

# ACS Division of Colloid and Surface Chemistry (COLL)

## Virtual Technical Program

March 22-24, 2020

(All listed times are U.S. Eastern Daylight Time, EDT)

| Symposium  | Sun AM | Sun PM | Sun Eve | Mon AM | Mon PM | Tue AM | Tue PM |
|--|--------|--------|---------|--------|--------|--------|--------|
| Acoustically-Active Colloids for Imaging & Therapy                               |        |        |         |        |        | X      | X      |
| Amphiphilic Per- & Poly-fluoroalkyl Substances: Solution & Interfacial Phenomena | X      |        |         |        |        |        |        |
| Bacterial Interactions with Soft Materials                                       |        |        |         |        | X      | X      | X      |
| Basic Research in Colloids, Surfactants and Interfaces                           | X      |        |         | X      |        |        |        |
| Bioconjugation of Colloids   |        |        |         | X      |        |        |        |
| Biomaterials & Biointerfaces   |        |        |         |        |        | X      | X      |
| Biomembrane Synthesis, Structure, Mechanics & Dynamics                           |        |        | X       | X      | X      | X      | X      |
| Colloidal Nanoparticle Synthesis & Assembly                                      | X      |        |         |        |        |        |        |
| Nanomaterials  |        |        | X       | X      | X      |        |        |
| Semiconductor Surfaces: From Chemistry and Function to Applications              | X      | X      |         |        |        |        |        |
| Surface Chemistry  |        |        |         | X      |        |        |        |

|               |         |         |          |          |         |         |         |
|---------------|---------|---------|----------|----------|---------|---------|---------|
| EDT           | 8 AM    | 10 AM   | 1 PM     | 3 PM     | 5 PM    | 7 PM    | 9 PM    |
| Mountain Time | 6 AM    | 8 AM    | 11 AM    | 1 PM     | 3 PM    | 5 PM    | 7 PM    |
| Pacific Time  | 5 AM    | 7 AM    | 10 PM    | 12 Noon  | 2 PM    | 4 PM    | 6 PM    |
| London        | 12 Noon | 2 PM    | 5 PM     | 7 PM     | 9 PM    | 11 PM   | 1 AM    |
| Tokyo         | 9 PM    | 11 PM   | 2 AM     | 4 AM     | 6 AM    | 8 AM    | 10 AM   |
| Seoul         | 9 PM    | 11 PM   | 2 AM     | 4 AM     | 6 AM    | 8 AM    | 10 AM   |
| Hong Kong     | 8 PM    | 10 PM   | 1 AM     | 3 AM     | 5 AM    | 7 AM    | 9 AM    |
| India         | 5:30 PM | 7:30 PM | 10:30 PM | 12:30 AM | 2:30 AM | 4:30 AM | 6:30 AM |

## Acoustically-Active Colloids for Imaging & Therapy (Session 1)

Kharlampieva, Eugenia; Chattaraj, Rajarshi (Presiding), ekharlam@uab.edu; rajarshi.chattaraj@colorado.edu

### Tuesday

8:00 AM--20--647--Li, Kai--lik@sustech.edu.cn--Southern University of Science and Technology--Organic nanoprobes for photoacoustic imaging in biomedical applications

8:20 AM--30--923--Kwan, James--jameskwan@ntu.edu.sg--Nanyang Technological University--Multi-cavity polymer particles for ultrasound-enhanced contrast and drug delivery

8:50 AM--20--828--Chattaraj, Rajarshi--rajarshi.chattaraj@colorado.edu--University of Pennsylvania--Echogenic xenon microbubbles for ultrasound-mediated theranostic applications

9:10 AM--30--823--Kharlampieva, Eugenia--ekharlam@uab.edu--University of Alabama at Birmingham--Ultrasound-active theranostic microcapsules for imaging guided chemotherapy

9:40 AM--30--824--Bayer, Carolyn--carolynb@tulane.edu--Tulane University--Imaging the laser-triggered release of therapies from nanodroplets for the treatment of preeclampsia

10:10 AM--20--921--de Gracia Lux, Caroline--Caroline.Lux@UTSouthwestern.edu--UT Southwestern Medical Center--Direct emulsification of low boiling point perfluorocarbons nanodroplets with improved properties

10:30 AM--20--922--Brambila, Carlos--carlos.brambila@utsouthwestern.edu--University of Texas Southwestern Medical Center; University of Texas Southwestern Medical Center--Controlled microbubble inflation and drug release using perfluorocarbon nanodroplets

10:50 AM--30--646--Emelianov, Stanislav--stas@gatech.edu--Georgia Institute of Technology; Emory University--Optically modulatable contrast agents for background-free photoacoustic and ultrasound imaging

