47TH ANNUAL MEETING
The Adhesion Society

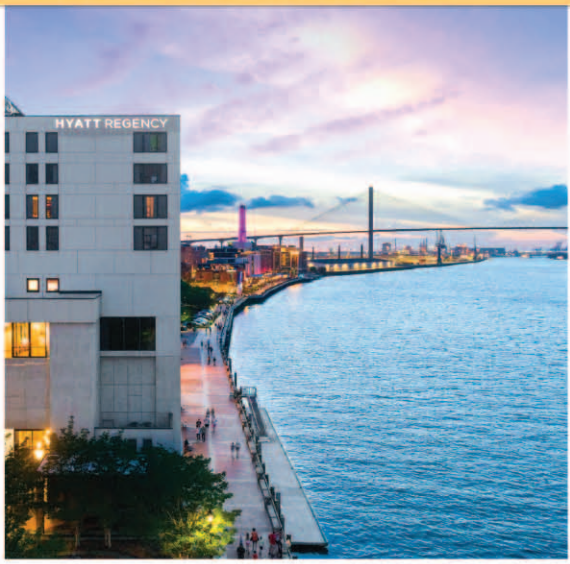
FEBRUARY 11-14, 2024

Hyatt Regency Savannah
SAVANNAH, GEORGIA

Meeting • Exhibition • Short Course

FINAL PROGRAM

Hotel Accommodations



Hyatt Regency Savannah

Two Bay Street
Savannah, GA 31401
Phone: 877-803-7534

DEADLINE: Thursday, January 18, 2024

Discounted Room Rate:
$207 single/double
Visit www.adhesionsociety.org to book discounted rooms.

IMPORTANT: *The Adhesion Society works directly with the hotel and does not work with third parties working on behalf of the hotel and/or the Society. Be sure you use the link on the Adhesion Society website or contact the hotel directly to make your reservations.*

The group rate is available until 5:00 p.m. EDT on Thursday, January 18, 2024.

Reserve your room as soon as possible as the group rate will not be available if the room block sells out prior to the deadline. Reservation requests received after January 18th will be charged standard rates as rooms are available.

You can make your reservation on the Adhesion Society website at www.adhesionsociety.org or contact the hotel directly at 877-803-7534. To secure the discounted group rate, please mention that you are attending the Adhesion Society Annual Meeting.

The Society kindly asks that you only reserve the number of rooms you need, so other attendees will not be turned away because the hotel room block is full. We appreciate your consideration.

Registration Info

Register today and save! *Registration for the Annual Meeting includes attendance at the technical meeting, all receptions and breaks, meeting proceedings and* ***one year membership*** *to the Adhesion Society.*

Annual Meeting • February 11-14, 2024

Standard Registration	$900
Standard Registration after January 15	$1,080
Fellow Registration	$525
Retiree	$300
Student & Postdoc Registration	$400
Student & Postdoc Registration after January 15	$480
Regular One-Day Registration	$350
Student One-Day Registration	$225
Guest Registration	$300

The Adhesion Science & Technology Short Course provides an introduction and overview to a variety of critically important topics in the field of adhesion. Highlighting the significant contributions that surfaces, adhesive chemistry, polymer behavior, and mechanics make to measured adhesion, the course provides strategic insights for bonding success ranging from structural to soft matter adhesion.

Adhesion Science & Technology Short Course Only • February 10-11, 2024

(PRIOR to Annual Meeting – New Pattern: Sat & Sun)

Regular Registration	$975
Student & Postdoc Registration	$325
Short Course with Annual Meeting Registration	$1,800
Student & Postdoc Short Course with Annual Meeting Registration	$700

Exhibition/Tradeshow February 11-13, 2024

This fee includes dedicated exhibit space and registration for one person from your company to attend the Annual Meeting and staff the tabletop. All others should register to attend the technical program. You may exhibit on the tabletop, use a backdrop and/or pop-up displays.

Single Exhibit Space	$1,200
Double Exhibit Space	$1,800

How to Register

Registration for the Annual Meeting, Short Course and the Exhibition can be found online at www.adhesionsociety.org. Register by January 15th for a $180 discount.

Pre-registration ends on January 15, 2024.
After that date, rates increase by 20 percent.

If you have any questions regarding registration, please contact Malinda Armstrong, Logistics & Home Office Manager at (301) 986-9724 or adhesionsociety@ascouncil.org.

GENERAL INFORMATION

Final Program Content

Registration/Information Hours

Registration Booth, Second Level

Sunday, February 11	Noon – 5:00 p.m.
Monday, February 12	7:00 a.m. – 5:00 p.m.
Tuesday, February 13	7:00 a.m. – 5:00 p.m.

EXECUTIVE COMMITTEE

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University of California, Berkeley

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Ngon Tran, *DEVCOM Army Research Laboratory*

Soft Adhesives Division Chair
Hyun-Joong Chung, *University of Alberta*

Home Office Manager/Onsite Contact
Malinda Armstrong, *The Adhesion Society*

2024 Program Chairs
Michael Bortner, *Virginia Tech* ***(Chair)***
Chelsea Davis, *University of Delaware* ***(Co-Chair)***

Adhesion Science and Technology EXHIBITION

Harborside Ballroom *(Sunday during Presidents Reception)*
Scarbrough Ballroom Foyer *(Monday-Tuesday)*

2024 EXHIBITORS

- **Anton Paar**
- **ASI Magazine**
- **Brighton Science**
- **DataPhysics Instruments USA Corp**
- **Photron USA, Inc.**
- **Psylotech Inc.**
- **Your Company Name Here**

Become an Exhibitor!

Contact Malinda: adhesionsociety@ascouncil.org

Sunday, February 11

Noon to 5:00 p.m. **Registration**
Registration Booth, Second Level

1:30 to 4:45 p.m. **2024 Award for Excellence in Adhesion Society Symposium**

Honoring Tim Long, Arizona State University

Session Chairs: Keren Zhang, Meta Reality Lab & Ann Fornof, 3M Company

sponsored by: 3M

Regency Ballroom ABC, Second Floor

1:30 p.m. **Introductory Remarks**
Joelle Frechette, University of California – Berkeley, Keren Zhang, Meta Reality Lab & Ann Fornof, 3M Company

1:40 p.m. **Rheology of Associating Polymers**
Ralph Colby, Penn State University

2:20 p.m. **Printing Outside the Box: Producing Multifunctional, High Performance Polymers through Additive Manufacturing Process Chains**
Christopher Williams, Virginia Tech

3:00 p.m. **AWARD PRESENTATION: Sticking with Adhesion: Thinking at the Molecular Scale**
Tim Long, Arizona State University & 2024 Award of Excellence Recipient

4:00 p.m. **BREAK**

4:15 p.m. **Elastocapillary Adhesion with Soft Gels**
Katharine Jensen, Williams College & 2023 Early Career Adhesion Scientist Award Recipient

5:00 – 6:15 p.m. **Business Meeting**
Regency Ballroom ABC, Second Floor

6:30 – 8:30 p.m. **Presidents Reception & Exhibition**
Harborside Ballroom, River Street, Lower Level

Please take a moment to welcome our exhibitors during the reception...

