

TPC2022



Tosoh Polymer Conference



June 7-9, 2022
Loews Hollywood Hotel
Hollywood, California



Welcome to TPC2022!

Dear Colleagues,

Welcome to TPC2022! On behalf of the Scientific Committee and Tosoh Bioscience, we are delighted to welcome you to Los Angeles, CA for the TPC2022 Conference. This year's program highlights recent work from the top researchers in the field of polymer science, ranging from synthetic advances to characterization of new macromolecular materials to translational applications. This year sees the introduction of unique discussion leaders for each presentation, giving us an exciting opportunity to highlight the early careers of the next generation of leaders in polymer science. In some cases, it's been two years since many of us have attended conferences, so we expect many lively discussions will result from the presentations and posters that comprise our program. We hope you join us in looking forward to the new collaborations and research directions that result.

We are also excited to take the opportunity to honor Professor Yan Xia of Stanford University for receiving the 2022 Tosoh Award for Excellence in Polymer Science!

TPC2022 offers the opportunity for you to establish new contacts, exchange ideas, and renew established connections. Once again, welcome!



Brent Sumerlin, Ph.D.
University of Florida
Scientific Committee Co-chair



Helen Tran, Ph.D.
University of Toronto
Scientific Committee Co-chair



Emily Pentzer, Ph.D.
Texas A&M University
Scientific Committee Member



Thomas H. Epps, III, Ph.D.
University of Delaware
Scientific Committee Member



Mahesh Mahanthappa, Ph.D.
University of Minnesota
Scientific Committee Member



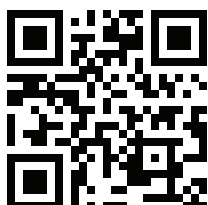
Nathan Gianneschi, Ph.D.
Northwestern University
Scientific Committee Member



Main Conference Day 1

Wednesday, June 8th, 2022

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|---------------------|--|
| 7:00 AM - 8:40 AM | Breakfast and Registration |
| 8:40 AM - 8:45 AM | Welcoming Remarks |
| 8:45 AM - 9:15 AM | Zhenan Bao , Stanford University <i>Title: Dynamic polymer networks: from electronic skin, morphing electronics, biodegradable electronics to stable lithium metal batteries</i> |
| 9:15 AM - 9:45 AM | Bekka Klausen , John Hopkins University <i>Title: Conjugated Polymers Inspired by Crystalline Silicon</i> |
| 9:45 AM - 10:15 AM | Christopher Bowman , University of Colorado, Boulder <i>Title: Semicrystalline Photopolymer Networks for Additive Manufacturing</i> |
| 10:15 AM - 10:45 AM | Break |
| 10:45 AM - 11:15 AM | Athina Anastasaki , Prof. Dr. ETH Zürich <i>Title: Making and Unmaking Polymers by RAFT Polymerization</i> |
| 11:15 AM - 11:45 AM | Krzysztof Matyjaszewski , Carnegie Mellon University <i>Title: Macromolecular Engineering by Atom Transfer Radical Polymerization</i> |
| 11:45 AM - 1:15 PM | Lunch |
| 1:15 PM - 1:45 PM | Mahesh Mahanthappa , University of Minnesota <i>Title: High Transference Number Polymer Electrolytes Derived from Lithium Bis(malonato)borate: From Solutions to Gels</i> |
| 1:45 PM - 2:15 PM | Rachel Segalman , University of California, Santa Barbara <i>Title: Design of Polymer Electrolytes with Superionic Ion Transport</i> |
| 2:15 PM - 2:45 PM | Monica de la Olvera , Northwestern University <i>Title: Control of polymer electrolytes organization and functions</i> |
| 3:15 PM - 5:15 PM | Poster Social |
| 5:15 PM - 6:00 PM | Travel to Sa'Moto Restaurant |
| 6:00 PM - 8:00 PM | Dinner, Sa'Moto, Doheny Room 9077 Santa Monica Blvd, West Hollywood, CA 90069 |



Scan this QR code to read our
Speaker Abstracts and more
on our TPC2022 Website:
www.tosohpolymerconference.com