## Acoustically-Active Colloids for Imaging & Therapy (Session 2)

Jokerst, Jesse (Presiding), jjokerst@ucsd.edu

### Tuesday

2:00 PM--20--731--Goodwin, Andrew--andrew.goodwin@colorado.edu--Univ Colorado Boulder--Design of a "nanoscale boiling chip": Science behind and applications of functionalized mesoporous silica nanoparticles for acoustic cavitation and nanoparticle propulsion

2:20 PM--30--920--Lee, Daeyeon--daeyeon@seas.upenn.edu--University of Penn--Recombinant protein-stabilized microbubbles prepared using microfluidics for theranostic applications

2:50 PM--20--732--Chen, Fang--fachen@eng.ucsd.edu--Stanford University--Acoustically active multifunctional nanomaterials improving stem cells therapy efficacy in myocardial infarcted mice

3:10 PM--20--733--Yildirim, Adem--yildirim@ohsu.edu--Oregon Health and Science University--Surface engineering of mesoporous silica nanoparticles to create highly echogenic nanoscale ultrasound contrast agents

3:30 PM--20--737--Movafaghi, Sanli--sanli.movafaghi@gmail.com--University of Colorado Boulder--Intravenous immunoglobulin aggregation induced by cavitation resulting from mechanical shock: Effect of surface wettability

3:50 PM--20--919--Ibsen, Carolyn Schutt--carolyn.schutt@gmail.com--Oregon Health and Science University--Ultrasound-responsive biomaterials for optical tumor characterization and tissue engineering applications

4:10 PM--20--644--Jokerst, Jesse--jjokerst@ucsd.edu--UC San Diego--Photoacoustically active colloids for medical imaging

## **Amphiphilic Per- & Poly-fluoroalkyl Substances: Solution & Interfacial Phenomena**

Alexandridis, Paschalis; Tsianou, Marina (Presiding), palexand@buffalo.edu; mtsianou@buffalo.edu

### **Sunday**

8:30 AM--30--56--Krafft, Marie-Pierre--krafft@unistra.fr--INSTITUT CHARLES SADRON CNRS--Efficient trapping of fluorinated therapeutics at the air/water interface using fluorous interactions: Implications for medical microbubble design

9:00 AM--20--58--Alexandridis, Paschalis--palexand@buffalo.edu--SUNY Buffalo--Perfluorinated surfactant micelle formation and structure in aqueous media

9:20 AM--20--59--Dong, Dengpan--dengpan.dong@utah.edu--University of Utah--Influence of Co-solvents on the structure of perfluorooctanoic acid micelles in water: Molecular dynamics simulation study

9:40 AM--30--63--Dichtel, William--wdichtel@northwestern.edu--Northwestern University--Novel cyclodextrin-based adsorbents to remove per- and polyfluorinated alkyl substances from water

10:10 AM--30--62--Snow, Arthur--arthur.snow.ctr@nrl.navy.mil--Naval Research Laboratory--Fuel for firefighting foam evaluations: Gasoline vs heptane

## **Bacterial Interactions with Soft Materials (Session 1)**

Santore, Maria; Lee, Daeyeon; Bendejacq, Denis (Presiding), santore@mail.pse.umass.edu; daeyeon@seas.upenn.edu; denis.bendejacq@solvay.com

### **Monday**

1:00 PM--20--714--Mefford, Olin--mefford@clemson.edu--Clemson University--Glycoconjugate-functionalized magnetic nanoparticles: Tool for selective killing of targeted bacteria via magnetically hyperthermia

1:20 PM--30--715--Burel, Celine--celine.burel@solvay.com--Solvay--Bacterial interactions with quaternary ammonium surfactants

1:50 PM--20--716--Heedy, Sara--sheedy@uci.edu--University of California Irvine--Towards an antimicrobial flexible nanopillar hydrogel film with tunable stiffness

2:10 PM--30--718--Ren, Dacheng--dren@syr.edu--Syracuse University--Rational design of anti-fouling surfaces to control bacterial biofilms

2:40 PM--30--719--Abbott, Nicholas--nabbott@cornell.edu--Cornell University--Interactions of motile bacteria with interfaces of liquid crystals

## **Bacterial Interactions with Soft Materials (Session 2)**

Santore, Maria; Lee, Daeyeon; Bendejacq, Denis (Presiding), santore@mail.pse.umass.edu; daeyeon@seas.upenn.edu; denis.bendejacq@solvay.com

### **Tuesday**

8:30 AM—30—811--Poon, Wilson--W.Poon@ed.ac.uk--University of Edinburgh--Bacteria as living patchy colloids: Phenotypic heterogeneity in surface adhesion

