

# Adhesion Connection

*a semestrial update from the society*



The Adhesion Society

2019 EDITION

## Letter from the President

Dear Fellow Adhesion Society Members,

I remain honored to serve as President of the Adhesion Society, and our Society continues to nurture excellence in adhesion science while cultivating the next generation of scientific leaders. The World Congress on Adhesion and Related Phenomena in 2018 in San Diego catalyzed an amazing trajectory for the Society and our profession, and our 2019 annual meeting attracted the highest number of attendees, exceeding 330 participants! Thanks to dedicated program chairs, Nick Shephard and Chris Wohl, a use-inspired fundamental research approach has broadened our definition of adhesion science, ranging from reversible adhesion and bio-inspired adhesion to responsive surface chemistry and tunable interfaces in additive manufacturing. I would especially like to thank our former Program co-Chair, Chris Wohl from NASA, for his leadership, vision, and tireless approach to redesigning our approach to technical programming to ensure continuity and excellence. I also want to thank Malinda Armstrong for her attention to detail, from the selection of the conference venue to the printing of presentation abstracts, which collectively ensures success at the national meetings. Their dedication to the Society is unwavering and amazing!

We remain committed to growing our membership and welcoming diversity and inclusion of all scientists with a passion for excellence in adhesion science. This year was our inaugural networking event for early career scientists, and we will continue this mechanism to welcome new scientists and provide insight and assistance to accelerate their early impact on science and our profession. We also remain committed to continuing education with the adhesion science short course, and we welcome new instructors this coming year who will bring a fresh perspective to the fundamentals of adhesion science. The adhesion science short course, which occurs immediately prior to the technical conference, also attracted nearly 45 participants, representing a vibrant kick-start to the annual meeting. Thanks to Prof. Dave Dillard from Virginia Tech and his fellow instructors for delivering an engaging and interdisciplinary course in Charleston. We also had the opportunity to recognize one of our scientific leaders, Prof. Al Crosby from the University of Massachusetts Amherst, as the recipient of the 2019 Award for Excellence in Adhesion, sponsored by the 3M Company. The award session on Sunday afternoon captivated the audience with a diversity of adhesion science and concluded with Prof. Crosby's lecture dealing with bio-inspired materials mechanics with focus on interfaces and instabilities. Henkel Corporation continues to support the Peebles Award Symposium, where our future leaders in adhesion science presented their latest findings; it is always challenging to select the top student presentations. This seamless integration of faculty, students, and, government and industrial researchers defines the Society and ensures an intertwined professional network for years to come.

Save the date! The 43rd Annual Meeting will be held on February 23-26, 2020 at the Charleston Marriott in Charleston, South Carolina. We continue the tradition of holding the annual meeting in a warm and beautiful location during the colder month of the year, representing an opportunity



*Timothy Long, President  
(Virginia Tech)*

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### EXECUTIVE COMMITTEE

#### **PRESIDENT**

**Timothy Long**

Virginia Tech

#### **VICE CHAIR**

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**Erich Bain**

U.S. Army Research Laboratory

#### **SOFT ADHESIVES**

#### **DIVISION CHAIR**

**Jonathan Pham**

University of Kentucky

### THE ADHESION SOCIETY INC.

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*Queries can be sent to Malinda Armstrong,  
the Adhesion Society Home Office Manager  
at [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org).*

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nity to escape colder temperatures and discuss the latest findings in our field. I am excited to see the attendance at our annual meeting growing, and parallel technical sessions and posters combined with opportunities for professional networking will be an excellent opportunity for all. I want to thank Nick Shephard from the Dow Corporation and Michelle Seitz from DSM, who accepted the challenge to serve together as program co-chairs for the conference. Nick and Michelle bring a complementary perspective on adhesion science, and this is only the second time we have welcomed co-chairs, ensuring a diverse technical program with industrial relevance. We are also pleased to announce the selection of Prof., Ali Dhinojwala from the University of

Akron as the recipient of the 3M-sponsored 2020 Award for Excellence in Adhesion! We look forward to an exciting session at the conference in honor of Prof. Dhinojwala and his students.