Main Conference Day 2

Thursday, June 9th, 2022

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|---------------------|---|
| 7:00 AM - 8:15 AM | Breakfast |
| 8:30 AM - 9:00 AM | Alshakim Nelson , University of Washington <i><u>Title:</u> Protein-based bioplastics for sustainable additive manufacturing</i> |
| 9:00 AM - 9:30 AM | Thomas Epps , University of Delaware <i><u>Title:</u> Advancing Materials Sustainability: Small Molecules and Polymers from Biomass and Plastics Waste</i> |
| 9:30 AM - 10:00 AM | Brett Helms , Molecular Foundry - Lawrence Berkeley National Laboratory <i><u>Title:</u> A Circular Economy for Plastics</i> |
| 10:00 AM - 10:30 AM | Break |
| 10:30 AM - 11:00 AM | Chinedum Osuji , University of Pennsylvania <i><u>Title:</u> Polymer Self-Assembly in the Presence of Liquid Crystals</i> |
| 11:00 AM - 11:30 AM | Ian Manners , University of Victoria <i><u>Title:</u> Seeded Growth of Crystallizable Polymeric Amphiphiles: Recent Advances and Applications</i> |
| 11:30 AM - 12:00 PM | Joe Patterson , University of California, Irvine <i><u>Title:</u> The Role of Liquid-Liquid Phase Separation and Non-equilibrium Chemistry in the Self-assembly of Amphiphilic Block Copolymers</i> |
| 12:00 PM - 1:30 PM | Lunch |
| 1:30 PM - 2:00 PM | Nathan Gianneschi , Northwestern University <i><u>Title:</u> Proteomimetic Polymers for Expanding the Druggable Proteome</i> |
| 2:00 PM - 2:30 PM | Molly Shoichet , University of Toronto <i><u>Title:</u> Guided by Biology: Defined hyaluronan click-crosslinked hydrogels for in vitro 3D cell culture</i> |
| 2:30 PM - 3:00 PM | Jeremiah Johnson , Massachusetts Institute of Technology <i><u>Title:</u> Exploring How Chirality Impacts the Biological Properties of Synthetic Macromolecules</i> |
| 3:00 PM - 3:30 PM | Break |
| 3:30 PM - 4:00 PM | Emily Pentzer , Texas A&M University <i><u>Title:</u> Polymer Capsule Shells bearing Hindered Urea Bonds: Thermally Induced Shell Fusion and Destruction</i> |
| 4:00 PM - 4:30 PM | Craig Hawker , University of California, Santa Barbara <i><u>Title:</u> Simpler, Faster and Better – Pushing the Limits of Polymer Synthesis</i> |
| 4:30 PM - 5:00 PM | Award Presentation |



TPC2022 Posters

Poster: Force-Responsive Aryl "-onium" Salt Initiated Piezo Free Radical Polymerizations

Authors: Sarah Zeitler, Progya Chakma, and Matthew Golder*, University of Washington

Poster: Shape Shifting Polymers from Bullvalene

Authors: Meredith Pomfret, Anna Freund, Brian Sun, and Matthew Golder, University of Washington

Poster: Degradable poly(β -amino ester)s: unpacking the interplay between solution pH, solubility, and hydrolysis to control material lifetime

Authors: Mara K. Kuenen, James A. Mullin, Alexa M. Cuomo, and Rachel A. Letteri, University of Virginia

Poster: Piezonanoparticles and Aryl Onium Salts Facilitate Metal Free Mechanoredox Process for Free and Controlled Radical Polymerization

Authors: Progyateg Chakma, Sarah M. Zeitler, and Matthew R. Golder, University of Washington

Poster: Ring-Opening Metathesis Polymerization of Readily Available endo Norbornene Monomers with Chelated Catalysts

Authors: Henry Louis Cater, University of Texas at Austin

Poster: Sustainability-Oriented Synthesis of Precision Main-Chain Macromolecules

Author: Jia Niu, Assistant Professor of Chemistry, Boston College

Poster: Novel Cyclosilane Building Blocks for σ - π Conjugated Polymer Synthesis via Kumada Polycondensation

Authors: Qifeng Jiang, Alexandra F. Gittens, Rebekka S. Klausen, Johns Hopkins University

Poster: Revolutionizing Medical Technologies Through Advanced Materials Analysis

Authors: S. Karamdoust, P. Xiang, A. Pollit, M. Awad, E. Landry, PolyAnalytik Inc.

Poster: Robust, low water content double network hydrogels and their fundamental salt transport properties

Authors: Marshall Allen, The University of Texas, Austin

Poster: Polymer Dots with Enhanced Photostability, Quantum Yield, and Two-Photon Cross-Section Using Structurally Constrained Deep-Blue Fluorophores.

Author: Don M. Mayder / Ph.D. Candidate, University of British Columbia

Poster: Experimental determination of the role of tension in mechanochemistry

Author: Daniel C. Lee, Stanford University

Poster: Modular design and synthesis of functional membranes for water purification and resource recovery

Author: Frederick Rivers, University of Texas at Austin



TPC2022 Posters

Poster: Bio-inspired Conjugated Poly(azomethine)s for Degradable Electronics

Authors: Azalea Uva¹, Angela Lin¹, Helen Tran, University of Toronto

Poster: 3D Printing Bacteria: Growth in Confined Environments to Materials Fabrication

