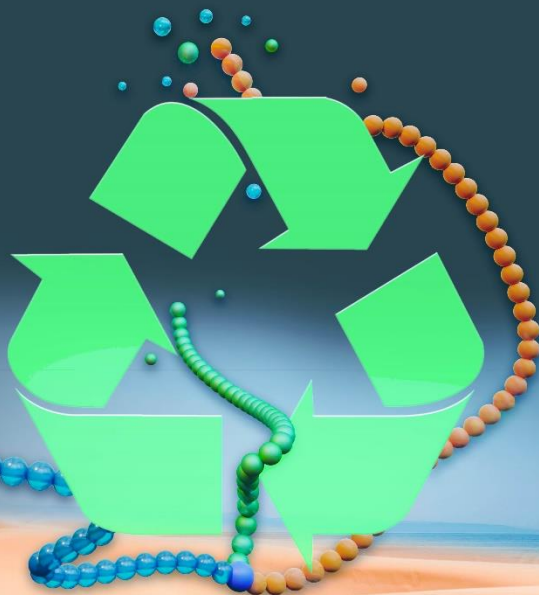




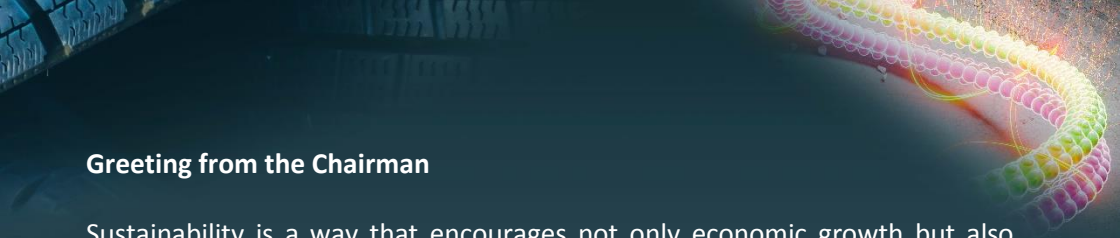
جامعة الملك عبد الله
للعلوم والتقنية
King Abdullah University of
Science and Technology

KAUST Research Conference *Designing Macromolecules for a Sustainable Future*

November 4-8, 2023



AGENDA



Greeting from the Chairman

Sustainability is a way that encourages not only economic growth but also promotes efficient, sustainable practices with effective solutions to protect our environment and our natural resources for the future. Polymer sustainability is, therefore, very important worldwide, with consumers, business leaders, and governments continuing to push for a circular polymer economy. Our research conference on Designing Macromolecules for a Sustainable Future targets advanced synthetic approaches and new characterization techniques, properties, and applications contributing to the circular polymer economy. We aim to bring eminent scientists working at the frontiers of polymers worldwide who will transfer and discuss the latest developments in the circular polymer economy.

On behalf of the KAUST Catalysis Center (KCC), the Chemistry Program, SABIC, and the Conference Organizing Committee, we welcome all participants and hope for a productive and enjoyable stay at KAUST and in the Kingdom of Saudi Arabia.

Welcome Reception

November 4, 2023, Saturday (Al Khozama Hotel)

19:00 – 21:00 Welcome Reception Sponsored by Shipchem

Day 1

November 5, 2023, Sunday (Auditorium 215 between Bldg. 4 & 5)

07:30 – 08:00 Breakfast-Registration

08:00 – 08:30 Welcome Remarks: Tony F. Chan, President; Nikos Hadjichristidis, Conference Chair

Session 1 – Polymer Synthesis (Dedicated to the late Professor Yusuf Yağci)

Chair: Nikos Hadjichristidis - Brigitte Voit

08:30 – 09:00 Krzysztof Matyjaszewski Functional Materials by Macromolecular Engineering Using ATRP

09:00 – 09:30 Ben Zhong Tang Constructing Functional Polymers from AIEgens
Synthesis of Hyperbranched Polymers with High Degree of Polymerization and 100% Degree of Branching from $A_2 + B_3$ Polycondensation

