Syracuse University
BioInspired Institute

# Abstract Symposium 2026

Find your poster session and poster number below. Each session has posters #1 to #38.

## Poster Session 1

**9:30am–10:15am**

38 posters

| # | Presenter | Poster title |
|---|---|---|
| #1 | **Sheikh Tanvir Ahmed** | Beyond Ionic Size: How Lone-Pair Activity Controls Rare-Earth Doping in Lead-Free Perovskite Nanocrystals |
| #2 | **Abeera Ajmal** | Quantitative Characterization of UBQLN2 Condensate Formation In Vitro and in Reconstituted Microtubule Networks |
| #3 | **Ujjwal Aryal** | Cleanroom-Free Microfluidic Chips with Capacitively Coupled 3D Liquid-Metal Electrodes as a Platform Technology for Controlled Electrical Field Stimulation of 2D and 3D Cell Cultures |
| #4 | **Kelly Aspinwall** | Parameterizing the critically rigid manifolds of vertex models for biological tissue |
| #5 | **Arpan Banerjee** | USP10 silencing attenuates pathological corneal angiogenesis through HIF-1α signaling axis |
| #6 | **Trevor Brandt** | Transcription factor gene expression activity correlates with ensemble structure of its disordered effector domain |
| #7 | **Joseph Chaiken** | Progress in simultaneous, continuous, noninvasive, in vivo physiological monitoring at multiple body locations using the FDR-PVOH device |
| #8 | **Sebanti Chattopadhyay** | How to make a stable granular packing of soft, frictional particles? |
| #9 | **Paul Chen** | Investigating the Effects of Laser-Assisted Hatching on Mouse Embryo Hatching Using Mechanical Models |
| #10 | **David Cordone Jr** | Analysis of the Effects of Protective Molecules on Proteomic Desiccation Tolerance in Yeast |
| #11 | **Nelson Donkor** | Improving the alkali metal tolerance of ZSM-5 catalysts: controlling the selectivity of acid sites through framework composition |
| #12 | **William Eghan** | Bisphosphonate and IL-4 Co-Delivery as a Macrophage Reprogramming System for Osteoarthritis Therapy. |
| #13 | **Yuman Guo** | A Defined Phototunable PEG Hydrogel Reveals Stiffness-Laminin-Mediated Control of Intestinal Organoid Morphogenesis in Mouse and Human Systems |
| #14 | **Zeyong Guo** | Human pluripotent stem cell-derived amniotic sac organoids for studying amnion biology and infection |
| #15 | **Rohit Jakkula** | How Long Should a Robot's Legs Be? Speed, Efficiency, and Transient Performance Trade-offs Under Leg-Length Scaling in Quadrupedal Robots |

| # | Presenter | Poster title |
|---|---|---|
| #16 | **Anton Jayakodiarachchige** | Surviving the Inflamed Gut: Strain-Level Redox Tolerance and Biofilm Formation in Mediterraneibacter gnavus. |
| #17 | **Silverio Johnson** | Beyond population averages: individual responses to multisensory stimulation in Drosophila larvae |
| #18 | **Kavindu Chathuranga Kolamunna** | pH-Dependent Conformational changes in Intrinsically Disordered Protein Regions |
| #19 | **Opeyemi Lekan-Michael** | Impaired Lysosomal Degradation in Exfoliative Glaucoma: Reduced Cathepsin B Activity in Patient Tenon Fibroblasts |
| #20 | **Matty Lesko** | Supercritical Gas Foamed Shape Memory Polymers for Pediatric Surgical Reconstruction |
| #21 | **Yashi Li** | Cross-atlas single-cell benchmarking of cardiomyocyte maturation from engineered cardioids |
| #22 | **Mina Mahmoudi** | Functional differences between all-trans retinoic acid and dexamethasone-induced tolerogenic dendritic cell |
| #23 | **Ileana Márquez** | Translating a Biophysical Model of the Meiotic Spindle from Mouse to Human Oocytes |
| #24 | **Carter Matties** | Geometric Soft Modes in Non-Euclidean Sheets |
| #25 | **Benjamin Maves** | Uncovering single cell behaviors controlling aggregation timing in Myxococcus xanthus fruiting body formation |
| #26 | **Faeze Mousazadeh** | Dissecting the multivalent interactions mediating phase separation in Arabidopsis DSK2B, a ubiquitin-binding shuttle protein |
| #27 | **Mehrnoosh Nemati** | Microfluidic Model of Human Placental Villus Development |
| #28 | **Seongjin Park** | Probing individual neuron activities in a freely moving animal |
| #29 | **Srijana Pokhrel** | Linking bioenergetic state and spindle organization in mouse oocytes under oxidative stress |
| #30 | **Derick Ramos** | Navigation of Drosophila Larvae in Taste Environments |
| #31 | **Mohammad Anjum Shaik** | A Novel RNAi-Based Approach to Restore Corneal Innervation and Reduce Inflammation in the wounded cornea |
| #32 | **Romana Akter Shathy** | Enhancing Photoluminescence and Environmental Stability of CsPbX3 Perovskite Nanocrystals through Lead-Free Double-Perovskite Shell Coating |
| #33 | **Zahra Shirvani** | Expanding the Cellular Context of Ghrelin Acylation: Plasma Membrane and Extracellular Vesicle Localization of Ghrelin O-Acyltransferase |
| #34 | **Jedidiah Tulu** | Elasticotaxis in Myxococcus xanthus: Response to Substrate Compression |
| #35 | **Eden Vallari** | Monogenic OMIM entries identify IDP targets for NMR characterization |
| #36 | **Daniel Vega** | Kinesin and PRC1 Driven Active Self Organization of Microtubule Tactoids |
| #37 | **Alina Waheed** | Unraveling Arginine-Tyrosine Interactions in FUS: An Interdisciplinary Computational Chemistry and Biomedical Engineering Approach |
| #38 | **Javad Yousefian** | DNA-origami rods powered by enzymes |