Authors: R. Kōnane Bay,^{1,2} Sujit S. Datta², University of Colorado, Boulder

Poster: Donor-Acceptor Bottlebrush Elastomers for Wearable Bioelectronics

Authors: Angela Lin¹, Azalea Uva¹, Jasemine Handjaya¹, Helen Tran^{1,2*}, University of Toronto

Poster: Combination of design and modeling of layer-by-layer-inspired photo-responsive polymer nanocarriers to control and predict the delivery of multiple siRNA doses

Author: Esther H. Roh, University of Delaware

Poster: Precision bottlebrush polymers: tailoring side-chain precision to target desired properties

Authors: Nduka Dennis Ogbonna (Nduka D. Ogbonna,¹ Michael Dearman,¹ Bhuvnesh Bharti,¹ Andrew J. Peters,² Jimmy Lawrence.^{1,*}) Louisiana State University

Poster: Lignin deconstruction: a platform for sustainable, high-performance polymers

Author: Robert M. O'Dea, University of Delaware

Poster: Electric Field (EF) Catalysis: how EFs can replace molecular catalysts and control chemical reactivity

Author: Cedric Schaack, Columbia University

Poster: Engineering robust polymer networks through room temperature dynamic covalent bonds

Authors: Neil Dolinski, Stuart Rowan, Pritzker School of Molecular Engineering, University of Chicago

Poster: Continued translation of PolySTAT, a therapeutic peptide-polymer conjugate for the treatment of severe hemorrhage

Authors: Robert J. Lamm, Frederick Huyan, Xu Wang, Kristyn M. Ringgold, Alexander N. Prossnitz, Karl T. Manner, Nathan J. White, Suzie H. Pun, Molecular Engineering & Science Institute

Poster: Epoxide-Amine Condensation Polymers for Ion Chromatography

Author: Andrew Zill, Thermo Fisher Scientific

Poster: High Active Material Loading in Organic Electrodes Enabled by a Multifunctional Binder

Author: Alicia M. Battaglia, University of Toronto

Poster: High Performance Thermoplastic Poly(vinyllogous amide) with Tunable Hydrogen Bond Content

Authors: Debabrata Konara, Brent S. Sumerlin, University of Florida

Poster: Cyclic Poly(4-ethynylphenylboronate ester): Efficient Catalytic Synthesis of Functionalized Cyclic Polymers and Gels

Authors: Debabrata Konar, Vineet Jakhar, Adam S. Veige, Brent S. Sumerlin, University of Florida



TPC2022 Posters

Poster: Designing Conjugated Polyelectrolytes for Bioelectronics

Author: Joshua Tropp, Northwestern University

Poster: Self-Healing Directed Self-Assembly of Block Copolymers for Lithographic Applications

Authors: Whitney Loo, Hongbo Feng, Scott Dhuey, Ricardo Ruiz, Paul Nealey

University of Wisconsin-Madison

Poster: Cleavable comonomers enable backbone destructible vinylic thermosets.

Authors: Elisabeth Prince, Gavin Kiel, Leticia C. Costa, David J. Lundberg, Jeremiah A. Johnson, MIT

Poster: Interfacial Polymerization of Nanotextured Polyetherimide

Author: Cécile A. C. Chazot - Northwestern University

Poster: A Dynamic Covalent Chemistry Approach to Interlocked and Interwoven Carbon Nanostructures

Authors: Harrison M. Bergman, University of California, Berkeley

Poster: A Controlled Diels-Alder Click-Clip Chemistry for the Introduction of Sensitive Molecules in Liquid Crystal Polymers

Authors: Jesus Guillen Campos^{*^}, Friedrich Stricker*, Minwook Park*, Kyle Clark* and

Javier Read de Alaniz*, Read de Alaniz Research Group

Poster: Development of Salicylic Acid-derived Copolymers for Microencapsulation of Retinol

Authors: Nhien Q. Nguyen, University of California, Riverside

Poster: Molecular Bridging in Thermoplastic Elastomers Based on ABC Triblocks

Authors: Kaitlin Albanese, Christopher Bates, and Craig Hawker University of California, Santa Barbara

Poster: Cyclopentadiene derivative as a single component, catalyst free to form an elastic polymer network

Authors: Thi M. Tran and Javier Read De Alaniz, University of California, Santa Barbara

Poster: Discrete Libraries of Amphiphilic Poly(ethylene glycol) derivatives: Control of Lipid Nanoparticle Assembly and Properties

Authors: Junfeng Chen and Craig Hawker, University of California, Santa Barbara

Poster: Controlling polymer chemistry to enhance mixed ionic-electronic transport in conductive polyelectrolyte complexes

Authors: Chun-Yuan Lo and Laure V. Kayser, University of Delaware

Poster: RAFT Polymerization of an Aromatic Organoborane for Block Copolymer Synthesis

Author: Sophie Melvin, Johns Hopkins University



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