

**2025**

**PROGRAM**

**INSTITUTE FOR POLYMER RESEARCH  
CELEBRATING 41 YEARS OF OFFICIAL INSTITUTE STATUS  
FORTY-SEVENTH ANNUAL SYMPOSIUM  
ON POLYMER SCIENCE/ENGINEERING 2024  
E7 7303-7363  
Faculty Hall  
University of Waterloo, Waterloo, Ontario  
Wednesday April 30 and Thursday May 1, 2025**

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8:45 a.m.	<b>Open Symposium Portal</b>
8:50	<b>Welcome and Opening Remarks</b>
9:00 - 9:20	<b>Negin Bouzari (Prof. Shahsavan), Chem Eng, Waterloo</b> Novel Small-scale Robots for Medical Applications <b>(Winner of 2024 IPR Award for Academic Excellence in Polymer Science/Engineering)</b>
9:20 - 10:00	<b>Industry Speaker: Dr. Nicholas Lanigan, Davwire.</b>
10:00 – 10:20	<b><u>5-Min. Mini Presentations</u></b> <b>1) Periklis Alikiotis (Prof. Mekonnen)</b> Investigating the effects of ash content and loading of lignin as an additive to polyvinyl chloride (PVC) <b>2) Tobeckukwu Ohaka (Prof. Mekonnen)</b> Recyclable and Sustainable Natural Rubber Biocomposite Vitrimers Induced by Dynamic Anhydride-Epoxy Bonds <b>3) Lauren DiLoreto (Prof. Lin)</b> Upcycling of Polyolefins into Stress-Responsive Materials <b>4) Saba Karimi (Prof. Forrest)</b> Two relaxation mechanisms for rejuvenation of stable polystyrene glass
10:20 – 10:40	<b>Coffee</b>
10:40 – 11:00	<b>Mahnoor Mehmood (Prof. Forrest)</b> Characterization of Polymer Stable Glasses
11:00 – 11:20	<b>Ashna Rajeev (Prof. Zhao)</b> Nanochitin as a strength enhancing agent for paper-based packaging material
11:20 – 11:40	<b>Matthew Scarfo (Prof. Shahsavan)</b> Discretizing Alignment Domains of Microscale Liquid Crystal Elastomer Actuators using Magnetic Fields

11:40 – 12:00	<b>Lu Yin (Prof. Zhao)</b> Polypyrrole/Rubber Composite Latex as High-Performance Sustainable Conductive Coating
12:00 - 12:40	<b>Lunch</b>
12:40 – 1:20	<b>Academic presenter: Prof. Megan Roberts, Western</b> Nanocellulose for Precision Applications: Combatting Challenges Using Intentional Surface Chemistry Design
1:20 – 1:40	<b>Franklin Frasca (Prof. Duhamel)</b> Probing the Encounter Dynamics between the Side Chains of Small Multifunctional Macromolecules by Pyrene Excimer Formation
1:40 - 2:00	<b><u>5-Min. Mini Presentations</u></b> <b>5) Iris Samputu (Prof. Feng)</b> Dehydration of ethylene glycol and gases through the use of polymeric and novel polymer blend membranes <b>6) Jinxuan Zhang (Prof. Feng)</b> Interfacially crosslinked poly(vinyl alcohol)/poly(vinyl amine) composite membranes incorporated with silver for facilitated olefin/paraffin separation <b>7) Hossein Hipakchi (Prof. Mekonnen)</b> Direct Ink Writing for Conductive 3D-Printed Healthcare Sensors: Design and Fabrication <b>8) Jimmy Papazotos (Prof. Li)</b> Novel Polymer Semiconductor Design for Low Level Gas Detection
2:00 - 2:20	<b>Carlos Villafane (Prof. Kamkar)</b> Eco-Friendly Electrochemically Synthesized Graphene/Sodium Alginate Inks for 3D Printing Highly Conductive Hydrogels and Aerogels
2:20 – 2:40	<b>Junhao Hu (Prof. Schipper)</b> Harnessing Light: Exploring Pyrazine Polymers for Single-Molecule Organic Solar Cells
2:40 - 3:00	<b>Yonglin Wang (Prof. Li), Chem Eng, Waterloo</b> Development of High-Performance Organic Cathode Materials Based on Coordination Polymers for Lithium-Ion Batteries <b>(Winner of the 2024 IPR Award for Academic Excellence in Polymer Science/Engineering)</b>
3:00 – 3:20	<b>Naixin Zhao (Prof. Li)</b> Achieving Linear Conjugation with a Non-conjugated Building Block Through Energy-minimized Vinylogous Effect
3:20-3:40	<b>Coffee</b>

3:40 – 4:00	<b>Donghan Liu (Prof. Duhamel)</b> Interactions of Hydrophobically Modified PAMAM Dendrimers with Surfactant Aggregates Probed by Pyrene Excimer Formation
4:00 – 4:20	<b>Akliu Getnet (Prof. Mekonnen)</b> Lead free single and dual filler loaded nanocomposites for X-ray radiation shielding
4:20 – 4:40	<b>Kristijan Lulic (Prof. Duhamel)</b> Improving the Sensitivity of Pyrene Excimer Formation for Persistence Length Determination of Poly(alkyl methacrylate)s
4:40 – 5:00	<b>Evangelin Sridhar (Prof. Simon)</b> Kinetics of bio polyesters
5:00 – 5:20	<b>Hunter Little (Prof. Duhamel)</b> Using Time-Resolved Fluorescence to Gain New Insights into the Conformation of DNA Aptamers
5:20 – 5:40	<b>Autumn Cheon (Prof. Tam)</b> Sustainable Air Filtration Materials Using Biomacromolecular Nanomaterials
5:40 – 5 :55	<b><u>5-Min. Mini Presentations</u></b> <b>9) Noah Gallant (Prof. Duhamel)</b> Characterizing the Size and Structure of Pyrene-Tagged SDS and DTAB Micelles <b>10) Drew Davidson (Prof. Kamkar)</b> Protecting Firefighters from Cancer through Multifunctional Electrospun Nanocomposites <b>11) Karthick Raj Selvam (Prof. Mekonnen)</b> Silk Nanofibers for Drug Delivery: A Solution Blow Spinning Approach
5:55 – 6:00	<b>Closing remarks</b>