- **Anton Paar**
- **ASI Magazine**
- **Brighton Science**
- **DataPhysics Instruments USA Corp**
- **Photron USA, Inc.**
- **Psylotech Inc.**
- YOUR COMPANY NAME HERE

Please recycle this program when done.

Monday, February 12

7:00 a.m. – 5:00 p.m. **Registration**
Registration Booth, Second Level

7:00 – 7:45 a.m. **Networking Continental Breakfast**
Regency Ballroom ABC Prefunction, Second Floor

8:00 – 8:45 a.m. **PLENARY TALK I: Bio-inspired Metabolic-like Soft Material Design**
Jian Ping Gong, Hokkaido University
Session Chair: Chelsea Davis, University of Delaware
Regency Ballroom ABC, Second Floor

7:00 a.m. – 5:00 p.m. **EXHIBITION**
Visit these exhibitors between the posted hours...

- **Anton Paar**
- **ASI Magazine**
- **Brighton Science**
- *YOUR COMPANY NAME HERE*
- **DataPhysics Instruments USA Corp**
- **Photron USA, Inc.**
- **Psylotech Inc.**

MORNING TECHNICAL SESSIONS 9:00 to 11:55 a.m.

Daniel King Memorial Session
Regency Ballroom ABC, Second Floor
Session Chairs: Chelsea Davis, University of Delaware & Ryuji Kiyama, Hokkaido University

9:00 to 9:25 a.m.
Effect of Tape Thickness on Relationship Between Peeling Load and Stress Distribution in Peel-zone
Kosuke Takahashi, Hokkaido University

9:25 to 9:50 a.m.
Visualizing Capillary Detachment of a Microparticle from a Liquid Interface
Jonathan Pham, University of Cincinnati

9:50 to 10:15 a.m.
Fracture Mirror Law for Brittle Fracture of Soft Materials
Ryuji Kiyama, Hokkaido University

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
Metamaterial-based Adhesive Tapes for Enhanced Joint Performance for Soft Composites
Gabriela Lana, University of Massachusetts Amherst

11:10 to 11:25 a.m.
Tape Peel Adhesion on Extreme Substrates: From Roadways to Human Skin
Chelsea Davis, University of Delaware

11:25 to 11:40 a.m.
A Mechanism to Control the Mechanical Properties of Viscoelastic Composites
Ryoh Katoh, Hokkaido University

11:40 to 11:55 a.m.
Spray and Stick Roofing Adhesives: from R&D to Large Scale Testing
Brittany deRonde, OMG Roofing Products

Organismal and Biomimetic Adhesives I

Scarbrough Ballroom Two, Lobby Level-First Floor

Session Chair: Christopher So, Naval Research Laboratory

9:00 to 9:25 a.m. KEYNOTE
Biofilm-inspired Underwater Adhesives
Jing Yan, Yale University

9:25 to 9:50 a.m
High Throughput Bacterial Screening Methods to Interrogate Amyloid Formation of a Patterned 43 kDa Barnacle Cement Protein
Elizabeth Yates, United States Naval Academy

9:50 to 10:15 a.m.
Seeking Mechanistic Insights for Peptide Adhesive Interactions with Polystyrene and PMMA
Mark Kozlowski, DEVCOM Army Research Laboratory

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
The Mechanical Behavior of Leaves with Genetic Mutations Affecting Cell Structure and Adhesion
Michael Wilson, Purdue University

11:10 to 11:25 a.m.
Unraveling the Complexity of the Tyrosinase(s) Involved in the Blue Mussel Adhesive System
Emilie Duthoo, University of Mons

11:25 to 11:40 a.m.
Running Up That Hill: Locomotor Performance of Sea Urchins on Variable Inclines and Surface Roughness
Andrew Moura, Syracuse University

11:40 to 11:55 a.m.
Combining Evaporative Deposition and Dewetting to Fabricate Mesoscale Ribbons with Tunable Modulus
Cornelia Meissner, University of Massachusetts

Adhesives in Transportation, Electric Vehicles, and E-mobility

Scarbrough Ballroom Three, Lobby Level-First Floor

Session Chairs: Anne Dussaud, Momentive Performance Materials & Yao Qiao, Pacific Northwest National Laboratory

9:00 to 9:25 a.m.
Achieving Success with Automated Fluid Dispensing in Modern Automotive Assembly
Michael Bonner, Saint Clair Systems, Inc.

9:25 to 9:50 a.m. KEYNOTE
Surface Modification Strategies for Adhesive Bonding of Automotive Structures
Mary Gilliam, General Motors

9:50 to 10:15 a.m.
The Effect of Contaminants on Laser Ablation of Composite Materials
Joann Hilman, Brighton Science

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
Improved Strain-to-Failure Structural Adhesive Foams
Donald Paquet, L&L Products, Inc.

11:10 to 11:25 a.m.
Modeling Fatigue Debonding of Adhesives in E-Mobility Battery Packs
Mark Oliver, Veryst Engineering

11:25 to 11:40 a.m.
Development and Study of a New Silylated Polyurethane/Epoxy Hybrid Flexible Adhesive
Michael Youngberg, Momentive

11:40 to 11:55 a.m.
Surface Treatment of Discontinuous Carbon Fibers
Ngon Tran, DEVCOM Army Research Laboratory

Contact Mechanics

Scarbrough Ballroom Four, Lobby Level-First Floor

Session Chairs: Andrew Croll, North Dakota State University & Gabriel Sanoja, University of Texas at Austin

9:00 to 9:25 a.m.
The Strength and Statistical Variation of Micropatterned Adhesive Contacts with Interfacial Defects
Jamie Booth, California State University

9:25 to 9:50 a.m.
Fewer Polymer Chains but Higher Adhesion: How Gradient-stiffness Hydrogel Layers Mediate Adhesion Through Network Stretch
Alison Dunn, University of Florida

9:50 to 10:15 a.m. PEEBLES
How Lubricant Wettability Influences Sliding Friction for Soft Solids
Hao Dong, Lehigh University

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
Small-scale Roughness Entraps Water and Controls Underwater Adhesion
Nityanshu Kumar, University of Akron

11:10 to 11:25 a.m.
Peeling Sticky Blisters
Pei Ren, Syracuse University

11:25 to 11:40 a.m.
Visualizing Stress of a Confined Elastomer in Contact with a Rigid Body
Angie Daniela Rojas Cardenas, Purdue University

11:40 to 11:55 a.m.
Effect of Oil Miscibility on the Adhesion of Oil Filled Elastomers
Kurt VanDonselaar, North Dakota State University

Reversible, Smart, or Switchable I

Scarbrough Ballroom Five, Lobby Level-First Floor

Session Chair: Dohgyu Hwang, Dow Chemical Company

9:00 to 9:25 a.m.
PFAS-free Diazirine Crosslinkers for the Functionalization and Adhesion of Low-surface Energy Materials
Stefania Musolino, XlynX Materials Inc.

