



**NGRPC
2023**

Conference Program

Hosted by
University of Michigan
Macromolecular Science
and Engineering

June 30th – July 1st 2023
Michigan Union
Ann Arbor, MI

Contents & Credits

Contents & Credits Schedule

Thursday, June 29th

Friday, June 30th

Saturday, July 1st

Keynote Speakers (in
order of presentation)

Dr. Xi Chelsea Chen

Prof. Trisha Andrew

Prof. Amir Sheikhi

Prof. Jinsang Kim

Industrial Talks

Workshops &

Activities

Oral Presentations

Session 1

Session 2

Poster Presentations

Session 1

Session 2

Sponsors

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Lead Chair

Gregory Reimonn

Co-Chairs

Cecelia Kinane, Jennie Paik

Social Media

Lisby Santiago

Finances

Gregory Reimonn, Linghao Shi, Julio Zelaya, Shuo Zhang, Dijia Zhou

Activities Planning

Joshua Flint, Cecelia Kinane, Jennie Paik, Julie Rieland, Julio Zelaya

Presentation Scheduling

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Prof. Jinsang Kim, Prof. Claudia Loebel, Prof. Charles McCrory, Prof. Abdon Pena-Francesch

Administration, Logistics and External Liaison

Hiba Baghdadi, Cecelia Kinane, Gregory Reimonn

Schedule – Thursday, June 29th

Time	Rogel Ballroom
12:30 PM	Check in & Badge Pickup (all day)
1:00 PM	Opening Speech (1:00-1:15)
1:30 PM	Keynote: Dr. Xi Chelsea Chen (1:15-2:15)
2:00 PM	
2:30 PM	Networking Activity - Competitive and Collaborative Problem Solving (2:15-4:00)
3:00 PM	
3:30 PM	
4:00 PM	
4:30 PM	Break
	Industrial Talk - Dr. Kapil Dev Sayala, Seqens (4:15-4:30)
	Industrial Talk - Dr. Ethan Post, L&L Products (4:30-4:45)
	Industrial Talk - Dr. Keqing Fa, BASF (4:45-5:00)
5:00 PM	Break
5:30 PM	
6:00 PM	
6:30 PM	
7:00 PM	Mixer @ Garage Bar 618 Church St, Ann Arbor, MI 48104 (6:30 - 8:30)
7:30 PM	
8:00 PM	

Key:

Conference Activity
Keynote
Programming
Oral Presentation Section
Poster Presentation Section
Setup/Takedown

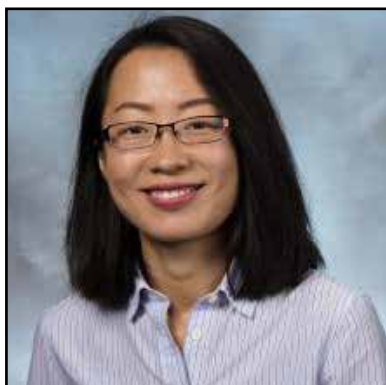
Schedule - Friday, June 30th

Time	Rogel	Pond	Wolverine	Anderson ABC	Anderson D	Pendleton
8:30 AM	Breakfast (8:30-9:00)					
9:00 AM	Keynote: Prof. Trisha Andrew (9:00-10:00)					
9:30 AM						
10:00 AM		Student Talk Session 1 (10:00-11:30)	Student Talk Session 1 (10:00-11:30)	Student Talk Session 1 (10:00-11:30)	Student Talk Session 1 (10:00-11:30)	Poster Session 1 Setup
10:30 AM						
11:00 AM						
11:30 AM	Take & Go Lunch (11:30-12:30)					Visual poster judging (11:30-1:00)
12:00 PM						Poster Session 1 (12:00-1:00)
12:30 PM						
1:00 PM	Industrial Talk - Dr. Leanna Foster, DuPont (1:00-1:30)					
1:30 PM	Industrial Talk - Dr. Matthew Miller, DuPont (1:30-2:00)					
2:00 PM			Abstract Writing Workshop (2:00-3:00)	Career Panel (2:00-3:00)		Poster Session 2 Setup
2:30 PM						
3:00 PM		Student Talk Session 2 (3:00-4:30)	Student Talk Session 2 (3:00-4:30)	Student Talk Session 2 (3:00-4:30)	Student Talk Session 2 (3:00-4:30)	Poster Session 2 Setup
3:30 PM						
4:00 PM						
4:30 PM						Poster Session 2 (4:30-5:30)
5:00 PM						
5:30 PM						Visual poster judging (4:30-6:00)
6:00 PM	Banquet & Awards Ceremony (6:00 - 8:00; food served at 6:30, awards at 6:45)					
6:30 PM						
7:00 PM						
7:30 PM						
8:00 PM						