9:00 AM—20—607--Machado, Mary--mary\_machado@brown.edu--brown university--Response of marine bacteria to microplastics

9:20 AM—20—805--Shave, Molly--mkshave@gmail.com--UMass Amherst--Swimming behavior of bacteria increases number and duration of bacterial-surface engagements

9:40 AM—20—806--Deng, Jiayi--denjiayi@seas.upenn.edu--University of Pennsylvania--Gallery of trajectories for motile bacteria at fluid interfaces

10:00 AM—30—810--phillips, Kenneth--Kenneth.Phillips@fda.hhs.gov--US Food and Drug Administration--Bacterial interactions with soft medical device materials

10:30 AM—30—605--Conrad, Jacinta--jconrad@uh.edu--University of Houston--Adhesion of bacteria at surfactant-decorated oil/water interfaces

11:00 AM—20—812--Cavitt, Thomas--tbcavitt@lipscomb.edu--Lipscomb University--Surface energy analyses to inform the inhibition of biofilm formation

### **Bacterial Interactions with Soft Materials (Session 3)**

Santore, Maria; Lee, Daeyeon; Bendejacq, Denis (Presiding), santore@mail.pse.umass.edu; daeyeon@seas.upenn.edu; denis.bendejacq@solvay.com

#### **Tuesday**

1:00 PM—20—900--Shave, Molly--mkshave@gmail.com--University of Pennsylvania--High(er) throughput screening for the design and testing of antifouling surfaces

1:20 PM—30—901--Niepa, Tagbo--tniepa@pitt.edu--University of Pittsburgh; University of Pittsburgh--Nanocultures: Controlled microbial communities in sessile drops

1:50 PM—20—902--Datta, Sujit--ssdatta@princeton.edu--Princeton University--Migration of bacteria in disordered media

2:10 PM—20—906--Molaei, Mehdi--mmolaei@seas.upenn.edu--University of Pennsylvania--Spatio-temporal evolution of micromechanics of pathogenic biofilms

2:30 PM—20—136--Das, Sambeeta--samdas@udel.edu--University of Delaware--Micromotors for temporal control of signaling in bacterial cells

### **Basic Research in Colloids, Surfactants and Interfaces (Session 1)**

Wirth, Christopher; Mohler, Carol (Presiding), chris.l.wirth@gmail.com; cemohler@dow.com

#### **Sunday**

8:00 AM--20--143--Sakuragi, Mina--d08b0101@nano.sojo-u.ac.jp--Sojo university--Penetration mechanism through the stratum corneum depending on the structure of microemulsions

8:20 AM--20--44--Fairhurst, David--colloidman@atlanticbb.net--Colloid Consultants Ltd--NMR relaxation, powder wettability and Hansen solubility parameters applied to colloidal materials

8:40 AM--20--48--Gerios, Veronica--vgerios@umich.edu--University of Michigan-Dearborn--Generation of anisotropic gold and gold-palladium bimetallic nanoparticles on functionalized surfaces

9:00 AM--20--49--Di Vitantonio, Giuseppe--giusd@seas.upenn.edu--university of pennsylvania--Stabilization of STRIPs bijels with mixtures of hydrophilic and hydrophobic nanoparticles--

9:20 AM--20--50--Wirth, Christopher--chris.l.wirth@gmail.com--Cleveland State University; Case Western Reserve University--Influence of nanoparticles on the dynamics and clustering of active colloids proximate to a boundary

9:40 AM--20--51--Wang, Tiancheng--wtianc@seas.upenn.edu--University of Pennsylvania--Three dimensional multiphasic structures via vaporization induced phase separation (VIPs)

10:00 AM--20--884--Patel, Hasmukh--hasmukh.patel@AramcoAmericas.com--Aramco Services Company: Aramco Research Center – Houston--Application of colloidal functionalized layered silicates in drilling fluids

10:20 AM--20--140--Choi, Saehyun--saehyunchoi91@gmail.com--Pennsylvania State University Main Campus--Characterization of oligo-peptide/nucleotide-based coacervates in various pH and salt concentration

10:40 AM--20--142--Crowe, Charles--cdc217@psu.edu--Penn State University--Microfluidic production of biomimetic water-in-oil emulsion droplets utilizing aqueous phase separation

## Basic Research in Colloids, Surfactants and Interfaces (Session 2)

Franck, John; Habdas, Piotr (Presiding), jmfranck@syr.edu; phabdas@sju.edu

### Monday

8:00 AM--20--709--Nasser, Mustafa--m.nasser@qu.edu.qa--Qatar University--Influence of polyelectrolyte architecture on the electro-kinetics and dewaterability of industrial MBR activated sludge