9:25 to 9:50 a.m.
Strategies on Adhesives Enabling System Circularity
Grace Wan, Dow Chemical Company

9:50 to 10:15 a.m.
Adaptive Epoxy Resins: How Do You Design Rapid Response in a Polymer Glass or Composite?
Joseph Dennis, DEVCOM Army Research Laboratory

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m. PEEBLES
Nature-inspired Microhook Structures for Directional Adhesion
Melika Farzam, Tulane University

11:10 to 11:25 a.m.
Thermo-Switchable Adhesives with Strong Adhesion and Fast, Repeatable Switching
Qianfeng Yin, Northeastern University

11:25 to 11:40 a.m.
Versatile Rigid-Soft Gripper with Active Membrane Switchable Adhesives
Yeunhee Kim, Virginia Tech

11:40 to 11:55 a.m.
Sustainable Cellulose-derived Polymer Composite with Reversible Multifunctionality in Response to Water
Yimin Yao, Virginia Tech

High Throughput Characterization and Machine Learning

Scarbrough Ballroom One, Lobby Level-First Floor

Session Chair: Tom Bekemeier, Dow Chemical Company

9:00 to 9:25 a.m.
Enabling High-Throughput Screening of Pressure Sensitive Adhesives by 3dP
Kaitlin Kay, Virginia Commonwealth University

9:25 to 9:50 a.m.
Adhesion Promoter Selection and Optimization through the Application of High Throughput Methodologies
Tom Bekemeier, Dow, Inc.

9:50 to 10:15 a.m.
Data Driven Strength Prediction of Adhesively Bonded Single Lap Joints Based on Automated Tests and Numerical FE Simulations
Serkan Cavdar, Henkel AG & Co. KGaA

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
High Throughput First Principle Prediction of Interfacial Adhesion Energies in Metal-on-metal and Metal-adsorbate-metal Contacts
Maria Clelia Righi, Alma Mater Studiorum - Universita di Bologna

11:10 to 11:25 a.m.
Deep Potential Molecular Dynamics Study of the Adhesion Properties of Gallate Anti-oxydant Additives as Friction Modifier on Iron Substrates
Mauro Ferrario, Universita di Modena e Reggio Emilia

11:25 to 11:40 a.m.
Fracture Surface Analysis of Single Lap Joints Immersed in Water Using Deep Learning
Kazumasa Shimamoto, National Institute of Advanced Industrial Science and Technology (AIST)

11:40 to 11:55 a.m.
Microrheological Monitoring of Polymerization Reactions
Caidric Gupit, University of California, Santa Barbara

Noon to 1:15 p.m.

Lunch on Your Own

12:15 to 1:15 p.m.

Bioadhesives Division Meeting
Plimsoll Room, Lobby Level-First Floor

Soft Adhesives Division Meeting
Vernon Room, Second Floor

Structural Adhesives Division Meeting
Sloane Room, Second Floor

AFTERNOON TECHNICAL SESSIONS
1:30 to 5:00 p.m.

Elastocapillarity & Wetting

Scarbrough Ballroom One, Lobby Level-First Floor

Session Chair: Katharine Jensen, Williams College

1:30 to 1:55 p.m.
Confinement Induced Alteration in the Interfacial Energy
Arka Roy, Indian Institute of Technology Kanpur

1:55 to 2:20 p.m.
Studying Kinetics of a Surface Reaction using Elastocapillary Effect
Nitish Singh, Indian Institute of Technology Kanpur

2:20 to 2:45 p.m.
Energies Associated with a Meniscus along a Flat Vertical Wall
Chuck Extrand, AceMarga

2:45 to 3:10 p.m.
Passive Transport of Water Droplets Against Gravity
Xiaoxiao Zhao, University of Toronto

3:10 to 3:35 p.m.
Influence of the solid-liquid adhesion on the friction of liquids
Frederic Restagno, Universite Paris Saclay

Bio-Sourced/Bio-Degradation

Scarbrough Ballroom Two, Lobby Level-First Floor

Session Chair: Alex Nyarko, Avery Dennison

1:30 to 1:55 p.m.
Bioinspired Underwater Adhesives Using Amyloids from Commonplace Proteins
Christopher So, Naval Research Laboratory

1:55 to 2:20 p.m. KEYNOTE
Enhancing Circularity of High-Performance, Biobased Polymers Through Advanced Recycling
Thomas Epps, University of Delaware

2:20 to 2:45 p.m. PEEBLES
Self-healing Hygroresponsive Adhesives from Mistletoe Viscin
Stephen George, McGill University

2:45 to 3:10 p.m.
Sliding Friction Through Dislocation Glide in Shape Complementary Soft Interfaces
Jasreen Kaur, Lehigh University

3:10 to 3:35 p.m.
The Impact of Renewable Raw Materials on Adhesive Formulations
Becky Kristopeit, Henkel

Fracture Mechanics #1

Scarbrough Ballroom Three, Lobby Level-First Floor

Session Chairs: Alex Arzoumanidis, Psylotech, Inc. & Christopher Jackson, Virginia Tech

1:30 to 1:55 p.m.
Modified Dauskardt Test for Microelectronics Interfacial Fracture
Alex Arzoumanidis, Psylotech, Inc.