Schedule - Saturday, July 1st

Time	Rogel Ballroom
8:30 AM	Breakfast (8:30-9:00)
9:00 AM	Keynote: Prof. Amir Sheikhi (9:00-10:00)
9:30 AM	
10:00 AM	Workshop - LGBTQ+ allyship in STEM (10:00-11:00)
10:30 AM	
11:00 AM	Keynote: Prof. Jinsang Kim (11:00-12:00)
11:30 AM	
12:00 PM	Closing Remarks (12:00-12:15)
12:30 PM	

Keynote Speakers (in order of presentation):



Dr. Xi Chelsea Chen (She/Her) | Oak Ridge National Laboratory

Dr. Xi Chen is a Research Associate Polymer Scientist at Oak Ridge National Laboratory researching polymer-ceramic composite electrolytes for high energy lithium batteries.

Dr. Chen received a B.S. in Applied Chemistry from Shanghai Jiao Tong University in 2005 and a Ph.D. in Macromolecular Science and Engineering at the University of Michigan in 2011. Following this, she began her career as a postdoc at Lawrence Berkeley national lab investigating functional block copolymer membranes.

Abstract:

Solid-state lithium metal batteries are promising to enable the next generation batteries with higher energy density and improved safety. Polymer electrolytes, as a class of solid electrolytes, are known for their flexibility, roll-to-roll processability and ease of forming good contact with electrodes. However, as will be illustrated in this presentation, even with a soft and pliable polymer electrolyte, interface issues can become a bottleneck to maximized battery performance.

In this presentation, two examples relating to interface issues in polymer based solid systems will be given. First, we show that the interfacial resistance strongly affects the ionic conductivity of polymer/oxide ceramic composite electrolytes, in both the ceramic-in-polymer design where ceramic particles are dispersed within the polymer electrolyte matrix as well as the polymer-in-ceramic design where a three dimensionally interconnected ceramic scaffold is developed. Second, the effect of adhesion between cathode active material $\text{LiNi}_{0.6}\text{Mn}_{0.2}\text{Co}_{0.2}\text{O}_2$ (NMC622) and polymer electrolyte is systematically studied by using two model crosslinked PEO electrolytes with different crosslinking densities. The adhesion is measured using a single-crystal NMC622 coated probe in a scanning probe microscope. The measured adhesion force, together with other electrochemical properties of the two polymer electrolytes are cross compared with their respective full cell performance. Through these studies, an understanding of interfacial issues in polymer based batteries will be elucidated and potential pathways leading to optimized interfaces will be discussed.

June 29th, 1:15-2:15 PM, Rogel Ballroom

Prof. Trisha Andrew (She/Her) | University of Massachusetts Amherst

Professor Trisha L. Andrew is an Associate Professor of Chemistry and Chemical Engineering at the University of Massachusetts Amherst. She directs the Wearable Electronics Lab, a multi-disciplinary research team that creates electronic devices on unconventional substrates using reactive vapor deposition, a technique that allows unmatched flexibility in device architectures, array configurations, and product assembly.



Trisha started her career as an Assistant Professor of Chemistry and Electrical Engineering at the University of Wisconsin-Madison, after receiving her Ph.D. from MIT in 2011. She has unconventional training in the disparate fields of synthetic organic chemistry and microelectronic device fabrication that inform her unique problem-solving skills and varied research interests. Trisha is a David and Lucille Packard Foundation Fellow, a National Academy of Sciences Kavli Fellow, an Air Force Office of Scientific Research Young Investigator, a L'Oréal USA For Women in Science Fellow, a 3M Nontenured Faculty Award winner, and was named as one Forbes' magazine "30 Under 30" Innovators in Energy.

