Szulczewski**

5:20 . Probing the impact of protonation on the charge transport across diphenylamine junctions. Y. Cheng, J. Wang, Y. Gu, **H. Li**

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 13

Biomaterials & Biointerfaces

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

2:00 Introduction.

2:05 . Lipidation alters the phase-separation of resilin-like polypeptides. **D. Mozhdghi**

2:25 . MXene-hydrogel composite bioinks for tissue regeneration. D. Devkota, L. Posada, N. Maharajan, M. Zalzman, **Z. Rosenzweig**

2:45 . Glassy zwitter solids at the biointerface. **J.B. Schlenoff**, J. Akintola, N. Abou Hamad

3:05 . Nanoparticle biomolecular coronas: A computational biophysical perspective. **V. Karunakaran Annapoorani**, O.A. Petrisor, N. Buchete

3:25 . Phase separation of multivalent particles with non-exponential bond dynamics. **B. DEBNATH**, P. Fnu, **P. Katira**

3:45 Intermission.

4:00 . Collagen assembly in crowded microgel environments to construct tunable ECM scaffolds. **A. Caine**, L. Lyon, E. Narbay, E. C´rdenas-V´sqez, H. Hamilton

4:20 . Conjugated polymers for detection of reactive sulfur species. **A.J. van der Vlies**, U. Hasegawa

4:40 . Examining and altering beta-hairpin folding within peptide brush polymers. **J. Oktawiec**, H. Nadeem, O. Ebrahim, J.R. Byrnes, M. Thompson, D. Shukla, N.C. Gianneschi

5:00 . Effects of surface grafted polyethylene glycol chains on the interaction of nanoparticles with scavenger endothelial cells. **U. Hasegawa**, H. Nakajima, Y. Hasegawa, A. Ben Mabrouk

5:20 . Impact of membrane packing defects and charge on α -synuclein binding. **D. Johnson**, O. Kou, J.M. White, V. Jaeger

5:40 . Co-adsorption of Oleic Acid and Polysorbate 80 to an Air/Water interface and its role in protecting the interface from Monoclonal Antibodies adsorption. **N. ayati**, A.D. Kanthe, M.E. Krause, S. Zheng, R.S. Tu, C. Maldarelli

San Diego Marriott Marquis
San Diego: Salon C

Nanomaterials & Sustainability

A Chemistry Perspective: Center for Sustainable Nanotechnology: Scientific Impacts

Cosponsored by PRES
R. J. Hamers, C. L. Haynes, *Organizers, Presiding*

2:00 . In silico design of sustainable nanoparticles and neuromorphic materials. **R. Hernandez**, J.A. Pedersen, E.E. Carlson, C.L. Haynes, C.J. Murphy, C.A. Daly, A.Z. Clayborne, F. Geiger, R.J. Hamers, Q. Cui, J. Giraldo, J.C. White

2:25 . Probing the interactions between nanoparticles and cell membrane/cell wall with multi-scale computations. **Q. Cui**, F. Geiger, C.J. Murphy, J.A. Pedersen, R.J. Hamers, Z. Rosenzweig, J. Giraldo, H. Fairbrother

2:50 . Exploring the structure and luminescence mechanism of amorphous nanoscale carbon dots in the NSF Center for Sustainable Nanotechnology. **C.L. Haynes**, Q. Cui, H. Fairbrother, V. Feng, R.J. Hamers, R. Hernandez, M. Krause, C.J. Murphy, G. Orr, Z. Rosenzweig

3:15 break.

3:25 . Developing a fundamental, molecular-level understanding of sustainable nanoparticles. **H. Fairbrother**, C.L. Haynes, J.C. White, J. Giraldo, J.A. Pedersen, Q. Cui, R.J. Hamers, R. Hernandez, K. Wheeler, C.J. Murphy

3:50 . Elucidating fundamental nanoparticle-plant biomolecule interactions in the NSF Center of Sustainable Nanotechnology (CSN). **J. Giraldo**, H. Fairbrother, Q. Cui, R.J. Hamers, C.J. Murphy, K. Wheeler, R. Hernandez, J.C. White, J.A. Pedersen

4:15 . How the NSF-Center for Sustainable Nanotechnology (CSN) became a leader in the chemistry of nanoparticle-plant interactions. **J.C. White**, R.J. Hamers, C.L. Haynes, H. Fairbrother, J. Giraldo

4:40 Break.