8:20 AM--20--639--Murdoch, Timothy--tmurdoch@seas.upenn.edu--University of Pennsylvania--Molecular mechanisms of complex boundary lubrication behavior for multifunctional associative polymer viscosity modifiers

8:40 AM--20--703--Franck, John--jmfranck@syr.edu--Syracuse University--Magnetic single- and dual-resonant relaxometry to probe the dynamics of water molecules under confinement

9:00 AM--20--706--Habdas, Piotr--phabdas@sju.edu--Saint Joseph's University--Single particle motion in dilute colloidal suspensions

9:20 AM--20--881--Wagner, Norman--wagnernj@udel.edu--University of Delaware--Gelation in colloidal suspensions of rod-like particles of low to moderate aspect ratio

9:40 AM--20--885--Luo, Yimin--yiminluo@udel.edu--University of Delaware--Unifying framework for testing frictional contact model and shear thickening in industrially relevant systems

10:00 AM--20--911--Tsianou, Marina--mtsianou@buffalo.edu--UB-SUNY--Surfactant-polymer association modulated by hydrophobicity of surfactant, polymer, or aqueous solvent

10:20 AM--20--888--Nasser, Mustafa--m.nasser@qu.edu.qa--Qatar University--Enhancement of flocculation and dewaterability of MBR activated sludge using a hybrid system

## Bioconjugation of Colloids

Parak, Wolfgang; Feliu, Neus (presiding), wolfgang.parak@uni-hamburg.de; neus.feliu@physnet.uni-hamburg.de

### Monday

8:00 AM--10--171--Mulvaney, Paul--mulvaney@unimelb.edu.au--University of Melbourne--Lateral flow assays with CdSe nanocrystals

8:10 AM--10--474--Parak, Wolfgang--wolfgang.parak@uni-hamburg.de--Universitaet Hamburg; CIC Biomagune--Bioconjugation of nanoparticles with controlled ligand density

8:20 AM--10--471--Feliu, Neus--neus.feliu@physnet.uni-hamburg.de--Universitaet Hamburg--Biodegradation of bi-labelled polymer-coated rare-earth nanoparticles in adherent cell cultures

8:30 AM--10--473--Reimhult, Erik--erik.reimhult@gmail.com--University of Natual Resources and Life Sciences--Polymer brush topology and core size control formation of protein corona and functionalized nanoparticle avidity

8:40 AM--10--554--Reinhard, Bjorn--bmr@bu.edu--Boston University--Membrane wrapped plasmonic nanoparticles quantify cell surface receptor clustering and reveal lipid-mediated intracellular fates

8:50 AM--10--88--Hamad-Schifferli, Kimberly--kim.hamad@umb.edu--University of Massachusetts Boston; University of Massachusetts Boston--Nanoparticle-biomolecule interface in paper based immunoassays and rapid diagnostics

9:00 AM--10--552--Gregory, Jason--jvgregor@umich.edu--University of Michigan; University of Michigan--Antibody-targeted protein nanoparticles: Selective activation of the antioxidant

9:10 AM--10--83--Mattoussi, Hedi--mattoussi@chem.fsu.edu--Florida State University--Dual-function of lipoic acid groups as surface anchors and sulfhydryl reactive sites on polymer-

9:20 AM--10--174--Kotov, Nicholas--kotov@umich.edu--University of Michigan--Self-Assembly of biomimetic nanoparticles with amyloid peptides

9:30 AM--10--548--Ilies, Marc--mailies@temple.edu--Temple University School of Pharmacy--Carbonic anhydrase inhibitors-conjugated colloidal systems for doxorubicin delivery to hypoxic tumors

9:40 AM--10--556--Cohen, Bruce--becohen@lbl.gov--LBNL--SNAP, click, and catch: New strategies for nanocrystal bioconjugation

## **Biomaterials & Biointerfaces (Session 1)**

Schiffman, Jessica; Kaar, Joel (Presiding), schiffman@ecs.umass.edu; Joel.Kaar@colorado.edu

### **Tuesday**

9:00 AM--20--624--Markle, Jordyn--markjo04@gettysburg.edu--Gettysburg College--Interaction of PrP(106-126) with model cell membranes

9:20 AM--20--627--Kipper, Matt--mkipper@engr.colostate.edu--Colorado State University--Optimizing blood-compatible materials: Protein interactions with nanostructured and polymer brush surfaces

9:40 AM--20--740--Tsianou, Marina--mtsianou@buffalo.edu--UB-SUNY--Organic matrix-mediated growth and control of a pathologic biomineral

10:00 AM--20--741--Gerdon, Aren--gerdoar@emmanuel.edu--Emmanuel College--Selected DNA aptamers as mineralization templates and affinity reagents for calcium biomaterials