Abstract:

Chemical vapor deposition is a combined synthesis and processing method for forming polymer films on unconventional substrates and is increasingly important for creating flexible, wearable and/or plant-based electronics. I will detail the materials science and engineering advances made by my team during the process of creating various electronic garments and plant-based sensors for longitudinal health monitoring in native environments.

June 30th, 9:00-10:00 AM, Rogel Ballroom



Prof. Amir Sheikhi (He/Him) | Penn State University

Dr. Amir Sheikhi founded the Bio-Soft Materials Laboratory (B-SMaL) at Penn State in August 2019 to tackle some of the quintessential challenges of the 21st century in biomedicine and the environment by designing novel bio-based soft material platforms via micro- and nanoengineering techniques. Amir's lab consists of 10 graduate students, 1 postdoctoral fellow, and more than 15 undergraduate researchers, supported by \$3+M of funding, including NIH R01 and R56 grants. Amir's research has been featured in more than 60 publications, 50 seminars, and 14 reports of invention/patent applications with recognition by over 40 news media outlets. He is the recipient of several major awards, including the AIChE's 35 Under 35, The 2022 ACS Unilever Award for Outstanding Young Investigator in Colloid & Surfactant Science, The John C. Chen Young Professional Leadership Scholarship, UNIFOR Global Research Fellowship.

Recently, Amir was named as one of the 9 emerging leaders in Chemical and Biomedical Engineering worldwide, featured on the cover of the Inaugural "Futures" Issue of Bioengineering & Translational Medicine journal. Amir earned his Ph.D. in Chemical Engineering at McGill University and continued to complete two years of postdoctoral research on Colloids and Macromolecules at McGill Chemistry. Before joining Penn State, Amir was a postdoctoral fellow in Engineering in Medicine/Bioengineering at Harvard Medical School and UCLA. Amir is currently an Associate Editor of Bioengineering & Translational Medicine and is on the editorial board of Biomaterials and Bioactive Materials.

Abstract:

From hairy nanocelluloses to granular hydrogels: Bio-based polymers for environmental and healthcare applications

Soaring population growth, supply and demand imbalance, shortage of ready-to-use remedies, and urbanization have imposed unprecedented challenges to satisfying the world's essential needs. In the Bio-Soft Materials Laboratory (B-SMaL), we aim at addressing some of the quintessential challenges of the 21st century in healthcare and environment by developing colloidal systems based on the micro- and nanoengineering of abundant biopolymers. In this talk, I will first explain how the most abundant biopolymer in the world, cellulose, is chemically converted to a newly emerged colloid, called hairy cellulose nanocrystals (HCNC) with fundamentally different colloidal properties compared with conventional cellulose nanocrystals (CNC). I will show how such differences have enabled the applications of HCNC in sustainable development, ranging from rare-earth element recovery and water/body fluid treatment to threshold scale inhibition. I will then discuss how emulsifying gelatin (a derivative of the most abundant protein in the body, collagen) yields an in situ forming, bio-orthogonal porous hydrogel platform with orthogonal stiffness and porosity that is nontrivial to create using bulk hydrogels. Colloidal engineering of this class of microfluidic-enabled modular hydrogels has enabled accelerated tissue repair and 3D bioprinting of tissues. Together, these platforms show the power of bio-based polymers to leverage eminent, cost-effective technologies for improving the quality of modern life.