09:30 – 10:00 Tsutomu Yokozawa

10:00 – 10:30 Coffee Break

10:30 – 11:00 Axel. H.E. Müller Toward Sustainable Thermoplastic Elastomers: Tapered Block and Multiblock Copolymers with New Terpene-Based Monomers

11:00 – 11:30 Cyrille Boyer Nanostructure Control in 3D Printing through Polymerization Self-Assembly Process

11:30 – 12:00 Richard Hoogenboom Functional Polymers Through Amidation of Poly(methyl acrylate)

12:00 – 14:00 Lunch (Campus Diner, by invitation)

Session 2 – Polymers Circular Economy

Chair: Suzana Nunez - Axel. H.E. Müller

14:00 – 14:30 Brigitte Voit Sustainable Polyesters: Combining Bio-based Resources with Function Integration

14:30 – 15:00 Katja Loos Unleashing the Potential of Enzymes for Green Furan-Based Polymer Synthesis

15:00 – 15:30 Renaud Nicolaÿ Phase Separation and Reactive Processing: Two Effective Tools to Improve the Performance and Processability of Vitrimers

15:30 – 16:00 Haritz Sardon Use of Naturally Occurring Catalyst for Polymerization and Depolymerization Reactions

16:00 – 16:30 Coffee Break

16:30 – 17:00 Holger Frey Isomerization of Poly(ethylene glycol) to rPEGs Opens up New Perspectives for Biomaterials and Therapeutic Nanocarriers

17:00 – 17:30 Athina Anastasaki Deconstructing Polymers Synthesized by Controlled Radical Polymerization

17:30 – 18:00 Brett P. Fors Development and Applications of New Synthetic Strategies for Polymer Science

Day 2

November 6, 2023, Monday (Parallel Session I) (Bldg. 5, Level 5, Room 5220)

07:45 – 08:30 Breakfast

Session 3 – Polymer Properties and Applications Chair: Manickam Jayakannan - Mohammad Tayeb

08:30 – 09:00 Spiros Anastasiadis Development of Functional Surfaces with Controllable Wettability and Water Adhesion

09:00 – 09:30 Suzana Nunez High-Performance Polymers and Membranes for Sustainable Separations

09:30 – 10:00 Maria Vamvakaki Backbone Degradable Polymers and Polymer Hydrogels

10:00 – 10:30 Coffee Break

10:30 – 11:00 Hermis Iatrou Multi-Responsive Nanostructured Materials for the Targeted Delivery of Anticancer Agents

11:00 – 11:30 Junpeng Zhao Janus Catalytic Effect Enables Sequence-Controlled Binary Copolymerization

11:30 – 12:00 Sanjay Rastogi Single Crystal Formation of Ultra-high Molar Mass Polymers During Polymerization

12:00 – 14:00 Lunch (Campus Diner, by invitation)

Session 4 - Polymer Properties and Applications Chair: Asha Syamakumari

14:00 – 14:30 Alfonso Caraveo Battery Safety and Self-quenching Battery Pack: D³ (Dissipate, Direct, and Douse Heat and Fire) for Automotive and Grid Batteries

14:30 – 15:00 Cafer Yavuz Chemistry of Ladder Polymers with Intrinsic Microporosity

Poster Session (16:00-18:00; Bldg-9, Level 2)

&

Gala Dinner Sponsored by SABIC (19:30; Al Khozama Hotel, La Cucina restaurant (1st floor), by invitation)

Day 2

November 6, 2023, Monday (Parallel Session II) (Bldg. 5, Level 5, Room 5209)

07:45 – 08:30 Breakfast

Session 5 – Polymer Properties and Applications

Chair: Albena Lederer - Katja Loos

08:30 – 09:00 Swaminathan Sivaram Porous Functional Polymers as Separators for Lithium Ion Batteries

09:00 – 09:30 Apostolos Avgeropoulos Complex Architecture Silicon Containing Copolymers as Potential Candidates for Nanopatterning Applications

09:30 – 10:00 Niveen Khashab Self-Assembled Smart Composites with Molecular Actuators for Sensing and Soft Robotics Applications

10:00 – 10:30 Coffee Break

10:30 – 11:00 Hiroshi Jinnai Reassessing Chain Tilt in the Lamellar Crystals of Polyethylene by Electron-Diffraction Imaging

11:00 – 11:30 Gilles Lubineau High Performance Composite Bonding: A Material or Structural Challenge?