1:55 to 2:20 p.m.
Adhesive Thickness Effects: Reflections On What We Think We Understand
David Dillard, Virginia Polytechnic Institute and State University

2:20 to 2:45 p.m.
Alternative Test Methods for Fracture of Coating Systems
Christopher Jackson, Virginia Tech

2:45 to 3:10 p.m.
Nonlinear Viscoelastic Effects on Interfacial Crack Growth with Epoxy Adhesives
Brandon Clarke, Sandia National Laboratories

3:10 to 3:35 p.m.
Cavitation in Filled Elastomers
Aditya Kumar, Georgia Institute of Technology

Gels, Elastomers, and Hybrids I

Scarbrough Ballroom Four, Lobby Level-First Floor

Session Chair: Hyun-Joong Chung, University of Alberta

1:30 to 1:55 p.m. KEYNOTE
Hierarchies of Time Scales and Structural Disorder in the Rheology of Soft Gels
Emanuela Del Gado, Georgetown University

1:55 to 2:20 p.m.
Mechanochemical Molecules to Quantify Stress and Damage in Soft Materials
Costantino Creton, ESPCI Paris

2:20 to 2:45 p.m.
How Does Gelation Affect the Mechanical Properties of Elastomers? Molecular Insights from Mechanochemistry
Gabriel Sanoja, University of Texas at Austin

2:45 to 3:10 p.m.
Using Laser-Induced Bubbles to Study the High Strain and High Strain Rate Mechanical Properties of Soft Elastomers
Katherine Evans, National Institute of Standards and Technology

3:10 to 3:35 p.m.
Mucoadhesive Surface Gel Layers
Angela Pitenis, University of California - Santa Barbara

Reversible, Smart, or Switchable II

Scarbrough Ballroom Five, Lobby Level-First Floor

Session Chairs: Gavin Lu, Dow Chemical Company & Stephanie Hughes, Dow Chemical Company

1:30 to 1:55 p.m.
Multimodal Rheometry of Dynamic Electromagnetic Materials
Terry Steele, Nanyang Technological University

1:55 to 2:20 p.m.
Nature-Inspired Acrylic Copolymers with Bisguanine Physical Crosslinkers for Reversible Adhesion
Rose McDonough, Arizona State University

2:20 to 2:45 p.m.
Dynamic Pressure-Sensitive Adhesion from Liquid Crystal Elastomers
Mohand Saed, University of Cambridge

2:45 to 3:10 p.m. PEEBLES
Solvent-free Printing of Photoreactive Unsaturated Polyesters: Probing the Influence of Interlayer Adhesion
Charlotte Barker, Arizona State University

3:10 to 3:35 p.m.
Debondable Pressure Sensitive Adhesives: Making Mussel-inspired TCC-adhesives Tacky and Reversible
Tilmann Neubert, Humboldt-Universität zu Berlin

3:35 to 3:55 p.m.
Afternoon Break

4:00 to 5:00 p.m.
Diversity, Equity, and Inclusion Session

Regency Ballroom ABC, Second Floor
Session Chair: Kim Felix, Virginia Tech

5:30 to 8:30 p.m.
Poster Session & Reception

Harborside Ballroom, River Street, Lower Level

Session Chair: Alex Nyarko, Avery Dennison

1. **Granular Composite with Addressable and Tunable Stiffness**
   Ahmed Elashwah, Virginia Tech
2. **Three-Phase Heat Transfer for Sustained Nucleate Boiling**
   Camryn Colon, Virginia Tech
3. **A Mechanism for Spontaneous Spreading of Liquids on Solid Surfaces**
   Chuck Extrand, AceMarga
4. **Forming a Permanent Hydrophilic Surface on PE through Bio-inspired Catechol/Amine Modification**
   Stephanie Hughes, Dow Chemical Company
5. **Synthetic Trees for Underground Water Extraction**
   Danielle Miller, Virginia Tech
6. **Organogel Coatings on Elastic Textiles to Shed off Mud/Ice/Slush Contaminants**
   Zhitong Lin, University of Alberta
7. **Eggless Vegan Food Emulsions**
   Nadia Nikolova, University of Illinois
8. **Photocurable Adhesives with Polymerization-induced Microphase Separation**
   Jong-Ho Back, Seoul National University
9. **Tuning High-speed Release Forces via Silicone Release Coating Modification**
   Deepti Kannan, University of Minnesota
10. **The Mechanics of a Single Layer Adhesive in 0-degree Peel Testing**
    Morgan Mosco, Virginia Tech
11. **Versatile Rigid-Soft Gripper with Programmable Control Methods to Enhance Adhesion**
    Camryn Mills, Virginia Tech
12. **Synthesis and Properties of Silicone Gels with Dynamic Imine Bonds**
    Ozge Akca Zengin, University of Alberta
13. **Development and Testing of a Clear Shield for Autonomous Vehicle Sensors**
    David Liu, University of Alberta

14. Enhancement of the Rate of Surface Reactions by Elasto-capillary Effect
Aisha Ahmed, Indian Institute of Technology Kanpur

15. A New Adhesive Structure Using an Epoxy Monolith Sheet to Improve High Temperature Cycle Resistance
Yoshiyuki Kamo, Mitsubishi Electric Corporation

16. Development of New Sustainable Cyanoacrylate Adhesives
Xinyu Wei, Henkel

17. Structural Validation of Physical Aging Predictions for Epoxy Glasses
Jamie Kropka, Sandia National Laboratories

18. Novel Wet Adhesives Derived from Vibrio Cholerae Biofilm Adhesins for Industrial and Biomedical Applications
Xin Huang, Yale University

19. The Glycocalyx's Critical Role in Viral Adhesion: Insights from Experimental and Simulation Studies
Matthew Ziarnik, Lehigh University

20. Self-assembly Behavior of Thermotropic Glycolipids: Implications to Adhesion
Arit Das, University of Minnesota

21. Evaluating the Compatibility of Model Silicone Elastomers with Silicone Oils, and Their Interaction with Ice Adhesion
Maryam Safaripour, North Dakota State University

22. Octopus-inspired Adhesive Skins for Intelligent and Rapidly Switchable Underwater Adhesion
Aldo Heredia, Virginia Tech

23. Characterization of Adhesion Behavior of Silicone Elastomers, Nanocomposite in Nanoscale and Micro-scale
Masoumeh Nazem Salimi, North Dakota State University

24. Biomimetic Artificial Knee Meniscus
Melika Farzam, Tulane University

25. The Effects of Localized Phase Transitions on the Formation and Separation of Interfaces at Extreme Temperatures *Serena Birnbaum, University of Massachusetts Amherst*

26. Explore the Phase Transition of Polyolefin/Tackifier Blends Using Automated High Throughput Turbidity Measurement *Amanda Johnson, Dow*

Tuesday, February 13

6:00 – 7:00 a.m. **5K Run**
Attendees should meet in the lobby at 5:45 a.m. Maps will be provided.

7:00 a.m. – 5:00 p.m. **Registration**
Registration Booth, Second Level

7:00 – 7:45 a.m. **Networking Continental Breakfast**
Regency Ballroom ABC Prefunction, Second Floor

8:00 – 8:45 a.m. **PLENARY TALK II: Role of high-aspect Renewable Nanoparticles in the Development of Aqueous-based Adhesives**
Orlando Rojas, University of British Columbia
Session Chair: Michael Bortner, Virginia Tech
Regency Ballroom ABC, Second Floor

8:45 – 9:00 a.m. **Early Career Scientist Award Presentation, Best Poster Award Presentation, Distinguished Paper, & Patrick Fellow Awards Presentation**
Regency Ballroom ABC, Second Floor

7:00 a.m. – 5:00 p.m. **EXHIBITION**
Visit these exhibitors between the posted hours...