July 1st, 9:00-10:00 AM, Rogel Ballroom

Prof. Jinsang Kim (He/Him) | University of Michigan

Jinsang Kim is the Director of Macromolecular Science and Engineering, and a Professor of Materials Science and Engineering having a joint appointment in the Chemical Engineering, Biomedical Engineering, and Chemistry at the University of Michigan, Ann Arbor. He holds a M.S (1993) and a B.S. (1991) from Seoul National University, Korea, both in Fiber and Polymer Science. He earned his Ph.D. in 2001 in Materials Science and Engineering from MIT (Advisor Prof. Tim Swager), where he studied the design, synthesis, and assembly of conjugated sensory polymers and energy transport properties in controlled structures. He is also an expert in genetically engineered protein research. His postdoctoral work in this area at Caltech (Advisor Prof. David Tirrell) involved the expression of artificial genes to determine the extent to which artificial genetic information can be used to encode supramolecular assembly in macromolecular systems. He has won several prestigious awards including the Monroe-Brown Foundation Research Excellent Award, NSF CAREER Award, Holt Award for excellent teaching, IUPAC Prize for Young Chemist, and the ACS ICI Award. He was also named one of the emerging investigators by the Journal of Materials Chemistry in 2007. His current research interests at UM are plastic electronics, self-signal amplifying molecular biosensors, highly emissive organic emitters, and high performance polymers. His research has been sponsored by NSF BES, NSF ECS, NSF DMR, AFOSR, ARO, DoE, NIH, ACS, KIMM, KRF, QIA, Qatar NRF, Ford, Samsung, LG Chem, and Center for Chemical Genomics.



Abstract (Not Final)

Human-centered design is integral to the polymer research that we are all working on. Starting with a goal in mind like an affordable glucose monitor system informs polymer design. Teaching an Advanced Functional Polymers class to inspire future scientists to consider the broader impacts of their work and how to design with those goals in mind.

Pending final abstract from Prof. Kim.

July 1st, 11:00 AM - 12:00 PM, Rogel Ballroom

Industrial Presentations

Thursday, June 29th

Time (PM)	Presenter	Company
4:15-4:30	Dr. Kapil Dev Sayala	Seqens
4:30-4:45	Dr. Ethan Post	L&L Products

Friday, June 30th

Time (PM)	Presenter	Title	Company
1:00-1:30	Dr. Leanna Foster	The Great Transition - Leveraging Your Graduate School Experience in Industry	DuPont
1:30-2:00	Dr. Matthew Miller	DuPont Perspective - Creating Value at the Intersection of Innovation and Sustainability	DuPont

Workshops & Programming

Thursday, June 29th

Networking - Problem-Solving Challenge with Jenn Paik and Julie Rieland
June 29th, 2:15 PM - 4:00 PM
Rogel Ballroom

Interested in engaging with research outside your discipline or seeing where your research fits into the “big picture?” Network, make new friends, and pitch your ideas in a grisly, grant-writing gauntlet as you and your collaborators come up with a solution to the problem of PLASTIC!

Networking - Happy Hour Mixer at Garage Bar
June 29th, 6:00 PM - 8:00 PM
618 Church St, Ann Arbor, MI 48104

Join your fellow attendees at Garage Bar for schmoozing over snacks! Appetizers will be provided, cash bar 21+ only.

Friday, June 30th

Workshop - Un-Abstracting the Abstract with Prof. Abdon Pena-Francesch and Jenn Paik

June 30th, 2:00 PM - 3:00 PM

Wolverine

In this workshop, Prof. Abdon Pena-Francesch will teach you how to craft the story of your work into a concise and powerful abstract that will turn heads at any research conference. Bring a recent abstract (even your abstract for this conference) and work with peers to give and receive feedback on your writing.

Career Panel

June 30th, 2:00 PM - 3:00 PM

Anderson ABC

Curious about the pathways your graduate degree could take you? Join the conversation to learn about how our panelists in academia, industry, and national labs arrived at their position. Ask about recruiting, daily work, mentorship, and any other career questions you might have.

Panelists:

- Dr. Leanna Foster, DuPont
- Prof. Claudia Loebel, University of Michigan
- Prof. Yiyang Li, University of Michigan, formerly Sandia National Labs

Saturday, July 1st

Workshop - LGBTQ+ Allyship in STEM with Cecelia Kinane

July 1st, 10:00 AM - 11:00 AM

Rogel Ballroom

Learn why LGBTQ+ allyship is important in STEM, and how we, as graduate students, can actively work as allies in our labs, departments, and universities. This workshop will provide time to brainstorm allyship action in your own roles.