Please contact me if you have suggestions to advance the Adhesion Society or if you simply want to get involved at any level. I look forward to seeing you in Charleston!

Timothy Long

*Adhesion Society President 2018-2020*

Shantanu Ranade

*Editor*

## 3M Award for Excellence in Adhesion Science presented to Dr. Ali Dhinojwala from The University of Akron



**Dr. Ali Dhinojwala**, *The University of Akron*

It is our great pleasure to announce Professor Ali Dhinojwala of the University of Akron as the 2020 recipient of the Award for Excellence in Adhesion Science sponsored by 3M. Dr. Ali Dhinojwala, H.A. Morton Professor of Polymer Science, currently serves as Interim Dean of Polymer Science and Polymer Engineering at the University of Akron, and has held various roles such as department chair and Co-PI of the Biomimicry Research Innovation Center (BRIC) at this university.

His work has significantly elevated our understanding of the underlying molecular processes latently afoot within polymer-polymer/solids/air interfaces which are absolutely critical to the broader field of adhesion science. Over several years, Ali has developed a profound understanding of how rubbery materials interact with hard substrates using various and elegant methods, including Sum-Frequency Generation Spectroscopy (SFG). Using SFG in particular, Ali has carried out investigations of buried interfaces, which are of great interest to those studying the adhesion and tribology of rubbery materials. Ali's detailed investigations with SFG has changed the way we think about adhesion and friction at the interface between polymers, as well as in more complex configurations including oil, water, and ice.

Ali's research is highly cited and valued in both the academic and industrial communities producing several ground-breaking contributions to the field of adhesion science. Additionally, Ali's work has been highlighted in global outlets such as The New York Times, Nature, Science, The Discovery Channel, and the BBC. Recently, Ali has developed carbon nanotube materials relevant to the fields of bioinspired adhesion (i.e., gecko-inspired

synthetic adhesives), thermal contact materials, and composites. Ali has also expanded his scholarly work to include biological materials, particularly biological adhesives. These systems include adhesive geckos and bacteria, sticky spider silk, adhesive mussel plaques, and structurally colored bird feathers. Ali transfers his knowledge, expertise, and skill to these areas, and improves our understanding of the natural world (i.e., the field of biology), with remarkable ease. In support of this, Ali is currently associated with several grants related to biological materials and biomimicry. Ali obtained his Ph.D. in Chemical Engineering from Northwestern University and bachelor's in chemical engineering from Indian Institute of Technology, Bombay, India. He spent two years as a research scientist at University of Illinois at Urbana-Champaign. After spending one year at GE Plastics, he joined The University of Akron in 1997.

In addition to Ali's scholarship and global recognition, Ali has also made tremendous contributions in educating a new generation of young scientists which include 32 PhD students, 14 MS students, and 6 postdocs in the area of polymer science, who themselves now occupy various prominent positions in industry, government, and academia. During this time, Ali also led one of the nation's preeminent departments of polymer science, a main charter of which is to educate, and create leaders in this field.

Ali also greatly contributes to the field of adhesion science through service, acting as program chair for the Adhesion Society annual meeting (2016), vice-chair and now chair of the Gordon Conference on Adhesion (2018 and 2019 respectively), along with numerous other committee positions.

Overall, Ali's scientific breadth, expertise, dedication, and rigor is truly remarkable, he is admired and respected by many world-wide, and he is extremely deserving of the 2020 Award for Excellence in Adhesion Science.