- Anton Paar
- ASI Magazine
- Brighton Science
- *YOUR COMPANY NAME HERE*
- DataPhysics Instruments USA Corp
- Photron USA, Inc.
- Psylotech Inc.

MORNING TECHNICAL SESSIONS 9:00 a.m. to Noon

Biomedical I
Scarbrough Ballroom One, Lobby Level-First Floor
Session Chair: Bruce Lee, Michigan Technological University

9:00 to 9:25 a.m. KEYNOTE
Multifunctional Bioadhesives for Sealing and Repair of Soft Tissue
Nasim Annabi, University of California

9:25 to 9:50 a.m.
Bioinspired Printable Tough Adhesives with Triggerable Extreme Mechanical Enhancement
Zhenwei Ma, University of British Columbia

9:50 to 10:15 a.m.
Establishing an Ex Vivo Model of Peristomal Skin Damage towards Developing Novel Ostomy Adhesives
Jayant Joshi, Hollister Incorporated

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
Block Polyelectrolytes Scaffolds for Underwater Injection and Bioadhesion
Fahed Albreiki, University of California - Los Angeles

11:10 to 11:25 a.m.
Highly Elastic and Tough Adhesive Patch for Sealing and Controlling Traumatic Bleeding of Internal Organs
Yuting Zheng, University of California - Los Angeles

11:25 to 11:40 a.m.
Catechol-functionalized Polymers: from Bulk Adhesive to Adhesive Hydrogels
Alexandre Lancelot, Purdue University

11:40 to 11:55 a.m.
Effect of 6-hydroxylation of Catechol on Its Curing and Adhesive Behaviors
Bruce Lee, Michigan Technological University

Fracture Mechanics II

Scarbrough Ballroom Two, Lobby Level-First Floor

Session Chairs: Nao Terasaki, National Institute of Advanced Industrial Science & Technology (AIST)

9:00 to 9:25 a.m.
Dynamics and Mechanics of Model Reprocessable Structural Adhesives
Broderick Lewis, Northwestern University

9:25 to 9:50 a.m.
Expanding the TUFF and TUTTUT methods: Stretching Ultrathin Rubbery Polymers Films and Microbial Biofilms
Konane Bay, University of Colorado Boulder

9:50 to 10:15 a.m. KEYNOTE
Debonding Mechanisms of PSA Foam Tapes
Matteo Ciccotti, ESPCI Paris

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
Damage Quantification of Thin Films on Soft Substrate
Akash Singh, ESPCI Paris

11:10 to 11:25 a.m.
Crack Path Measurement for Disambiguation of Failure Modes in Pull-off Adhesion Tests
Heather Liddell, Purdue University

11:25 to 11:40 a.m.
Computer Vision-Enhanced Measurement of Adhesive Toughness at Impact Rates
Scott Grindy, Veryst Engineering

11:40 to 11:55 a.m.
Intrinsic Fracture Toughness of a Viscoelastic PSA Film
Xingwei Yang, University of Colorado

Pressure Sensitive Adhesives I

Scarbrough Ballroom Three, Lobby Level-First Floor

Session Chair: Jonathan Pham, University of Cincinnati

9:00 to 9:25 a.m.
Selective Mechanical Deconstruction of Multilayer Films
Naomi Deneke, Georgia Institute of Technology

9:25 to 9:50 a.m.
The Elastic Theory of Cavitation: A Critical Review
Evan Breedlove, 3M Company

9:50 to 10:15 a.m.
Magnetic Processing of Aqueous Block Copolymer Solutions for Soft Adhesive Applications
Arit Das, University of Minnesota

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m. KEYNOTE
Tuning Adhesion Strength in Polyester/Polyamide Systems
Jan Genzer, North Carolina State University

11:10 to 11:25 a.m.
Patterning Effects on a Pressure-sensitive Adhesive: Experiments and Simulations
Hyunki Kim, 3M Company

11:25 to 11:40 a.m.
How to Recycle (Almost) Any Laminated PE with Adhesives
Gavin Lu, Dow Chemical Company

11:40 to 11:55 a.m.
Materials and Mechanics for Human Touch
Charles Dong, University of Delaware

Gels, Elastomers, Hybrids II

Scarbrough Ballroom Four, Lobby Level-First Floor

Session Chair: Edoardo Nicoli, Dow Chemical Company

9:00 to 9:25 a.m.
Data-driven Framework for the Prediction of PEGDA Hydrogel Mechanics
Megan Valentine, University of California

9:25 to 9:50 a.m. PEEBLES
Photoswitchable Gel Lubricity & Adhesion
Allison Chau, University of California

9:50 to 10:15 a.m.
Tough Soft Adhesive for Ultra Brittle and Low-strength Substrates
Zhen Yang, McGill University

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
Mechanistic Insights into Elastomer Frictional Wear Using Damage-reporting Mechanophores
Ombeline Taisne, ESPCI Paris

11:10 to 11:25 a.m.
Adhesion Mechanisms of Silane-terminated Polymers
Gabriel Santos, ESPCI Paris

11:25 to 11:40 a.m.
Morphological Origins of Soft Thermoplastic Elastomer Funny Failure Behavior
Michelle Seitz, AAAS Science and Technology Policy Fellow

11:40 to 11:55 a.m.
Biodegradable Unfilled Elastomers with a Multiclass Nanogranular Phase-separated Structure Showing Ultrahigh Toughness
Yanbin Fan, Dow

Reversible III & 3D Printing

Scarbrough Ballroom Five, Lobby Level-First Floor

Session Chairs: Mike Bartlett, Virginia Tech & Ruobing Bai, Northeastern University

9:00 to 9:25 a.m.
Octopus-inspired Adhesives for Underwater Attachment
Chanhong Lee, Virginia Tech

9:25 to 9:50 a.m
Tack Testing of Photo-switchable Liquid Crystalline Elastomer Adhesives
Brandon Clarke, University of Texas at Austin

9:50 to 10:15 a.m.
Mechanistic Study of Covalent Bond-Switching in a Dynamically Crosslinked PMMA-PHEMA Copolymer
Larry Luster, Virginia Tech

10:15 to 10:45 a.m.
BREAK

10:45 to 11:10 a.m.
PET Depolymerization Products as Monomers for Polyurethane Hot Melt Adhesives
Clarissa Westover, Arizona State University

11:10 to 11:25 a.m.
Effect of Molecular Weight and Molecular Weight Distribution of Polypropylene on Recrystallization Kinetics in Additive Manufacturing
Mohamed Nour, Virginia Tech

11:25 to 11:40 a.m.
Relationship of Curing on Interlayer Adhesion and Geometric Fidelity for Dual Cure Direct Ink Write Additive Manufacturing
Ray Peterson, Virginia Tech

11:40 to 11:55 a.m.
Rheology and Direct Ink Write of Cellulose-based Nanocomposites
Kevin Ramos Lopez, Virginia Tech

Noon to 1:30 p.m.