Oral Presentations – Session 1

Pond

Time (AM)	Presenter	Title	Talk Category
10:00-10:15	Mark McCrary	Generation of Blocky Sulfonated PEEK With Multiple Sulfonations Per Sulfonated Monomer	Energy and Separations
10:15-10:30	Jinyu Bu	Additive Manufacturing of Multifunctional Polymer-Metal Composite Structures with Tunable Internal Structure and Physical Properties	Functional Materials
10:30-10:45	Withdrawn		
10:45-11:00	Hakan Aras	Understanding Heterogeneous Dynamics in Filled Rubber with Functionalized Additives	Functional Materials
11:00-11:15	Mica Pitcher	Chemically enabled labeling of disordered cellulose in fibrils and nanocrystals via advanced microscopy	Functional Materials

Wolverine

Time (AM)	Presenter	Title	Talk Category
10:00-10:15	Logan Fenimore	Upcycling Virgin and Waste Polyethylene to Reprocessable Dynamic Covalent Networks via Free-Radical Grafting of Dialkylamino Disulfide Bonds	Polymer Upcycling and Sustainability
10:15-10:30	Ziyan Yu	One pot synthesis of stereoblock copolymer, poly-syndio-block-iso-3-hydroxybutyrate, with tacticity controlled by exogenous donors	Polymer Upcycling and Sustainability
10:30-10:45	Yuming Wang	External stress-free characterization of inherent reversible bond exchanges in vitrimer network	Polymer Upcycling and Sustainability
10:45-11:00	Maria Ley Flores	Thermophysical Property Prediction of Polyethylene Binary Mixtures	Polymer Upcycling and Sustainability

Oral Presentations - Session 1

Anderson ABC

Time (AM)	Presenter	Title	Talk Category
10:00-10:15	Matthew Coile	Modeling the (De)polymerization of Polyurethane-like Polymers	Digital Discovery of Polymers
10:15-10:30	David Kitto	Developing ion exchange membranes with ultrahigh charge density	Energy and Separations
10:30-10:45	Withdrawn		
10:45-11:00	Samantha Daymon	Molecular dynamics simulations of shockwave propagation in amorphous polyisobutylene (PIB) system.	Digital Discovery of Polymers
11:00-11:15	Lester Anderson	Sensor- and Machine Learning-guided High-throughput Characterization of Hydrogel Rheological Properties	Functional Materials

Anderson D

Time (AM)	Presenter	Title	Talk Category
10:00-10:15	Avinava Roy	Bi-layered hydrogels to recapitulate dynamic and reversible tissue folding patterns in vitro	Therapeutic Applications of Polymers
10:15-10:30	Eleanor Plaster	Synthesis of norbornene-modified hyaluronic acid hydrogels via water-based DMTMM coupling	Therapeutic Applications of Polymers
10:30-10:45	Alexandre Lancelot	Catechol-functionalized polymers: from bulk adhesive to adhesive hydrogels	Therapeutic Applications of Polymers
10:45-11:00	Joanne Hwang	Preoperative Surgical Planning via Patient-specific, Tough and Anti-drying Hydrogel-based Cardiac Mimic	Therapeutic Applications of Polymers
11:00-11:15	Kristen Kelsall	Crosslinked Polyethylenimine: A Novel Drug Delivery System for Acidic Drugs	Therapeutic Applications of Polymers

Oral Presentations - Session 2

Pond

Time (PM)	Presenter	Title	Talk Category
3:00-3:15	Sneha Srinivasan	Physical aging behavior of polymer brush thin films	General
3:15-3:30	Parth Kelkar	Order-Disorder Transition Effects on the Rheology of Lamellar Structured Concentrated Surfactant Solutions	General
3:30-3:45	Daniel Krajovic	Microphase separation and crystallization cooperatively enable toughness and thermal resistance in fully renewable poly(L-lactide) triblock copolymers	General
3:45-4:00	Cory Sims	Tri-Cure Hybrid Organo-Silicon Coatings	General
4:00-4:15	Nathan McMullen	Biaxial Deformation of Poly(p-phenylene sulfide) by Cross-Rolling and Subsequent Annealing	General