Jason Clapper

*Lead research Specialist at 3M*

*Chair, Award for Excellence in Adhesion Science committee*

**Nomination requirements:** <https://www.adhesionsociety.org/awards/award-for-excellence/>

## From the 2020 Program Chairs

Next year's meeting will be held in Charleston, SC. The technical program will run from February 23 to February 26, 2020. The meeting will include sessions from our three foundational Divisions: Structural Adhesives, Soft Adhesives and Bioadhesion. Sessions covering a breath of adhesion science including:

Fundamentals of Wetting, Ice, insects, marine and other contaminants, Celebrating 100 years of the Griffith fracture criterion, Bioadhesion: organismal, biomedical, bioinspired adhesion

### Joint topics in soft and Structure Adhesives:

- Adhesion and fracture in extreme dynamic conditions
- Adhesion and fracture of complex additively manufactured structures
- Novel tools and methods for characterization

### Joint topics of structural, soft, and/or bioadhesion

- Novel chemistry
- Active soft matter
- Soft materials for soft technology
- Bio-derived structural adhesive
- Gels, synthetic and biological

### Soft Adhesion

- Stimuli-responsive interfaces and mechanochemistry
- Viscoelasticity and rheology
- Pressure sensitive adhesives
- Elasticity and capillarity

### Structural Adhesion

- Fracture mechanics of structure adhesives and composites
- Surface preparation for bonding
- Transportation

### New chemistry & adhesive design

### Advanced processing

Please send an email to Nick Shephard (Dow Chemical Corporation) [n.shephard@dow.com](mailto:n.shephard@dow.com) or Michelle Seitz ([michelle.seitz@dsm.com](mailto:michelle.seitz@dsm.com)) if you have any questions regarding the meeting next year.



**Nick Shephard, 2020 Program Chair** (Dow Corning Corporation)



**Michelle Seitz, 2020 Program Vice-Chair** (DSM Materials Science Center)

## 2020 Program Chair

### **Nick Shephard**

Nick Shephard began working at Dow Corning Corp developing silicone sealants in 1985. In 1995 he received his PhD from Virginia Tech in Materials Engineering Science studying measurement methods for predicting sealant durability. After a brief post doc at Virginia Tech, he returned to Dow Corning to pursue adhesion related research on silicone materials spanning applications in building construction, medical adhesives, photovoltaics, computers and transportation. Currently he is a Research Fellow at Dow Performance Silicones.

## 2020 Program Vice-Chair

### **Michelle Seitz**

Michelle E. Seitz, is senior scientist at DSM Materials Science Center in Geleen, the Netherlands. She joined DSM in 2011 after receiving a PhD in Materials Science and Engineering from Northwestern University and a post-doc at the University of Pennsylvania. She works on a variety of performance material topics broadly related to structure-property-performance, characterization, or adhesion of polymeric systems. Some examples include: polymer - metal integration, thermoplastic elastomers, touch and feel of polymeric materials, and high temperature stability of polyamides for automotive applications.

## Bioadhesion Division

The Bioadhesion Division continue to have a successful year in the 2019 Annual Meeting of the Adhesion Society. The Division organized four distinct bioadhesion sessions, including: Bioadhesive Chemistry, Organismal Adhesion, Biomedical Adhesive, and Pharmaceutical Interfaces. The Division solicited a total of 39 talks and invited three Keynote speakers, which included Jianyu Li (McGill University), Brant Opell (Virginia Tech), and Ted Randolph (University of Colorado, Boulder). The Division chair, vice-chair, and program chair would like to thank session chairs Alysa Stark (Villanova University), Lars Heepe (University of Kiel), Jonathan Wilker (Purdue University), Niels Holten-Andersen (Massachusetts Institute of Technology), Kolbe Ahn (University of Central Florida), Yuhan Lee (Harvard University), Rupak Rajachar (Michigan Technological University), Arian Defante (National Institute of Standards and Technology), and Ameya Narkar (University of Central Florida) for organizing and managing these outstanding sessions.