Lunch on Your Own

2025 Program Planning Meeting

(committee members only)

Vernon Room, Second Floor

AFTERNOON TECHNICAL SESSIONS
1:30 to 5:00 p.m.

Underwater Adhesion and Testing

Scarbrough Ballroom One, Lobby Level-First Floor

Session Chair: Michael Wilson, Purdue University

1:30 to 1:55 p.m.
Tuning a Protein-based System for Dry Versus Underwater Adhesion
Jonathan Wilker, Purdue University

1:55 to 2:20 p.m.
Probing Molecular Structures of Buried Interfaces in situ to Understand Bioadhesion Mechanisms
Zhan Chen, University of Michigan

2:20 to 2:45 p.m.
Multidentate Hydrogen Bonding for Robust Underwater Adhesion
Zach Lamberty, University of California - Berkeley

2:45 to 3:10 p.m.
Adhesion Study of Cholera Bacterial Adhesion Peptides Using Surface Forces Apparatus
Syeda Tajin Ahmed, University of California - Merced

3:10 to 3:35 p.m.
Control Underwater Bioadhesion with Surface Topography and Molecular Interactions
Pongsakorn Nuchanong, ESPCI Paris

Fracture Mechanics III

Scarbrough Ballroom Two, Lobby Level-First Floor

Session Chair: Bin Wei, PPG Industry & Broderick Lewis, Northwestern University

1:30 to 1:55 p.m.
Correlating Surface Morphology of Cut Soft Solids with Loading Conditions
Shelby Hutchens, University of Illinois Urbana-Champaign

1:55 to 2:20 p.m.
Slicing of a Soft Solid
Preetika Karnal, Lehigh University

2:20 to 2:45 p.m.
Quantification of Stress Fields Ahead of a Cutting Blade via Mechanophores
Tyler Roberts, Purdue University

2:45 to 3:10 p.m.
On Plasticity-enhanced Interfacial Toughness in Bonded Joints
Dave Reedy, Sandia National Laboratories (Retired)

3:10 to 3:35 p.m.
Structural adhesive bonding of polymers - Adhesion mechanism and the role of surface of chemistry
Elisa Arikan, Bundeswehr Research Institute for Materials

Pressure Sensitive Adhesives II

Scarbrough Ballroom Three, Lobby Level-First Floor

Session Chairs: Yinzhong Guo, Dow Chemical Company & Jamie Booth, California State University, Northridge

1:30 to 1:55 p.m. KEYNOTE
Design of Pressure-Sensitive Adhesives for Flexible Displays
Hyun-Joong Kim, Seoul National University

1:55 to 2:20 p.m.
Towards a Complete Theory of Fracture for Elastomers
Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign

2:20 to 2:45 p.m.
Interfacial Fatigue Fracture of Pressure Sensitive Adhesives
Ruobing Bai, Northeastern University

2:45 to 3:10 p.m.
Using Temperature to Simulate Thixotropy During Sealer & Adhesive Application
Michael Bonner, Saint Clair Systems, Inc.

3:10 to 3:35 p.m.
Unveiling the Role of Compositional Drifts on the Tack of Pressure-Sensitive-Adhesives
Anthony Arrowood, University of Texas at Austin

Organismal and Biomimetic Adhesives II

Scarbrough Ballroom Four, Lobby Level-First Floor

Session Chair: Mark Kozlowski, DEVCOM Army Research Laboratory

1:30 to 1:55 p.m.
The Effect of Temperature and Humidity on Gecko Adhesion and Locomotion
Alyssa Stark, Villanova University

1:55 to 2:20 p.m.
Recyclable Bio-adhesives: Comparative Investigation of Structure-function Relationships in Velvet Worm Slime
Gagan Daliaho, McGill University

2:20 to 2:45 p.m.
Hyposalinity Negatively Impacts Adhesive Performance and Mechanical Properties of Sea Urchin Tube Feet
Austin Garner, Syracuse University

2:45 to 3:10 p.m.
Etheria Elliptica Shell and Adhesive Structure, Composition, and Function
Rebecca Metzler, Colgate University

3:10 to 3:35 p.m.
Elucidating the Role of Histidine-rich Proteins in Mussel Adhesive Curing
Mathieu Rivard, McGill University

Tools and Methods for Characterization I

Scarbrough Ballroom Five, Lobby Level-First Floor

Session Chairs: Joann Hilman, Brighton Science & Amanda Johnson, Dow Chemical Company

1:30 to 1:55 p.m.
Significance of Receding and Advancing Contact Angles for the Evaluation of Surface Preparation for Bonding
Rose Dean, Brighton Science

1:55 to 2:20 p.m. PEEBLES
Friction Force-based Measurements for Simultaneous Determination of the Wetting Properties and Stability of Superhydrophobic Surfaces
Mohamadreza Beitollahpoor, Tulane University

2:20 to 2:45 p.m.
Enhancing Durability of Adhesive Bonding by Laser Surface Treatment of Galvanized Steel and Aluminum Surfaces
Shin Horiuchi, National Institute of Advanced Industrial Science & Technology (AIST)

2:45 to 3:10 p.m.
Effect of Laser Pretreatment on Al and Fe Surface for Adhesive Joint Performance and Evaluation of the Interfacial Strain Distribution Using Mechanoluminescence
Nao Terasaki, National Institute of Advanced Industrial Science & Technology (AIST)

3:10 to 3:35 p.m.
Power Amplified Dynamic Mechanical Analyzer (PADMA) for Mechanical Characterization
Yue Zheng, Drexel University

3:35 to 4:00 p.m.
Afternoon Break

4:00 to 5:00 p.m.
Sustainability & Adhesion Session
Chairs: Grace Wan, Dow Chemical Company & Naomi Deneke, Georgia Institute of Technology
Regency Ballroom ABC, Second Floor

5:30 to 7:00 p.m.
Women's Networking Reception
Chairs: Shelby Hutchens, University of Illinois Urbana-Champaign & Alison Dunn, University of Florida
Savannah Private Dining Room,
Lobby Level-First Floor

7:00 to 8:30 p.m.
Young Researcher Networking Event
Chairs: Tyler Roberts, Purdue University, Arit Das, University of Minnesota & Allison Chau, University of California Santa Barbara
Savannah Private Dining Room,
Lobby Level-First Floor