Wolverine

Time (PM)	Presenter	Title	Talk Category
3:00-3:15	Jiwon Lim	Synthesis, characterization, and application of polydopamine analogues for surface engineering	Functional Materials
3:15-3:30	Pratik Kasbe	The air/water synthesis of 2D polymers for atomically precise hybrid structures prepared by the layer-by-layer deposition	Functional Materials
3:30-3:45	Victoria Kong	Effect of Crosslink Homogeneity on the Mechanochemical Activation of Elastic Polymer Networks	Functional Materials
3:45-4:00	Mahmud Rashed	Photocaged R-Alkoxysilanes for On-Demand Functionalization and Polymerization Control	Functional Materials
4:00-4:15	Anthony Griffin	Hierarchical Porous Carbons from Thermoplastic Elastomers	Functional Materials

Oral Presentations - Session 2

Anderson ABC

Time (PM)	Presenter	Title	Talk Category
3:00-3:15	Alexander Best	"Guiding Pyrolysis Reactor Design: Mechanistic Microkinetic Modeling of High-Density Polyethylene Pyrolysis"	Polymer Upcycling and Sustainability
3:15-3:30	Mengjun Hou	"Low carbon concrete with recycled PE rope fibers and industrial by-products"	Polymer Upcycling and Sustainability
3:30-3:45	Withdrawn		
3:45-4:00	Rajani Bhat	Effect of smart charge switching polymers on cariogenic oral bacteria	Polymer Upcycling and Sustainability
4:00-4:15	Brock Hosier	Non-covalent, Photocleavable Enzyme Nanogels via NIPAM Copolymerization with Acrylic Acid	Polymer Upcycling and Sustainability

Anderson D

Time (PM)	Presenter	Title	Talk Category
3:00-3:15	Boyi Song	Functional Zwitterionic Coatings for Marine Anti-fouling Applications	Functional Materials
3:15-3:30	Yang Lou	Biocidal Potency of Polymers with Bulky Cations	Functional Materials
3:30-3:45	Evelyn Wang	NIR laser-assisted stereolithography of polymer-derived ceramics	General
3:45-4:00	Tanner Hickman	Making cellulose-based films work in high humidity	General
4:00-4:15	Joseph Mushyakov	Polymer-based Chirped Broadband Reflectors and Thermal Management	Functional Materials

Poster Presentations – Session 1

No.	Presenter	Title
01	Sarma, Nivedina	The influence of molecular design on structure-property relationships of a supra-molecular polymer prodrug
02	Fu, Denghao	Fundamental study of catechol retardation effects in the application of dental adhesion
03	Puente, Ellie	Redox-Responsive Trehalose Nanoparticles to Stabilize Glucagon
04	Schewe, Jacob	Magnetoactive Properties of Biocompatible Magnetic Hydrogel Composites: Effects of Magnetic Particulate Type and Magnetic Annealing
05	Pandit, Avanti	Multifunctional Polyesters as Tissue Adhesives to Control Soft Tissue Hemorrhage
06	Bahnick, Alexander	Photochemical 3D printing of Bioresorbable Microneedle Arrays for Controlled Transdermal Drug Delivery
07	Chee, Conner	Effect of Cation- π Interactions on the Relaxation Dynamics of Polyelectrolyte Complex Coacervates
08	Chan, Yin Mei	Synergistic Enhancement of Peripheral Nerve Defect Repair using Peptide-Functionalized Aligned Nanofiber Conduits
09	Chang, Albert	Polycation Stabilized Electrohydrodynamic Co-Jetted Janus Nanoparticle for Co-Delivery of Hydrophobic Drug.
10	Li, Shuxiao	New Materials for the Thermally Controlled Delivery of Inhalable Nitric Oxide
11	Rafalko, Charles	Stereolithography Photopolymerization Resin for Molding Water-Soluble Cavities
12	Xhyliu, Fjorela	Synthetic protein nanoparticle-encapsulated silicon quantum dots as a biocompatible probe for bioimaging applications
13	Ataie, Zaman	Enabling printability and shape fidelity of granular hydrogel bioinks via reversible interparticle interactions
14	Kheirabadi, Sina	Biomacromolecular granular hydrogel scaffolds for assessing the effect of cellular iron content on glioblastoma cell migration
15	White, Thomas	Parylene-C-Based Microfluidic Direct Sampling Probes for Chronic In Vivo Neurochemistry Studies
16	Jaberi, Arian	Biomacromolecular Granular Hydrogel Scaffolds for Wound Healing
17	Jaberi, Arian	Engineering the Porosity of Photocrosslinkable Protein-Based Granular Hydrogel Scaffolds
18	Berardi, Anthony	A photoreactive biomaterial crosslinker with broadband fluorescence
19	Burkhard, Kathleen	Patient-derived Ovarian Cancer Tumoroids for Studying the Tumor Microenvironment
20	Zhou, Jukai	Design and Electrochemical Study of Multidimensional Polymeric Architectures for Electrocatalytic CO ₂ Reduction
21	Zagho, Moustafa	A FACILE WATERBORNE STRATEGY FOR INCREASING OIL FOULING RESISTANCE OF POLY(VINYLDENE FLUORIDE) MICROFILTRATION MEMBRANES
22	Woo, Hochul	In situ observation of solvent exchange kinetics in a coordination polymer