# Poster Session 2

**10:30am–11:15am**

38 posters

| # | Presenter | Poster title |
|---|---|---|
| #1 | **John Abili** | Investigating the Non-Canonical Localization and Topology of Ghrelin O-Acyltransferase in Extracellular Vesicles |
| #2 | **Nirbhik Acharya** | ALS-linked mutation impairs UBQLN2 chaperone activity for RTL8 |
| #3 | **James Adams** | Encoding Memory in a Particle Packing with Shearing and Swirling |
| #4 | **Mobina Ashrafi** | Development of Field-Dependent One-Particle Green's Function with Momentum-Coupled Light-Matter Interaction for Photoelectron Spectroscopy of Poisoned ZSM-5 Catalysts |
| #5 | **Sabya Sachi Biswas** | Engineering Neuron-Astrocyte Circuits for Synaptic Plasticity on a Co-Registered Microelectrode Array-Biochip |
| #6 | **Jimmy Blauser-Wilson** | Thermal Modulation of the Membrane Coating Process of Cell Membrane Coated Nanoparticle |
| #7 | **Zaye Buanno** | Determining mechanisms of microbiome resistance and resilience in response to antibiotic perturbation in a bioreactor model |
| #8 | **Joseph Chaiken** | Monitoring "Mayer Waves" in the Peripheral Circulation using FRD-PVOH Device |
| #9 | **Tanya Chhabra** | Local feedback in the Random field Ising model |
| #10 | **Nataliya Dixon** | Engineering a Perfusable Intestinal Microphysiological System to Study Matrix- and Nutrient-Dependent Epithelial Organization |
| #11 | **Baojie Dou** | Bioinspired Gradient-Porous Lignin Foam with Enhanced Water Transport for Sustainable Solar Evaporation |
| #12 | **Nada Elmeligy** | Why a physical learner needs sleep |
| #13 | **Kassidy Fields** | COMSOL-Based Simulation of Salt-Driven Corrosion of Copper IT Components in Coastal Data Center Environments |
| #14 | **Dev Goonawardhana** | Quantifying Mechanosensory Responses with Optogenetics in the Drosophila Larva |
| #15 | **Alex Grigas** | Two routes to a fluid under tension in sparse mesenchymal tissues |
| #16 | **Salar Hooshyar** | Assembled Human Placental Villous Organoids recapitulate Preeclampsia-like phenotypes |
| #17 | **Kara Hunter** | A systematic assessment of exogenous LEA proteins reveals distinct molecular grammars for desiccation protection |
| #18 | **Fahima Jannat Koly** | FIBRILLAR COLLAGEN I ARCHITECTURE DISRUPTS CRYPT MORPHOGENESIS IN A TUNABLE 3D MODEL OF INTESTINAL FIBROSIS |
| #19 | **Stephen Landry** | Modulation of RNA Polymerase II CTD Phase Behavior by Phosphorylation, Prolyl Isomerization, and Sequence Variations |
| #20 | **Nhu Y Mai** | Genetic vulnerability and dynamic mechanical stress synergistically drive sarcomere failure in human iPSC-derived cardiomyocytes |
| #21 | **Belal Menbari** | Quantitative Imaging of Living Spindles with the Kiralux Polarization Camera |

| # | Presenter | Poster title |
|---|---|---|
| #22 | **Anthony Moses** | Tuning Light Emission in Quantum Dots through Controlled Dopant Placement |
| #23 | **Diana Palade** | Engineering Lactobacillus extracellular vesicles for the treatment of bacterial vaginosis |
| #24 | **Angelika Polshchikova** | Longitudinal calcium signaling in architecturally defined 3D single-cell circuits |
| #25 | **Arun Poudel** | Artificial capillaries-on-a-chip with modular control over lumen size, architecture, in situ modifications and co-culture conditions |
| #26 | **True Rappold** | Investigating the pH sensitivity of IDR ensembles in-cell |
| #27 | **Nicholas Rubayiza** | The Effect of Enzymatic Activity on Biomolecular Condensates |
| #28 | **Romana Akter Shathy** | Water under Nanoscale Confinement: ESR Insights into Molecular Dynamics and the Role of Fusion-Fission in Ice Nucleation in Reverse Micelles |
| #29 | **Puja Shrestha** | WHAT'S FEEDING BACTERIA IN CONCRETE? IS NECROMASS THE ANSWER? |
| #30 | **Abigail Stapf** | Cysteine Induced Chirality in Red Emitting Cadmium Selenide Quantum Rods |
| #31 | **Sharad Timilsina** | Assembly of Cell-Seeded 3D Printed Hydrogel Modules with Perfusable Channel Networks |
| #32 | **Nathan Abundo Tran** | Disordered but in Control: SUF4's Condensation Behavior Regulates the Mitotic Cycle |
| #33 | **Devika Vikraman** | Single-molecule observation of the onset of neurotoxic polypeptide aggregation |
| #34 | **Anand Wadurkar** | Multiscale Insights into Peptoid Design for Self-Defensive Biomaterials |
| #35 | **Sherrie Wanjira** | SIINFEKL Loading Restores B3Z Activation by DC2.4 Membrane-Coated Nanoparticles |
| #36 | **Ali Zareein** | Targeted Pharmaceutical mTOR inhibition selectively suppresses TFH over Treg |
| #37 | **Wenzhu Zhang** | Pericentrin contains internal adaptor-like sequences that activate dynein directly |
| #38 | **Zihan Zhong** | Quantify Effects of Non-Antibiotic Emerging Contaminants on Antibiotic Resistance Dissemination through Horizontal Gene Transfer |