At the Division meeting, we welcomed Niels Holten-Andersen (Massachusetts Institute of Technology) as the new Division Chair and voted for Dan Sameoto (University of Alberta) and Jayant Joshi (Hollister Incorporated) to become the new Division Vice-chair and Program Chair, respectively. Our goals for the 2020 meeting include maintaining the large breadth of topic areas covered in our 2019 sessions, as well as organizing an industry-focused bioadhesion session, a soft robotic adhesion session, and a session focused on biointeraction on medical device and sensor surface. The Division officers would like to thank our highly supportive Members. We look forward to seeing you all in 2020!



**Niels Holten-Andersen, Chair** (Massachusetts Institute of Technology)

## Chair - Bioadhesion Division

### **Niels Holten-Andersen**

Niels Holten-Andersen obtained a B.S. in Molecular Biology from University of Copenhagen, a B.S.Hon. in Molecular Genetics from University of Canterbury and a M.S. in Cell Biology from University of Copenhagen. He then conducted his PhD studies at University of California, Santa Barbara with Prof. Herbert Waite, where he focused on elucidating the molecular design mechanism underlying the tough underwater adhesive fibers of mussels. After obtaining a Postdoctoral Fellowship from the Danish Council for Independent Research, he conducted research on incorporating mussel-inspired material design principles into synthetic polymer platforms at University of Chicago under the guidance of Professor Ka Yee Lee. Since 2012 he has been a professor in the Department of Materials Science and Engineering at MIT, where he holds the Doherty Professorship in Ocean Utilization, and he is a member of the MIT Program for Polymers and Soft Matter (PPSM). He has received the ONR Young Investigator Award and the 3M Non-Tenured Faculty Award. The Laboratory for Bio-Inspired Interfaces is focused on the employment of design principles extracted from nature in the development of synthetic materials with novel properties. One specific expertise lies in the utilization of stimuli-responsive metal-coordinate crosslink dynamics to control polymer material mechanics.

## Structural Adhesives Division

This year's structural adhesives division program promises to build on the success of recent meetings in bringing together some of the brightest and most creative people from industry, academia, and government labs all across the globe to discuss vital new results that drive the community forward into better adhesives technology and deeper insights into adhesion science. However, it's not just the structural division that is doing this. Increasingly the three divisions (structural, soft, and bio) are working together to organize and deliver programming that is diverse and relevant to the rapidly changing needs of this exciting field. Nowhere is this more apparent than the growing list of joint sessions that are supported by two or more of the divisions together. From the structural side, proposed joint sessions for 2020 include Adhesion and Fracture in Extreme Dynamic Conditions, Bio-Derived Structural Adhesives, Novel Chemistry, Novel Tools and Methods for Characterization, and Adhesion and Fracture of Complex Additively Manufactured Structures. These innovative sessions provide a forum for discussions at the frontiers of new adhesive design ideas and applications, complementing the traditional strengths of the division represented by sessions on Fracture Mechanics of Structural Adhesives and Composites, Surface Preparation for Bonding, and Transportation. While all of these session ideas are great, they can't happen without the contributions of the many great session organizers and chairs, speakers, and keynote speakers who travel to share their latest results and dialogue with other experts in the welcoming and collaborative environment that is a hallmark of the Adhesion Society. I would also like to recognize the generous sponsorship of two keynote speakers by PPG and Dupont, whose support combined with the incredible engagement of so many organizations and individuals ensures a very bright future for this meeting. Our structural division vice chairs for 2020 are Michael Bortner of Virginia Tech and Alejandra Alvarez Albarran from Tesla, who are both doing a great job learning and contributing to the development of this year's program. Please be sure to attend the structural division meeting at the conference where we will elect the next assistant division chairs and solicit new ideas for programming that best reflects your current interests and needs.