4:45 . Withdrawn

5:10 . Post-translational modifications alter binding interactions for fibrinogen peptide to silica nanoparticles within human serum. A. Zapata, k. schumacher, B. Hong, J. Staley, K. He, L. Pham, S. Truslow, A. Houssein, C.A. Daly, **K. Wheeler**

5:35 . From magic numbers to nanoparticles: understanding seed-mediated nanoparticle growth using computational methods. **A.Z. Clayborne**, N. Pollard, R.D. Senanayake, R. Hernandez, Y. Han, M.R. Jones

San Diego Marriott Marquis
Marina Ballroom: Salon E

Responsive Colloidal Networks

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

2:00 . Gel formation and patchy colloidal gels under the influence of gravity. **R. Castaneda Priego**

2:20 . Application of time-varying magnetic field to drive isotropic and anisotropic colloidal networks. **S.L. Biswal**

2:50 . Dynamical control of colloidal assembly through competing interactions. **G. Yeh**, H.W. Hatch, Z. Sherman, V.K. Shen, T. Truskett

3:10 . Withdrawn

3:40 intermission.

3:50 . Magnetophoretic transport of paramagnetic nanoparticles: effects of collective hydrodynamics and structure formation. **Z. Sherman**, A. Ersoy

4:20 . Driven phase separation and gel-like states during dissipative assembly. **E.M. Furst**

4:50 . Colloidal engineering of multifunctional soft networks mediated by multiphasic liquids. **O.D. Velev**

5:20 . Magnetic-nanorod-mediated nanowarming with uniform and rate-regulated heating. **S. Liu**, Y. Yin

5:40 . Tuning the sedimentation behavior of colloidal gels through active particle doping. **M. Puthenpurayil**, S. Mallory

San Diego Marriott Marquis
Marina Ballroom: Salon F

Biomimetic and Bioinspired Design and Assembly of Nanostructures, Materials and Devices

Bioinspired Energy Harvesting and Synthetic Biology

S. Zauscher, *Organizer*

G. J. Leggett, *Organizer, Presiding*

P. B. Messersmith, *Presiding*

2:00 . Design of protein architectures for capturing solar energy. **C. Hunter**

2:30 . Rational design of biomimetic pigment-polymer antenna complexes for exciton transfer. **D. Bates**, E.C. Johnson, T. Yang, M. Naude, J.M. West, D.N. Woolfson, C. Hunter, S.P. Armes, G.J. Leggett

2:50 . De novo designed bili-proteins for light-harvesting. **F. Morey-Burrows**, **R. Krishna**, W. Ahern, J. Wang, P. Davison, G. Sutherland, A. Hitchcock, D. Baker, C. Hunter

3:10 . Biomolecular design to achieve an artificial C- and N- fixation better than Nature. **D.G. Nocera**

3:40 Coffee Break.

3:50 . Biomolecular condensates from synthetic intrinsically disordered proteins: tools for Biotechnology and synthetic biology. **A. Chilkoti**

4:20 . Strategies to create, monitor, and deploy synthetic biomolecular condensates for human health. W. Yim, Z. Jin, **J.V. Jokerst**

4:40 . Synthetic biomolecular condensates: Phase-separation control, Cytomimetic modelling and emerging biomedical potential. **K. Landfester**

5:00 . Controlling chemical reactions with condensates and vice versa by design: new tools for reaction pathway engineering. **R. Schulman**

5:30 . Bulk properties of jammed, interconnected bilayer emulsion (JIBE) tissue-like assemblies. **S. West**, E. Ademski, A. Nimrick, M. Torbett, A. Fica, A. Sarles, M. Kumar, A. Rosales

Data Analytics and AI for Manufacturing and Healthcare

Sponsored by I&EC, Cosponsored by COLL

Bridging Surface Science to Catalysis

Recent Advances and Approaches to Catalysis

Sponsored by CATL, Cosponsored by COLL and PHYS

Geochemical Pathways for Carbon Capture, Removal, Utilization, and Storage

Laboratory to Field

Sponsored by GEOC, Cosponsored by COLL, ENVR and I&EC

THURSDAY MORNING

San Diego Marriott Marquis
San Diego: Salon A

Basic Research in Colloids, Surfactants & Interfaces

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

8:00 Concluding remarks.

8:02 . Combining ex-situ and in-situ transmission electron microscopy to characterize the seeded-growth of gold nanorods. **Z. Jin**

8:22 . Withdrawn

8:42 . Dissociation of formic acid on ceria surfaces: From single crystals to powders. **Z. Yu, S. Chen, A. Nefedov, C. Woell, Y. wang**

9:02 Intermission.