11:30 – 12:00 Antonios Doufas How to Build a Circular Economy for Polymers: New Developments and Gaps

12:00 – 14:00 Lunch (Campus Diner, by invitation)

Session 6 - Polymer Properties and Applications

Chair: Hermis Iatrou

14:00 – 14:30 Dana Al-Sulaiman A Stimuli-Responsive Polymeric Microneedle Based on High Renewable Carbon Content Materials

14:30 – 15:00 Gyorgy Szekely Polymer Membranes for Molecular Sieving in Organic Solvents

Poster Session (16:00-18:00; Bldg-9, Level 2)

&

Gala Dinner Sponsored by SABIC (19:30; Al Khozama Hotel, La Cucina restaurant (1st floor), by invitation)

Day 3

November 7, 2023, Tuesday (Auditorium 215 between Bldg. 4 & 5)

07:45 – 08:30

Breakfast

Session 7 – Polymer Characterization and Properties

Chair: Swaminathan Sivaram - Magnus Rueping

08:30 – 09:00

Albena Lederer

Advanced Field-Flow Fractionation for Supramolecular and Complex Macromolecular Structures

09:00 – 09:30

Luigi Cavallo

The Mechanics Ruling Polymerizations for a Greener Sustainable Future

09:30 – 10:00

Dimitris Vlassopoulos

Using Loopy Topology to Optimize Materials Properties

10:00 – 10:30

Coffee Break

10:30 – 11:00

Subramaniam Ramakrishnan

Photo-cross-stitching of Folded Periodically Grafted Amphiphilic Polymers

11:00 – 11:30

Evelyne van Ruymbeke

Dynamics of Metallo-Supramolecular Polymer Networks: From their Composition to their Viscoelastic Properties

11:30 – 12:00

Asha Syamakumari

Exploring Eco-Friendly Synthetic Strategies for P(NDI₂OD-T₂) and its Device Applications

12:00 – 14:00

Lunch (Campus Diner, by invitation)

16:00 – 19:00

Boat Trip with Dinner Sponsored by Saudi Aramco

Day 4

November 8, 2023, Wednesday (Auditorium 215 between Bldg. 4 & 5)

08:15 – 09:00 Breakfast

Session 8: Polymer Properties and Applications
Chair: Holger Frey - Subramaniam Ramakrishnan

09:00 – 09:30 Manickam Jayakannan Unexplored Territory of β -Sheet Polypeptides and Their Biomedical Applications