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Wednesday, February 14

7:00 – 7:45 a.m. **Breakfast on Your Own**

8:00 – 8:45 a.m. **PLENARY TALK III: Barnacle Adhesion Tenacity – There's More to It Than Glue**
Kathryn Wahl, Naval Research Laboratory
Session Chair: Chelsea Davis, University of Delaware
Regency Ballroom ABC, Second Floor

8:45 – 9:00 a.m. **Peebles Awards Presentations**
Regency Ballroom ABC, Second Floor

MORNING TECHNICAL SESSIONS 9:00 a.m. to Noon

Biomedical II
Scarbrough Ballroom One, Lobby Level-First Floor
Session Chair: Zhenwei Ma, University of British Columbia

9:00 to 9:25 a.m.
Mechanical Interfaces in Disease Modeling: From Fibrosis to Osteoarthritis
Charles Dhong, University of Delaware

9:25 to 9:50 a.m. KEYNOTE
Engineering Material Surfaces for Modulating Cell Adhesion
Ketul Popat, Colorado State University

9:50 to 10:15 a.m.
Tuning Reversible Wet Adhesion of Catechol-like Surface Primers
Roberto Andresen Eguiluz, University of California - Merced

10:15 to 10:45 a.m.
BREAK

10:45 to 11:00 a.m.
Controlling the Retardation Effects of Catechol Moieties in the Application of Dental Adhesion
Denghao Fu, Michigan State University

11:00 to 11:15 a.m.
Investigating the State of Water on the Denaturation and Aggregation of Proteins in Barnacle-inspired Underwater Adhesives
Chloe Skogg, United States Naval Academy

11:15 to 11:30 a.m.
Detection of Residual Solvent in Electrospun Polymeric Nanofibers with Optical Tensiometry for Enhanced Adhesion and Safety in Medical Devices
Vincent Ovalle, Nanoscience Instruments

11:30 to 11:45 a.m.
Tacky Hydrogels via Liquid Metal Inclusions
Tushar Sakorikar, North Carolina State University

11:45 a.m. to Noon
Liquid Metal-elastomer Composites for Water-resilient Soft Electronics
Ella Williams, Virginia Tech

Adhesives in Extreme Environments and Transportation

Scarbrough Ballroom Two, Lobby Level-First Floor

Session Chairs: Kevin Golovin, University of Toronto & Patty Haipeng Zheng, Younger Optics

9:00 to 9:25 a.m. KEYNOTE
Multifunctional Structural Materials for Sustainable Aviation and Space Exploration in Extreme Aerospace Environments
Cheol Park, NASA Langley Research Center

9:25 to 9:50 a.m.
Network Topology of a Reprocessable Structural Epoxy
Benjamin Hafner, Northwestern University

9:50 to 10:15 a.m.
Ice on Surfaces: A Problem of Adhesion by a Crystalline Material
Emily Asenath-Smith, US Army ERDC CRREL

10:15 to 10:45 a.m.
BREAK

10:45 to 11:00 a.m.
Outstanding Properties of CNSL-based Polyols, Diols, and Monols in Electrical Vehicle Applications
Yun Mi Kim, Cardolite Corporation

11:00 to 11:15 a.m.
Design of Double Network Bioadhesives for Tissue Adhesion
Terry Steele, Nanyang Technological University

11:15 to 11:30 a.m.
Using Mechanochemistry to Visualize the Microballistic Impact of Block Copolymer Films
Polette Centellas, National Institute of Standards and Technology (NIST)

11:30 to 11:45 a.m.
Determination of the Shear Properties of Adhesive Bonded Dissimilar Substrates
Aisha Ahmed, Indian Institute of Technology Delhi

11:45 a.m. to Noon
Novel Epoxy Resin for Industrial Adhesives Applications
Yong Zhang, Huntsman Corporation

Pressure Sensitive Adhesives III

Scarbrough Ballroom Three, Lobby Level-First Floor

Session Chair: Anthony Arrowood, University of Texas at Austin

9:00 to 9:25 a.m.
Rheometric Advances to Overcome Challenges Associated with Characterizing Pressure Sensitive Adhesives (PSA's)
Abhishek Shetty, Anton Paar USA, Inc.

9:25 to 9:50 a.m.
Rheology and Dispensing of Real and Vegan Mayo: The Chickpea or Egg Problem
Nadia Nikolova, University of Illinois Chicago

9:50 to 10:15 a.m.
Bonding Two Dissimilar Soft Materials Using a Two-phase Material as the Glue
Tanima Bhowmick, Indian Institute of Technology, Kanpur

10:15 to 10:45 a.m.
BREAK

10:45 to 11:00 a.m.
Sustainable, Biodegradable Poly(Glycerol Carbonate) Pressure Sensitive Adhesives as Alternatives to Polyacrylate Pressure Sensitive Adhesives
Danielle Fitzgerald, Boston University

11:00 to 11:15 a.m.
Measurements of Interfacial Crack Speeds at Soft/Hard Interfaces
Leo-Stanley Ndunagum, North Dakota State University

11:15 to 11:30 a.m.
Hydrophilic and Hydrophobic Textured Surfaces of Photopolymerization Induced Phase Separation Resins Through Liquid Interface Directed Patterning
Sabrina Curley, Michigan State University

11:30 to 11:45 a.m.
Curing Evolution of Acrylate-based UV Cross-linkable Adhesives
Soroosh Farsiani, Oklahoma State University

11:45 a.m. to Noon
Investigating the Frictional Response of Uni-directional Carbon Fiber Prepregs Associated with the Composite Forming Process
Martin Etemadi, Virginia Tech

Soft Robotics and Electronics

Scarbrough Ballroom Four, Lobby Level-First Floor

Session Chairs: Hyun-Joong Chung, University of Alberta & Mike Bartlett, Virginia Tech

9:00 to 9:25 a.m.
Designing Liquid Metal Microstructures Through Direct Ink Writing
Ohnyoung Hur, Virginia Tech

9:25 to 9:50 a.m.
Plant-Inspired 3-D Printable Active Soft Solids for Biomedical Devices
Alex Spitzer, University of Illinois Urbana-Champaign

9:50 to 10:15 a.m.
Multifunctional Adhesives with Liquid Metal Elastomer Composites
Ravi Tutika, Virginia Tech

10:15 to 10:45 a.m.
BREAK

10:45 to 11:00 a.m.
Direct Ink Writing to Control LM-composites Properties
Wuzhou Zu, Virginia Polytechnic Institute and State University

11:00 to 11:15 a.m.
Effect of Ply Angle on Tack of Prepregs
John Paradise, Virginia Tech