Poster Presentations – Session 1

No.	Presenter	Title
23	Yu, Mengjie	Biomass-Derived Polymer Precursors as Lithium-ion Solid Electrolytes
24	Bu, Jinyu	Hybrid Nanostructures with liquid metal core and functional polymer shell for flexible energy storage and electronics
25	Carey, Cassidy	Metal-Organic Framework-Based Mixed Matrix Membranes for Nonaqueous Redox-Flow Batteries
26	Kim, Philyong	Biowaste Modified Sulfurized Polyacrylonitrile Cathodes Toward Stable Lithium-Sulfur Batteries
27	Santiago-Pagán, Lisby	Crosslinked-Monovalent Selective Ion Exchange Membranes
28	Espinoza, Carolina	Highly Charged Ion-Exchange Membranes for Treatment of Highly Impaired Waters via Electrodialysis
29	Smith, Anthony	Open-cell PDMS polyHIPEs using PMVS to prevent pore collapse
30	Moon, Jeongmi	Streptococcus mutans Aggregation in Biofilm Model System Driven by Depletion and Bridging.
31	Hayeri, Neda	Thermally, UV, and Moisture Curable Novel Family of Versatile Oligomers
32	Zhang, Zijing	More extreme examples of extended conjugation via SiO _{0.5} /SiO _{1.5} units
33	Wu, Matthew	Facilities for Procedurally Evaluating the Snow Shedding Behavior of Polymeric Surfaces
34	Forstner, Madison	The Flow Properties of Snake Venom: How Venom Adapts to Fang Morphology
35	Coutinho, Naomi	Polymerized high internal phase emulsions to produce porous polymer beads with tunable mechanical properties
36	Dikella, Vindya	Porous polyurethane with monodisperse porosity and controllable mechanical properties using water-in-oil high internal phase emulsion templating
37	Patel, Kush	Using Small-Angle Scattering and Rheology to Characterize Structure-Property Relation of Polymeric Latex Particles.
38	Siwatch, Mahek	Comparison of hydrophilic and hydrophobic polymers as support material in a self-forming dynamic membrane bioreactor filtering wastewater
39	Alkarri, Saleh	Investigating anti-bacterial and anti-COVID-19 virus properties and mode of action of Mg(OH) ₂ and copper-Infused Mg(OH) ₂ nanoparticles on coated polypropylene surfaces
40	Kumar, Vikash	Sustainable Packaging with Waterborne Soybean Oil
41	Subhaprad, Ash	High-Density Polyethylene (HDPE)-based Vitrimers
42	Zelaya, Julio	Expanding the potential of proteins as synthetic nanocarriers
43	Cetinkaya, Oguz	Enhancing Battery Safety and Thermal Management: Integrating Boron Nitride Nanosheets into Polyolefin Separators
44	Dimmitt, Nathan	Multifunctional PEG-based hydrogels formed by click-induced supramolecular interactions
45	Flint, Joshua	PBAE (poly(β -amino ester)) as a Vehicle for Non-Viral Gene Delivery