9:12 . Withdrawn

9:32 . Multivalent and complex ion interactions with charged surfactants: Insights for chemical separations. **A. Uysal, S. Nayak**

9:52 . Analysis of the effects of various solvent compositions on the remediation of organic deposits from Indonesian oil field. **S. Pebriani, D. Febriantini, U. Lasibunga, W. Setyawan, T. Purwoko, D. Halinda**

10:12 . Investigation of the selectivity of solvent mixtures for the organic deposit removal in Indonesia. **D. Febriantini, S. Pebriani, U. Lasibunga, W. Setyawan, T. Purwoko, A.W. Murdani**

10:32 . Effects of Sephacryl formulation perturbation on its function as a single-walled carbon nanotube purification media. L. Hughes, S. Duncan, **K.C. Tvrdy**

10:52 . Nickel phosphide electrocatalyst: A combined quantum mechanical and thermodynamic exploration. **S.E. Mason, A.K. Sweet, E.G. Gillan**

11:12 . High surface area carbon nanotube-crosslinked microgel assemblies for sustainable environmental, agricultural, and sensing applications. **Y. Gao**

11:32 . Fluorescent molecular gelators: Synthesis, gelation, and steady-state photophysical properties of alkoxy coumarin and anthraquinonylalkanamide derivatives. **A. Mallia**

11:52 Introductory Remarks.

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 13

Biomaterials & Biointerfaces

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

8:00 Introduction.

8:05 . Re-engineered NK92-derived extracellular vesicles as tumor target nanomedicine. **V. Sundaram**, I. Santhosh, S. Joshi, T. Dane, H. Quazi, S. Aryal

8:25 . Immunomodulatory cellulose nanofibrils (CNF) via optimised NHS: EDC chemistry. **M. Graham**, S. Geng, L. Biant, J. Gough, A. Dumanli

8:45 . Structure elucidation of spider silk fibers using solid-state NMR. **K. Chalek**, B.A. Duarte, A.N. Flores, G.P. Holland

9:05 . Selective interaction between interface-engineered block copolymer micelles and blood/tissue esterases and its relevance in drug delivery. S.A. Khan, U. Satyal, **M.A. Ilies**

9:25 . Formulation of nanoscale metal-organic-frameworks for radiosensitizer delivery and molecular imaging. E. Choi, **C.G. Sun**

9:45 Intermission.

10:20 . Hydroxyapatite nanoparticles with distinctive morphologies and crystal phases investigated by ^1H , ^{19}F and ^{43}Ca MAS solid-state NMR. **Y. Li**, B.A. Duarte, G.P. Holland

10:40 . Natural polyphenolic-mediated surface chemistry for antimicrobial biomaterials. **S. Seo**

11:00 . How extracellular mechanical cues modulate immune responses. **H. Richman**, J. Ou, Y. Yu

11:20 . Engineering liquid-liquid phase separation to control biomaterial microstructure and interfaces to promote cell migration. **L. Li**

San Diego Marriott Marquis
Marina Ballroom: Salon F

Biomimetic and Bioinspired Design and Assembly of Nanostructures, Materials and Devices

Engineered Living Materials and Artificial Cells

G. J. Leggett, *Organizer*
S. Zauscher, *Organizer, Presiding*
A. del Campo, *Presiding*

8:00 . Engineered living materials: Can biology solve the plastic pollution problem?. **J.K. Pokorski**

8:30 . Living patterns, structures, and materials. **L. You**

9:00 . Building artificial cells: Supramolecular assembly of synthetic cytoskeletal systems. **R. Freeman**

9:20 . Protein-powered synthetic protocells: Insights from highly tunable globular protein vesicles. **Y. Jang**

9:40 . Novel proteinaceous bioreactor for organizing Cytomimetic functionality. **D. Abeysinghe**, E.J. Young, C. Kerfeld, C.D. Keating

10:00 Coffee Break.

10:10 . Programming dynamics of active biotic-abiotic materials. **R.M. Robertson-Anderson**

10:40 . Living therapeutic materials for zero-waste therapeutics. **A. del Campo**

11:10 . 3D Printed biomimetic ultralow-fouling membranes for ultracompact wearable/implantable renal assist devices. **J. Biener**, D. Li, K. Wang, N. Hwee, W. Degraff, S. Huang, L. Feng, T. Heo, J. Ye, G. Cheng, S. Kim

San Diego Marriott Marquis
Marriott Grand Ballroom: Section 9

Nanomaterials

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

Organizers

K. Kalkan, G. Saladino, *Presiding*

8:00 . Watching polymerization dynamics and nanoparticle growth using liquid phase electron microscopy. **W. Gibson**, J.P. Patterson

8:20 . Withdrawn

8:40 . Surface chemistry and particle morphology govern multi-scale interactions and properties of silica-polyelectrolyte microcapsules. **M. Lertola**, S. Lifshiz-Simon, Y. Talmon, R. Bordes, M. Persson, K. Holmberg, M.E. Helgeson, B. Chmelka

9:00 . Development of iodine complex-infused waterborne polymeric coatings: A novel approach to antibacterial protection. **H. Sekar**, M. Tirumkudulu, V. Gundabala

9:20 . Withdrawn

9:40 . Withdrawn

10:00 . PET-derived carbon quantum dots as Nano-tracers for subsurface applications. **M. Farooq**, S. Bind, H. Singh, H. Sharma