**Erich Bain, Chair** (US Army Research Laboratory)

### Chair – Structural Adhesives Division

#### **Erich Bain, U.S. Army Research Laboratory**

*Erich started as a post-doc at the US Army Research Laboratory in Aberdeen Proving Ground, MD in 2012 after completing his Ph.D. at North Carolina State University under the mentorship of professor Jan Genzer. His work at ARL encompasses effects of particulate filler surface chemistry on deformation and fracture mechanisms of glassy polymer matrix composites, tough and rapidly swelling hydrogels for battlefield hemorrhage control, materials and design optimization for additive manufacturing components in extreme environments, materials and test development for personal armor certification standards, and processing-microstructure-performance relationships in advanced composite films. He was converted to Federal Civilian in 2015.*

## Soft Adhesives Division

The Soft Adhesives Division had a great 2019 annual meeting and year. We offered many exciting sessions including Pressure sensitive adhesives, Gels, Elasticity and capillarity in adhesion, Viscoelasticity and rheology, and two sessions for Materials and interfaces for soft technology, a topic which was initiated during the 2018 WCARP. Our sessions were supported with engaging keynote presentations from Douglas Holmes (Boston University), Carmel Majidi (Carnegie Mellon University), and Steve Lustig (North-eastern University). We would like to thank all of our session chairs and moderators for putting together this fantastic program. Their hard work and careful planning made for a memorable and informative technical program. We would also like to thank all of our speakers and participants that keep our division an engaging and fruitful place to learn about and discuss soft adhesion.



**Jonathan Pham, Chair** (University of Kentucky)

During the annual division meeting, we selected our next division officers. We are happy to welcome Jonathan Pham (University of Kentucky) as Division Chair and Amy Peterson (University of Massachusetts Lowell) as Division Vice-chair, and thank Michael Bartlett (Iowa State University) for serving as chair last year. We are excited to be planning sessions for our upcoming annual meeting. We will continue to build our strengths in PSAs, viscoelasticity, elasticity and capillarity, and responsive interfaces. This year we are excited to join forces with both the Structural and the Bio-adhesives Divisions to organize sessions on Extreme conditions, Additive manufacturing, Novel tools, Novel chemistry, Active matter, Gels, and Soft technology. We hope this will provide an opportunity to interact with the other divisions on exciting new areas in soft materials and soft adhesives. We look forward to seeing you in Charleston in 2020!

### Chair – Soft Adhesives Division

#### **Dr. Jonathan Pham, University of Kentucky**

*Jonathan Pham is an Assistant Professor in the Department of Chemical and Materials Engineering at University of Kentucky specializing in soft materials and interfaces, Amy Peterson is an associate professor in Plastics Engineering at University of Massachusetts Lowell specializing in additive manufacturing and interfacial phenomena, and Michael Bartlett is an Assistant Professor in Materials Science and Engineering at Iowa State University specializing in soft functional materials and interfaces.*

## 42nd Annual Meeting of the Adhesion Society Demographics/Attendance

The 42nd Annual Meeting of the Adhesion Society was held February 17 - 20, 2019 at the Sonesta Resort on Hilton Head Island in South Carolina. The meeting was attended by 337 participants. The meeting attendees represented universities, industrial partners, and government institutions from 15 countries. There were nearly equal numbers of participants from academia and industry, and government employees comprised about 7% of the meeting attendees. A majority of those in attendance were from the United States (76.6%) while other large contingents hailed from France (5.0%), Germany (5.0%), Japan (3.3%), South Korea (2.4%), Canada (2.4%), the United Kingdom (1.8%), and Singapore (1.2%). Attendees also came from India, Brazil, Ireland, Israel, Italy, the Netherlands, and Norway.



**Dr. Chelsea Davis, Secretary**  
(Purdue)

### Secretary

#### **Chelsea Davis, Purdue**

*Chelsea Davis is an Assistant Professor in the School of Materials Engineering at Purdue University working on novel interfacial mechanics measurement systems. Her experience in adhesion science and technology includes investigating surface instabilities for adhesion control and developing methods to visualize interfacial failure within composites and nanocomposites.*

## From the Treasurer

The Adhesion Society's fiscal year runs from July 1 through June 30. Most of the financial activity of the society including our major sources of revenue and approximately 90% of our expenses come from the annual meeting. Our 42nd Annual Meeting held February 17-20, 2019 at the Sonesta Resort Hotel in Hilton Head, SC was successful on several fronts. The meeting featured a strong technical program with five concurrent sessions, with the exception of the WCARP meeting in 2018 this meeting was one of the best attended in recent history, the short course was also well attended, and the Exhibition continues to grow. In addition to the many networking opportunities provided through the various receptions and breakfasts the society hosted special networking events for women and early career researchers as well as a fun run. As a result of our strong attendance at the meeting the society concluded this fiscal year with a cash surplus.