Poster Presentations – Session 2

No.	Presenter	Title
01	Lee, Joo Hun	Temperature-mediated Biofilm Cleaning Efficacy of Self-locomotive Antimicrobial Microrobots (SLAM)
02	Ogunyemi, Olusayo	Investigating the Photophysical Properties of Cis and Trans Poly(p-phenylenevinylene)s (PPVs)
03	Withdrawn	
04	Lin, Ting	Revealing Adhesion Promotion Mechanism by Probing Covalent Interactions at a Silicone Adhesive/Nylon Interface
05	Valdez, Sara	Design of RAFT Agents for Streamlined Measurements of Polymer Chain Conformations and Diffusivity
06	Kim, Dongmin	Formation of Poly(3,4-ethylenedioxythiophene) films via UV irradiation for electronic devices
07	Bhadu, Arshiya	Shear Flow-Induced Crystallization of Polyethylene & its Fading Memory
08	Tao, Li	Elucidating structure-property relationships of cellulose-based crosslinked films
09	Shi, Linghao	Coarse-grained simulation of interactions between pharmaceutical molecules and polymers
10	Kozarekar, Shivani	Computational Approaches to Intrinsically Circular Polymer Design
11	Basak, Sayan	Thermoelastic behavior of thermally crosslinked high-cis-1,4-polybutadiene
12	Atencio-Martinez, Cindy	Competitive formulation of a poly(catechol-styrene)-based adhesive for underwater applications
13	Heo, Jung-Moo	Highly Thermostable Blue Thermally Activated Delayed Fluorescence Based on Metal-Organic Frameworks
14	Lee, Meng-Hsun	Promoting adhesion property and coating stability of bioinspired dopamine derivatives via rationally designed polydopamine-disulfide copolymer system
15	Curley, Sabrina	Complex and Hierarchical Surface Patterning Achieved Through Metal Templates Facilitating Bulk Phase Separation and Surface Wrinkling
16	Asadi Tokmedash, Mohammad	Micron- to nano-crumpled MXene-based multilayers to regulate cell function for accelerating bone cell growth
17	Huang, Chuqi	Microgel-Based Optoelectronic Systems for Continuous, Real-Time Biochemical Sensing at Organ Interface
18	Jang, Boonjae	A Novel Strategy for Fabricating Nanostructures from Microstructured Molds by Global Shrinkage of Hydrogels
19	Ajith, Krishnaveni	Synthesis, polymerization, and characterization of terpenoid acrylates
20	Seshadri, Akul	Tuned Polyacrylamide-based Gel Morphology and Chemistry for Crystal Growth
21	Pitcher, Mica	Highly functional lignocellulosic materials for rare earth element removal and recovery via facile dual oxidation

Poster Presentations - Session 2

No.	Presenter	Title
22	Anurakparadorn, Kanat	PLA/Graphene Composites for Electromagnetic Metamaterial Absorbers
23	Smith, Paul	Additive manufacturing of carbon enabled by a robust plastic precursor platform
24	Kim, Jinho	Synthesis of Hydrophobic Self-healing Linear Polymer based on UV Reversible [2+2] Cycloaddition Reaction
25	VanZanten, Alyssa	Probing the Relaxation Dynamics of PEG-based Hydrogels
26	Verrico, Daniel	Cell Encapsulation and Functionality in Engineered Living Microfibers by Uniaxial Electrospinning
27	Robertson, Mark	Synthesis of ordered mesoporous materials from nanostructured thermoplastic elastomers
28	Zhang, Zenghao	Nanocomposite Janus particles for complex information display
29	Paik, Jennie	Carbodiimide Chemistry for Modification of Hyaluronic Acid with a Model Crystal Violet DNA Aptamer
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