10:20 AM--20--745--Wiemann, Jared--jwiemann@iu.edu--Indiana University--Disruption of lipid vesicles induced by amphiphilic Janus particles

10:40 AM--20--831--Mefford, Olin--mefford@clemson.edu--Clemson Univ--Using heparin-coated magnetic nanoparticles to treat neointimal hyperplasia

11:00 AM--20--833--Li, Wenqian--li482@iu.edu--Indiana University Bloomington--Super-resolution imaging of nanoscale chemical heterogeneity on zymosan particles

## **Biomaterials & Biointerfaces (Session 2)**

Schiffman, Jessica; Kaar, Joel (Presiding), schiffman@ecs.umass.edu; Joel.Kaar@colorado.edu

### **Tuesday**

2:00 PM--20--834--Gregory, Jason--jvgregor@umich.edu--University of Michigan; University of Michigan--Blood-brain barrier penetrating nanoparticle delivery of siRNA for glioblastoma multiforme-

2:20 PM--20--835--Angsantikul, Pavimol--angsantikul@g.harvard.edu--Harvard University--Ionic liquids for oral monoclonal antibody delivery

2:40 PM--20--925--Whitener, Keith--keith.whitener@gmail.com--U. S. Naval Research Laboratory--Simple construction of electronic structures and their transfer to biological substrates using graphene oxide and commercial off-the-shelf inkjet printing

3:00 PM--20--927--Sadler, Kaitlyn--kaitlyn.sadler@nih.gov--National Institutes of Health--Molecular mechanisms of the foreign body response: From scars on our skin to the foreign body capsule

3:20 PM--20--929--Fountain, Julia--julia.fountain@tufts.edu--Tufts University--Fabrication of silk fibroin with tunable hydrophobicity

3:40 PM--20--930--Gopalakrishnan, Sanjana--sgopalakrish@chem.umass.edu--University of Massachusetts Amherst--Fabrication of protein-based coatings for biomaterial applications

## **Biomembrane Synthesis, Structure, Mechanics & Dynamics (Session 1)**

Muralidharan, Subra (Presiding), subra.murali@ucdavis.edu

### **Sunday**

8:00 PM--30--487--Fan, Jun--junfan@cityu.edu.hk--City University of Hong Kong--Molecular insight into the potential cytotoxicity of hydrophobic nanosheets

8:30 PM--30--572--Morigaki, Kenichi--morigaki@port.kobe-u.ac.jp--Kobe University--Hybrid photosynthetic system of natural plant thylakoids and synthetic lipids reconstituted into a supported microscale membrane array

9:00 PM--30--566--Tero, Ryugo--tero@tut.jp--Toyohashi University of Technology--Tethered-type lipid bilayer membranes on graphene oxide

9:30 PM--30--850--Goh, Melvin--melvinshern@gmail.com--Toyohashi University of Technology--Observation of cell-free synthesized ion channel molecules in artificial lipid bilayer by atomic force microscopy

## **Biomembrane Synthesis, Structure, Mechanics & Dynamics (Session 2)**

Nieh, Mu-Ping (Presiding), mu-ping.nieh@uconn.edu

### **Monday**

10:00 AM--30--9--Lavrentovich, Maxim--mlavrent@utk.edu--University of Tennessee, Knoxville--Modulated phases on spherical membranes and in strongly-driven systems--

10:30 AM--30--489--Columbus, Linda--columbus@virginia.edu--University of Virginia--Physical properties of membranes and membrane mimics: Potential impact on membrane protein structure

11:00 AM--30--573--Nickels, Jonathan--jonathan.nickels@uc.edu--University of Cincinnati--Systemic effects of engineering the cell membrane composition in *Bacillus subtilis*

11:30 AM--30--490--Lyon, Angeline--lyon5@purdue.edu--Purdue University--Regulation of phospholipase C $\beta$  activity at the membrane

12:00 PM--30--756--Shih, Kuo-Chih--juicesh1230@gmail.com--University of Connecticut--Unusual complete unbinding of single-tail tethered lipids

12:30 PM--30--494--Nieh, Mu-Ping--mu-ping.nieh@uconn.edu--University of Connecticut; University of Connecticut; University of Connecticut--Efficacious bicelle/PNA nanodisc for antisense

### **Biomembrane Synthesis, Structure, Mechanics & Dynamics (Session 3)**

Longo, Margie (Presiding), mllongo@ucdavis.edu

#### **Monday**

2:00 PM--30--411--Trache, Andreea--trache@tamu.edu--Texas AM Health Science Center; Texas A&M University--Loss of smooth muscle alpha-actin impairs cellular mechanosensing

2:30 PM--30--98--Tristram-Nagle, Stephanie--stn@cmu.edu--Carnegie Mellon University--Elastic and structural interactions of eCAPs WLBU2 and D8 with bacterial lipid membrane mimics