11:15 to 11:30 a.m.
Synthesis of Urethane-modified Epoxy Using CO2 for Epoxy Composites with Tunable Properties: Toughened Polymer, Elastomer, and Pressure-sensitive Adhesive
Jong-Ho Back, Seoul National University

11:30 to 11:45 a.m.
Electrostatic De-Icing
Venkata Yashasvi Lolla, Virginia Tech

11:45 a.m. to Noon
Rheology and Effect of Dispersion on 3D Printing of Chitosan-Graphene-Titanium Dioxide Composites
Mariama Alidu, Virginia Tech

Tools and Methods for Characterization II

Scarbrough Ballroom Five, Lobby Level-First Floor

Session Chairs: Arit Das, University of Minnesota-Twin Cities & Christopher Jackson, Virginia Tech

9:00 to 9:25 a.m.
Analytical Investigation and Evaluation of the Stability of Adhesives in Liquid Media
Maximilian Heym, Welding and Joining Institute (ISF) - RWTH Aachen

9:25 to 9:50 a.m.
Probing Molecular Behavior of Silicone Adhesives at Buried Interfaces in situ Using Sum Frequency Generation Vibrational Spectroscopy and Molecular Dynamics Simulation
Yuchen Wu, University of Michigan

9:50 to 10:15 a.m.
Accelerated Creep Tests for Pressure Sensitive Adhesives using the Stepped Isostress Method and the Time-Stress Superposition Principle
John McAllister, 3M Company

10:15 to 10:45 a.m.
BREAK

10:45 to 11:00 a.m.
Interpretation of Bulk and Adhesive Fatigue Damage in Pressure-Sensitive Adhesives
Qihua Chen, 3M Company

11:00 to 11:15 a.m.
Applying Time Temperature Superposition to Large Strain Shear Data in Foldable Applications
Abigail Gill, 3M Company

11:15 to 11:30 a.m.
Using a Specially-Modified Force Tensiometer for Gas Bubble Adhesive Force Measurements on Nanostructured Copper Electrodes Submerged in a Liquid
Paul Simutis, DataPhysics Instruments USA Corp

11:30 to 11:45 a.m.
Characterization of the Molecular-Scale Contact Between Surfaces using Vibrational Spectroscopy
Utkarsh Patil, University of Akron

11:45 a.m. to Noon
Elucidating Molecular Mechanisms on Adhesion Enhancement by Corona Treatment
Xuhong Chen, University of Michigan

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Notes:

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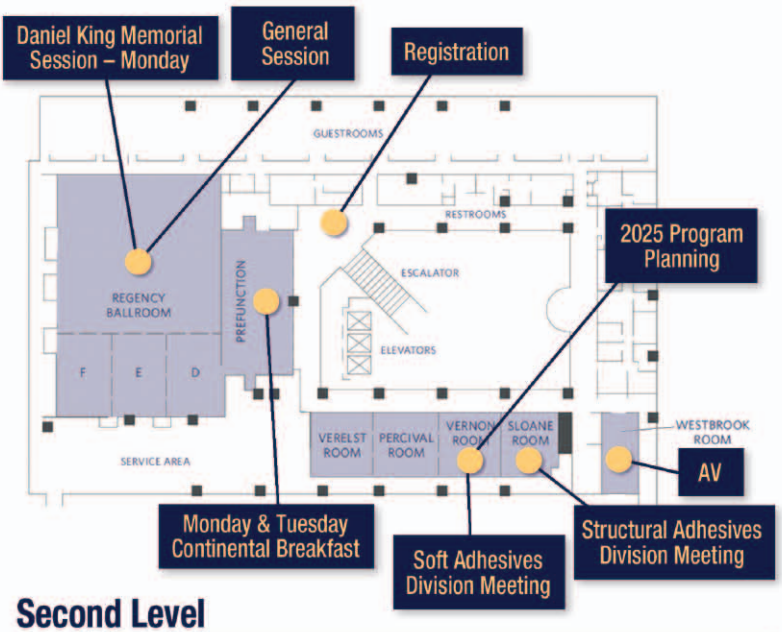
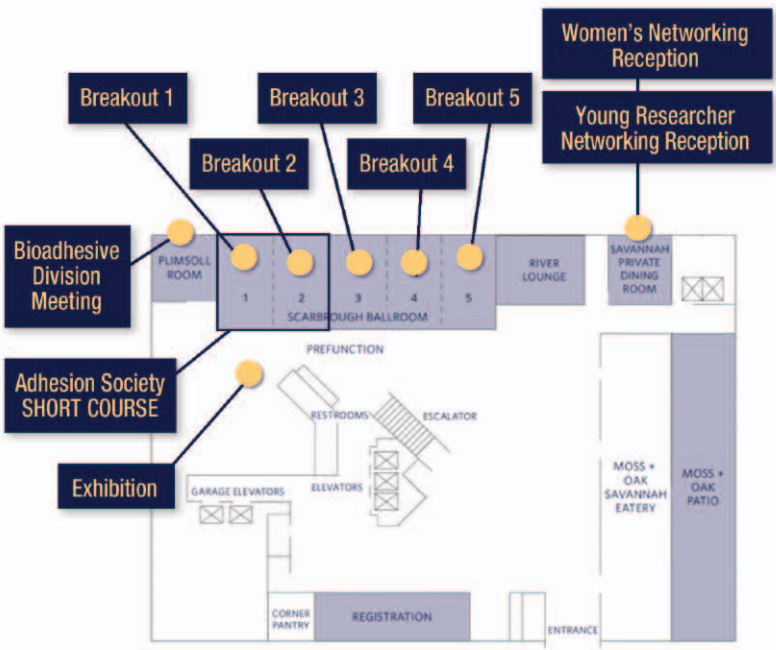
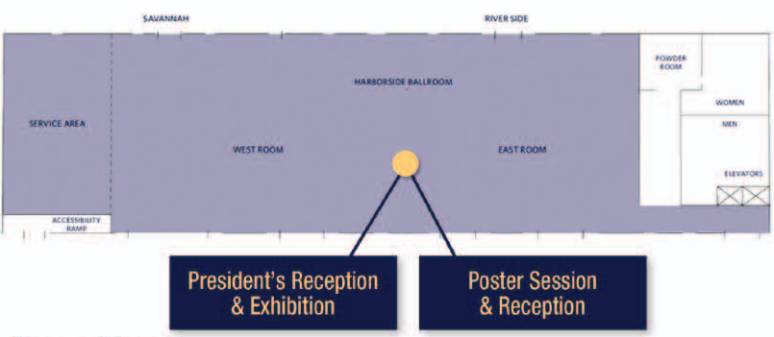


Second Level



Lobby Level – First Floor



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