10:20 . Organic and inorganic nanoparticles as contrast agents for X-ray fluorescence imaging. **G. Saladino**, B. Brodin, S. Li, M. Toprak, H. Hertz

10:40 . Cupric oxide Mie-resonator solar-thermal absorbers. **K. Kalkan**, E. Biedenstein, P. Prajapati

San Diego Marriott Marquis

Marriott Grand Ballroom: Section 11

Responsive Colloidal Networks

D. J. Milliron, Z. Sherman, T. Truskett, *Organizers*

N. Conrad, *Presiding*

8:00 . Structure and dynamics of colloidal systems in real-time with coherent X-ray. **F. LehmkÃ¼hler**, F. Schulz, F. Dallari

8:30 . Enabling three-dimensional real-space analysis of ionic colloidal crystallization. **S. Sacanna**, S. Zang, A. Hauser, S. Paul, G.M. Hocky

9:00 . Illuminating disorder: Optical properties of complex plasmonic assemblies. **T. Truskett**

9:30 . Creating responsive optical materials by manipulating plasmonic coupling. **Y. Yin**

10:00 intermission.

10:20 . Cracking crystallization: Self-assembly of colloidal metamaterials by controlling nucleation and growth. **W.B. Rogers**

10:50 . CdS quantum dot gel as a hydrogen atom transfer agent for organic reactions. **L. Luo**

11:10 . Kinetics of colloidal gel formation and coarsening: Insights from structure factor and optical response. **D. Qian**, W.D. Bracket, C.K. Ofofu, T. Wilcoxson, D.J. Milliron, T. Truskett

11:30 . Inter-species interaction shapes structure and rheology of double network gels. **M.L. Mugnai**, R. Tchuente, E. Del Gado

San Diego Marriott Marquis
Marina Ballroom: Salon G

Nanohybrid Materials

From Fundamental Research Towards Applications

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

8:00 . Kinetic digestion of gold nanocrystals triggered by molar excess of N-heterocyclic carbene ligands. N. Arabzadeh Nosratabad, Z. Jin, **H.M. Mattoussi**

8:30 . Withdrawn

8:50 . Novel zinc oxide UV filter nanohybrid network for multifunctional photoprotection and photostability in sunscreen formulations. **A. Addae**, Y. Mishra Kumar, J. Chifamba, P.S. Weiss

9:10 . Graphene nanoribbon (GNR) - DNA chimera: A path towards self-assembled graphene electronics. **T. Udumulla**

9:30 . Withdrawn

9:50 break.

10:20 . Understanding discrete growth in semiconductor nanocrystals: Route to perfect quantum dots?. **D.J. Norris**

10:50 . Withdrawn

11:10 . From colloidal nanocrystals to (aero-)gels and their applications. **A. Eychmüller**

11:40 . Human serum albumin nanoparticles for enzymatic delivery of camptothecin and near infrared ionic drug against cancer. **D. Bwambok**, E. Galindo

San Diego Marriott Marquis
San Diego: Salon C

Nanomaterials & Sustainability

A Chemistry Perspective: Center for Sustainable Nanotechnology: Broader Impacts

Cosponsored by PRES
R. J. Hamers, C. L. Haynes, *Organizers*
M. Krause, *Presiding*

8:00 . Evolution of broader impacts in the NSF Center for Sustainable Nanotechnology. **M. Krause**, M. Schwartz

8:30 . Choosing wellness, equity, and liberation. **D.V. Mosley**, M. Krause, M. Schwartz

8:55 . Investigating the invisible work problem in chemistry academia. **S.Z. Jilani**, M. Krause, C. Stachl, M. Schwartz

9:20 Break.

9:30 . Art of sustainable nanotechnology: A science-art project with undergraduates from the Center for Sustainable Nanotechnology's summer research program. **S. Quinones-Soto**, M. Krause

9:55 . Characterization of model biomolecular coronas on functionalized gold nanoparticles and corona-former binding constants determined using fluorescence spectroscopy. **S.E. Lohse**

10:15 . Mapping the spatial elemental distribution in nematode *Caenorhabditis elegans* using LA-ICP-TOF MS. A. Reynolds, A. Sue, K. MacRenaris, T. O'Halloran, **T. Qiu**

10:35 Break.

10:45 . Creating sustainable solutions and challenging cultural norms Norms. **M.L. Curry**

11:10 . Next-generation fluorescent nanodiamond for biological quantum sensing. **M.D. Torelli**, N.A. Nunn, A. Marek, O.A. Shenderova

11:30 . Enabling wet scanning electron microscopy of therapeutic suspension using vacuum-compatible liquid capsules. **Y. Zhang**

11:50 Closing Remarks.