3:00 PM--30--408--Biteen, Julie--jsbiteen@umich.edu--University of Michigan--Single-molecule imaging of cells detecting nutrients in their local environment

3:30 PM--30--486--Santore, Maria--santore@mail.pse.umass.edu--University of Massachusetts--Principles of tension- and curvature-controlled solid domain interactions on vesicle membranes: From biomolecular constructs to responsive materials

4:00 PM--30--100--Hristova, Kalina--kh@jhu.edu--Johns Hopkins Univ--The use of peptides for cargo transport across biological barriers

4:30 PM--30--97--Leonard, Alison--aleon@udel.edu--University of Delaware--Lipid chain entropy and exchange in the vicinity of G-protein coupled receptors

5:00 PM--30--104--Hinderliter, Anne--ahinderl@d.umn.edu--University of Minnesota Duluth--Domains of synaptotagmin 1 are structurally disordered, coupled and are allosterically modulated by synaptic vesicle lipids: Each modulates the calcium ion sensing capabilities of synaptotagmin 1

### **Biomembrane Synthesis, Structure, Mechanics & Dynamics (Session 4)**

Katsaras, John (Presiding), katsarasj@ornl.gov

#### **Tuesday**

10:00 AM--30--663--Wilke, Natalia--wilke@fcq.unc.edu.ar--CIQUIBIC--Interaction of a polyarginine peptide with membranes of different mechanical properties

10:30 AM--30--857--Fang, Justin--justin.fang@uconn.edu--University of Connecticut--Mn doped ZnSe/ZnS quantum dot (QD) species show increased fluorescence emission when encapsulated in a lipid bilayer bicelles



11:00 AM--30--762--Salaita, Khalid--k.salaita@emory.edu--Emory University--DNA mechanotechnology shows that integrin receptors apply pN forces in podosomes formed on supported lipid membranes

11:30 AM--30--757--Collier, Charles--colliercp@ornl.gov--Oak Ridge National Laboratory--Memory and learning in biomolecular soft materials

12:00 PM--30--105--Sodt, Alexander--alexander.sodt@nih.gov--National Institutes of Health--Molecular modeling of lipid-lipid interactions coupling to curvature: Cholesterol and gangliosides

12:30 PM--30--493--Gawrisch, Klaus--klausg@mail.nih.gov--NIAAA, NIH--Mechanism of cholesterol-induced shifts of GPCR activation

1:00 PM--30--860--Baral, Swapnil--swapnil@udel.edu--University of Delaware--Solvent-dependent relaxation of PRODAN: Quantitative simulation and ultrafast spectroscopy

## **Biomembrane Synthesis, Structure, Mechanics & Dynamics (Session 5)**

Muralidharan, Subra (Presiding), subra.murali@ucdavis.edu

### **Tuesday**

2:00 PM--30--11--Walker, Robert--rawalker@montana.edu--Montana State University--Cooperative adsorption: Environmental and biological consequences of organic

2:30 PM--30--853--Duncan, Katelyn--katelynduncan@montana.edu--Montana State University--Quantitative membrane partitioning studies of ecologically relevant synthetic organic molecules

3:00 PM--30--16--Paxton, Walter--wally.paxton@gmail.com--Brigham Young University--Supported biomimetic hybrid bilayers: pH-mediated interactions between glass and lipid-polymer vesicles

3:30 PM--30--413--Malmstadt, Noah--malmstad@usc.edu--USC--Nanoplastic interactions with biomembranes: Effects of surface charge and protein corona passivation

4:00 PM--30--407--Longo, Marjorie--mllongo@ucdavis.edu--Univ of California--Lipid/protein nano-assemblies entrapped within mesoporous gels

4:30 PM--30--858--Liu, Zhongrui--zhrlu@ucdavis.edu--University of California, Davis--Entropic forces mediate topological division and shape instabilities in membrane compartments

5:00 PM--30--855--Sambre, Pallavi--pdsambre@ucdavis.edu--University of California Davis--Myelin figures under stress: Complex morphologies and dynamic instabilities

## **Colloidal Nanoparticle Synthesis & Assembly**

Fan, Hongyou (Presiding), hfan@sandia.gov

### **Sunday**

8:00 AM--30--506--Hyeon, Taeghwan--thyeon@snu.ac.kr--Seoul National University; Institute for Basic Science (IBS)--Designed synthesis and assembly of inorganic nanomaterials for medical applications

8:30 AM--30--871--Goswami, Debabrata--dgoswami@iitk.ac.in--Indian Institute of Technology Kanpur--Femtosecond optical tweezers for in situ tracking of optically directed self-assembly of nanoclusters