09:30 – 10:00 George Fytas Hypersonic Phononic Hybrid Metamaterials

10:00 – 10:30 Coffee Break

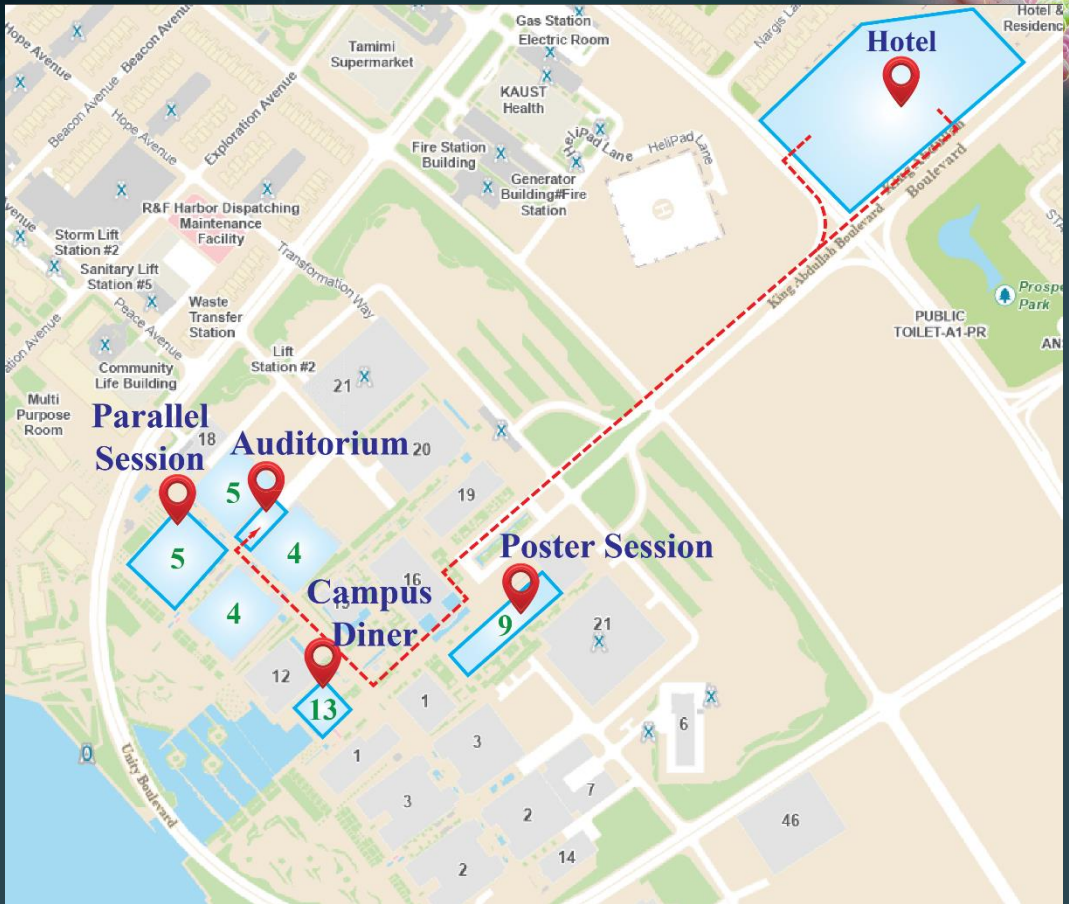
10:30 – 11:00 Bhoje Gowd Hierarchical Structure Formation in Poly(lactides): Role of Polymer Chain Packing on the Emissive Properties of Chromophore Embedded Poly(Lactide)s

11:00 – 11:30 Francisco D. Nieves Bogonez Non-metallic Materials: Supporting the Decarbonization of the Automotive Sector

11:30 – 12:00 Closing Remarks/Poster Awards

12:00 – 14:00 Lunch (Campus Diner, by invitation)

Campus Map



- Conference: Auditorium 215 between Building 4 & 5
- Parallel Session: Building 5, Level 5, Room 5209 & 5220
- Poster Session: Building 9
- Hotel: Al Khozama Hotel & Residence
- Lunch: Campus Diner (Building 13)
- Gala Dinner: Al Khozama Hotel, La Cucina Restaurant

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Organizing Committee:

Nikos Hadjichristidis

Chair, Distinguished Professor of Chemistry, KAUST

Suzana Nunes

Vice-Chair, Professor of Chemical and Environmental Science and Engineering and Vice-Provost for Faculty and Academic Affairs, KAUST

Nikhil Verghese

Vice-Chair, Corporate Fellow at SABIC's Corporate Technology and Innovation (T&I) Division, SABIC

*This event is organized by the **Polymer Synthesis Group** and **KAUST Catalysis Center (KCC)** with financial support from the **Office of Research Funding and Services (RFS)**.*



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For more information, please visit the Conference website at <https://kcc.kaust.edu.sa/2023-11-conference/home>