



University of Florida Research & Engineering Education Facility (REEF)  
1350 Poquito Rd N | Shalimar, FL 32579

### Agenda Day 1 | Tuesday, December 5, 2023

Time	Title	Speaker
7:45	Check-in / Login	
8:00-8:15	Welcome and Overview	Bennett Ibey Program Officer
8:15-8:45	Optimizing acoustic camouflage through characterization and biomimicry of moth scales	Matthew Shawkey, Universiteit Gent
8:45-9:15	Revealing the design principles of combined pigmentary and structural coloration in a dynamic color patterning system	Roger Hanlon, The Marine Biological Laboratory
9:15-9:45	Shear-responsive colloidal coatings using biomembrane-derived interfaces	Sho Takatori, University of California, Santa Barbara
9:45-10:15	Phonon Propagation in Biological Structures and Implications on Phononic Tunability of Synthetic Materials	Horacio Espinosa, Northwestern University
10:15-10:30	BREAK	
10:30-11:00	Self-assembled Archaela Swimmers for Nanoscale Actuation and Sensing	Jamel Ali, Florida A & M University
11:00-11:30	Engineering Silk-based Materials into "Living"	Raymond Tu, RF CUNY - City College
11:30-12:00	Avian Eggshell: Engineering and Evolution of a Remarkable Multifunctional Material	Ling Li Virginia Tech
12:00-1:30	LUNCH	
1:30-2:00	Living Plastics for Extreme Environments	David Kaplan, Tufts
2:00-2:30	Biological CO2 Recycling for Long-Term Space Exploration	Ahmed Badran, <b>(VIRTUAL)</b> Scripps Research Institute
2:30-3:00	Inspiration from fungi - Generating tuneable mycelial networks for directed assembly	Carole Perry, Nottingham Trent University
3:00-3:15	BREAK	
3:15-3:45	Novel Microbial Chemolithotrophy in Hot, Acidic Biotopes	Robert Kelly, North Carolina State University

<b>3:45-4:15</b>	Proto-organelles for Biomineralization	Abigail Knight, University Of North Carolina At Chapel Hill
<b>4:15-4:45</b>	Enhanced cell tolerance and survival in extreme environments: elucidating the role of archaeal molecular chaperones	Douglas Clark, <b>(Virtual)</b> University of California, Berkeley
	<b>MEETING ADJOURN</b>	

<b>Agenda Day 2   Wednesday, December 6, 2023</b>		
<b>Time</b>	<b>Title</b>	<b>Speaker</b>
<b>8:00-8:15</b>	<b>Check-in / Login</b>	
<b>8:15-8:45</b>	DNA-Programmed Assembly of Hierarchical Mesoporous Materials	Robert Macfarlane, Massachusetts Institute of Technology
<b>8:45-9:15</b>	Closed and Open Architecture Colloidal Crystals with Properties by Design	Chad Mirkin, Northwestern University
<b>9:15-9:45</b>	Design and real-time characterization of topologically active DNA-based materials	Rae Robertson-Anderson, University Of San Diego
<b>9:45-10:15</b>	Expanding the toolbox of DNA nanotechnology: silver-mediated DNA base pairing	Stacy Copp, University of California Irvine
<b>10:15-10:30</b>	<b>BREAK</b>	
<b>10:30-11:00</b>	3D Nano-printing of protein nanostructures using DNA molds	Nicholas Stephanopoulos, Arizona State University
<b>11:00-11:30</b>	Functional biophotonic materials with tailored twisting organization	Vladimir Tsukruk, Georgia Tech
<b>11:30-12:00</b>	Synthetic biological systems made using structural PNA nanotechnology	Rebecca Taylor, Carnegie Mellon University
<b>12:00-12:30</b>	Triggerable DNA condensation for on-demand expression of gene products	Lydia Contreras, <b>(VIRTUAL)</b> University of Texas
<b>12:30-1:30</b>	<b>LUNCH</b>	
<b>1:30-2:00</b>	Macromolecular Mechanisms of Biomimetic and Biological Assembly	Murugappan Muthukumar, University of Massachusetts
<b>2:00-2:30</b>	Elucidating the Intrinsically Disordered State, Supramolecular Assembly and Protein Condensates in Natural Materials Formation	Gregory Holland, San Diego State University

<b>2:30-3:00</b>	Uncovering and Applying the Interfacial Design Principles of Multiphasic Natural and Synthetic Organelles	Clifford Brangwynne, Princeton University
<b>3:00-3:15</b>	<b>Break</b>	
<b>3:15-3:45</b>	Synthetic mucus: A bioinspired solution to diverse soft-material needs	Adam Braunschweig, The City University Of New York
<b>3:45-4:15</b>	Bio-Inspired Chimeric Textile Materials with Multi-Functional Properties	Nancy Kelley-Loughnane & Sanaz Farajollahi, AFRL
<b>4:15-4:45</b>	Unraveling the Biology, Chemistry and Nanoscience of Natural and Synthetic Melanins	Nathan Gianneschi, Northwestern University
	<b>MEETING ADJOURN</b>	

<b>Agenda Day 3   Thursday, December 7, 2023</b>		
<b>Time</b>	<b>Title</b>	<b>Speaker</b>
<b>8:00-8:15</b>	<b>Check-in / Login</b>	
<b>8:15-8:45</b>	Engineering in-cellulo mesoporous protein crystals as genetically programmable functional biomaterials	Dingchang Lin, The Johns Hopkins University
<b>8:45-9:15</b>	Engineering Biomolecular Actuators from Ion-Responsive Repeat Proteins	Danielle Mai, Stanford University
<b>9:15-9:45</b>	Molecular Systems Control in Networks of Communicating, Phase-Separated Droplets in Yeast, Directed Discovery of Peptide Materials for Extreme Environments	Rein Ulijn, The City University of New York
<b>9:45-10:15</b>	Microbial Patterning of Soft Materials	Benjamin Keitz, University Of Texas
<b>10:15-10:30</b>	<b>BREAK</b>	
<b>10:30-11:00</b>	Protein-mediated polyphosphate synthesis and templating of nanostructured biocomposites for thermal protective systems	Peter Mirau, AFRL

<b>11:00-11:30</b>	Programmable Resilin Assembly using Materials-Binding Peptides for Bioinspired Resilient Elastomeric Materials of Precise Morphologies	Marc Knecht, University of Miami
<b>11:30-12:00</b>	Peptide-Directed High Entropy Nanomaterials Established via Structure/Function Relationships	Nicholas Bedford, University of New South Wales
<b>12:00-1:30</b>	<b>LUNCH</b>	
<b>1:30-2:00</b>	De novo design of alpha helical and beta barrel protein channels and pores for molecular sensing	David Baker, University Of Washington
<b>2:00-2:30</b>	Self-Assembly of Conductive Fibers from Bioinspired Peptides	Allon Hochbaum, <b>(VIRTUAL)</b> University of California, Irvine
<b>2:30-3:00</b>	The Crush Resistant and Self-Cooling Exoskeleton of the Diabolical Iron Clad Beetle: A Multifunctional Biological Composite	David Kisailus, University Of California, Irvine
<b>3:00-3:15</b>	<b>BREAK</b>	
<b>3:15-3:45</b>	Transformative Mesoporous Biocomposites	Paul Trulove & David Durkin, US Naval Academy
<b>3:45-4:15</b>		
<b>4:15-4:45</b>		
	<b>MEETING ADJOURN</b>	