9:00 AM--30--428--Kotov, Nicholas--kotov@umich.edu--University of Michigan--New developments in chiral inorganic nanostructures

9:30 AM--30--29--Wang, Wei--wei.wang@aramcoservices.com--Ocean University of China; Aramco Services Company: Aramco Research Center-Boston--Fabrication of intelligent colloidal photonic crystal hydrogels for sensing trace metal in seawater

10:00 AM--30--507--Hollingsworth, Jennifer--jenn@lanl.gov--Los Alamos National Laboratory--Directly correlating synthesis parameters with nanostructure and optical properties in advanced colloidal quantum dots

10:30 AM--30--508--Zhang, Xin--xin.zhang@pnnl.gov--Pacific Northwest National Laboratory--Cluster assembly pathways to gibbsite nucleation and crystal growth

11:00 AM--30--118--Abbott, Nicholas--nabbott@cornell.edu--Cornell University--Light-triggered changes in the solvation and interactions of metallic nanoparticles

## Nanomaterials (Session 1)

McBride, James (presiding), james.r.mcbride@vanderbilt.edu

### Sunday

8:00 PM—30—423--Hyeon, Taeghwan--thyeon@snu.ac.kr--Seoul National University; Institute for Basic Science (IBS)--Designing inorganic nanomaterials for energy applications

8:30 PM—30—581--Park, Jungwon--jungwonpark@snu.ac.kr--Seoul National University--Non-classical growth mechanism of nanoparticles resolved by liquid phase TEM

9:00 PM—30—582--Jeong, Sohee--s.jeong@skku.edu--Sungkyunkwan University--Unraveling the energy landscape of tetrahedral InP nanocrystals

## Nanomaterials (Session 2)

McBride, James (Presiding), james.r.mcbride@vanderbilt.edu

### Monday

11:00 AM—30—23--Discher, Dennis--discher@seas.upenn.edu--Univ of Pennsylvania--Soluble, multi-valent nano-self peptides increase phagocytosis of antibody-opsonized targets

11:30 AM—30—24--Sullivan, Millicent--msullivan@udel.edu--University of Delaware--Peptide engineering for targeted, intracellular delivery of siRNA and proteins

12:00 PM—30—421--Dukovic, Gordana--gordana.dukovic@colorado.edu--University of Colorado Boulder--Elucidating how photoexcited semiconductor nanocrystals drive redox enzyme catalysis

12:30 PM—30—422--Cotlet, Mircea--cotlet@bnl.gov--Brookhaven National Laboratory--Nanoscale photoinduced charge transfer with individual quantum dots: Tunability through synthesis, interface design, and interaction with charge traps

1:00 PM—30—107--Beard, Matt--matt.beard@nrel.gov--National Renewable Energy Lab--Controlling the optical and electronic properties of colloidal quantum dots using surface ligand chemistry

1:30 PM—30—583--Skrabalak, Sara--sskrabal@indiana.edu--Indiana University--Galvanic replacement with chemically heterogeneous templates

## Nanomaterials (Session 3)

Hollingsworth, Jennifer A. (Presiding), jenn@lanl.gov

### Monday

3:30 PM—20—108--Cohen, Bruce--becohen@lbl.gov--LBNL--Making nanoparticles more efficient than bulk: Lessons from upconversion

3:50 PM—20—109--McBride, James--james.r.mcbride@vanderbilt.edu--Vanderbilt University--Revealing the impact of shell composition and defects on colloidal quantum dot performance

4:10 PM—20—112--Dolgoplova, Ekaterina--dolgoplova.e.a@gmail.com--Los Alamos National Laboratory--Alternative plasmonic nanomaterials as building blocks for purcell-enhanced emission in the infrared

4:30 PM—20—113--Fafarman, Aaron--fafarman@drexel.edu--Drexel University--Dimensional confinement to control perovskite crystallographic phase

4:50 PM—20—864--Miller, Jennifer--jrmiller575@gmail.com--Penn State University--Electric field-directed particle-based reconfigurable scattering masks for lensless imaging

5:10 PM—20—675--Fathi, Parinaz--pfathi2@illinois.edu--University of Illinois--Enzymatically and photolytically inter-switchable carbon dots with near-infrared fluorescence emission

5:30 PM—20—670--Guo, Ting--tguo@ucdavis.edu--Univ of California--New nanostructures for X-ray nanochemistry

5:50 PM—20—580--Gentle, Cecilia--gentle2@illinois.edu--University of Illinois at Urbana-Champaign--Deciphering the hidden complexity of heterostructured nanocrystals

6:10 PM—20—579--Schimpf, Alina--aschimpf@ucsd.edu--University of California San Diego--Colloidal synthesis of phase-tunable transition metal dichalcogenide nanocrystals

6:30 PM—20—498--Bruefach, Alexandra--alexbruefach@gmail.com--UC Berkeley; Lawrence Berkeley National Laboratory--High resolution electron microscopy imaging of metallic helical nanowires

## Semiconductor Surfaces: From Chemistry and Function to Applications (Session 1)

Schofield, Steven; Teplyakov, Andrew (Presiding), s.schofield@ucl.ac.uk; andrewt@udel.edu

### Sunday

8:30 AM--30--462--Stock, Taylor--t.stock@ucl.ac.uk--University College London--Atomistic arsine-silicon surface chemistry studies for atomic-scale semiconductor device fabrication

9:00 AM--30--463--Lin, Dongsung--dongsunglin@gmail.com--National Tsing Hua University--Atomically precise control and understanding of each dissociative adsorption event of multiatomic molecules on single, paired, and arrays of reactive sites on the Si(100) surface

9:30 AM--30--74--Guo, Si Yue--sguo@chem.utoronto.ca--University of Toronto--Electron-attachment gives unidirectional in-plane molecular rotation of para-chlorostyrene on Si(100)

10:15 AM--30--468--Schofield, Steven--s.schofield@ucl.ac.uk--University College London--Hydrogenic states in silicon and black phosphorus

10:45 AM--30--163--Durr, Michael--michael.duerr@ap.physik.uni-giessen.de--Justus Liebig University Giessen; Philipps University Marburg--Semiconductor surface chemistry beyond thermal activation: Surface reactions on Si(001) controlled by electronic and vibrational excitation

11:15 AM--30--167--Tonner, Ralf--tonner@chemie.uni-marburg.de--University of Marburg--One, two, many: From mono- and bifunctional molecules to multilayer structures on semiconductor surfaces by electronic structure theory

## **Semiconductor Surfaces: From Chemistry and Function to Applications (Session 2)**

Schofield, Steven; Tplyakov, Andrew (Presiding), s.schofield@ucl.ac.uk; andrewt@udel.edu

### **Sunday**

1:30 PM--30--162--Bent, Stacey--sbent@stanford.edu--Dept of Chem Eng--Semiconductor surface functionalization: From self-assembly to photoinitiated film growth--

2:00 PM--30--165--Hamers, Robert--rjhamers@wisc.edu--Univ of Wisconsin--Versatile, scalable monolayer functionalization of carbon-based materials by radical-initiated grafting

2:30 PM--30--166--Opila, Robert--opila@udel.edu--Univ Delaware Dept MAT SCI--Physical passivation of silicon surfaces

3:00 PM--30--546--Rahman, Talat--talat.rahman@ucf.edu--Dept of Physics Univ Cen Flor--Activating single-layer MoS<sub>2</sub> for conversion of syn gas to higher alcohols: Insights from theory

3:45 PM--30--616--Walker, Amy--amy.walker@utdallas.edu--University of Texas at Dallas--Building a new materials toolkit: Using surface chemistry to direct the morphology and deposition of thin films and nanoobjects

4:15 PM--30--617--Tait, Steven--tait@indiana.edu--Indiana University--Monolayer assembly, film morphology, and charge transport of organic semiconductor layers and films

4:45 PM--30--615--Tplyakov, Andrew--andrewt@udel.edu--University of Delaware--Novel approaches to form organic-inorganic interfaces on metal oxides: Controlling reactivity, concentration of functional groups, and substrate morphology

### **Surface Chemistry**

Tait, Steven (Presiding), tait@indiana.edu

### **Monday**

8:00 AM--20--793--Chakraborty, Dipayan--dipayanbond@gmail.com--Indian Institute of Technology Kharagpur--Molecular investigation of the three phase contact line friction of electrowetted nanodroplets

8:20 AM--20--787--Cavitt, Thomas--tbcavitt@lipscomb.edu--Lipscomb University--Diversifying solvent selection for thermodynamic surface energy analyses

8:40 AM--20--788--Zamfir, Serban--zamfirsg@vcu.edu--Virginia Commonwealth University--Molecular polarizability in open ensemble simulations of aqueous nanoconfinements under electric field

9:00 AM--20--791--Burgo, Thiago--burgounicamp@gmail.com--Federal University of Santa Maria--Spontaneous mosaic of charges and high potential gradients on dielectric surfaces formed by evaporating liquid drops

9:20 AM--20--794--Wu, Yuhao--yuhao.wu@temple.edu--Temple University--Molecular surface bulk equilibrium in aerosols

9:40 AM--20--41--Tait, Steven--tait@indiana.edu--Indiana University--Multi-electron reduction capacity and complexity in metal-organic redox assembly at surfaces