**Chuck Shuster, Treasurer**  
(Franklin International)

Given the current fiscal health of the society there are no plans to increase registration fees for the upcoming meeting and short course at the Charleston Marriott in Charleston, SC. We look forward to seeing each of you in Charleston for our 43rd annual meeting, February 23-26, 2020. We anticipate this meeting will continue the strong tradition of past meetings with an exceptional technical program and many opportunities to network with fellow Adhesion Scientists.

The society would like to extend a special thanks to our corporate sponsors for their support of the recent meeting: 3M Company sponsors the Award for Excellence in Adhesion Science, Henkel sponsors the Distinguished Paper Awards and the Allen Gent Student Paper Awards, Avery Dennison sponsors the poster awards, and The Adhesive and Sealant Council sponsors the Early Career Scientist Award, and Franklin International supports student travel. We would also like to thank Lawter and PPG for supporting the fun run and other activities.

### Treasurer

#### **Chuck Shuster, Franklin International**

*Chuck has worked at Franklin International, Inc. in Columbus Ohio for just over 35 years. He has spent the last twenty-two years as a Senior Research Associate in Franklin's Core Technology Laboratory. In this position he works on strategic development projects for the various business units within Franklin. Franklin has a variety of adhesive platforms including water based vinyl and vinyl acrylic adhesives for Industrial assembly applications, water and solvent based acrylics and vinyl acrylics for construction adhesives and mastics, and water based acrylic PSA'S. Chuck's introduction to polymers was in the Polymer Science Department of the University of Akron where he first encountered Dr. Allen Gent, one of the Society's founders*

**Adhesion Science and Technology**  
**SHORT COURSE**  
**February 21-22, 2020**  
**Charleston Marriott**  
**Charleston, South Carolina**  
**www.AdhesionSociety.org**

## Annual Meeting Awards and Awardees



**Greg Schueneman, PhD**  
Chair of Honorifics Committee  
Immediate Past President

The Adhesion Society has many prestigious awards that recognize the achievements of its members. What follows is a brief synopsis of each award. Further details are available on the Society's web page along with lists of prior recipients. Many of the awards are sponsored. The Society is very grateful for the support of the sponsoring organizations and the member that make this possible. Nominations for the Award for Excellence in Adhesion Science and elevation to Fellow in the Society are sought out from the members of the Society. You are encouraged to review the requirements of these honors and submit a nomination

**Award for Excellence in Adhesion Science:** The Society's premier award for outstanding achievements in scientific research relating to adhesion. A symposium is held in honor of the award recipient at the start of the annual meeting. The criteria for winning this award include achievement of a scientific contribution that has significantly improved our understanding of

the phenomenon of adhesion, or a contribution to the technology of adhesion or adhesives that has had significant impact on the adhesion/adhesives industry, and world-wide recognition of that achievement. This award is sponsored by 3M Corporation. Carlos Barrios has recently stepped down from chairing this award committee and we thank him for his service. Jason Clapper of 3M has graciously stepped up to take over this role. Prof. Costantino Creton of Laboratoire PCSM -ESPCI, France is seeking candidates and nominators. All members of the Adhesions Society are eligible to submit nominations and are encouraged to do so before the January 1st deadline.

**Student Awards:** Two student awards are given every year, the Peebles Award for Graduate Student Research in Adhesion Science and the Alan Gent Distinguished Student Paper Award. Both awards are sponsored by Henkel Corporation. Any student who is past their first year of graduate study, will be enrolled in graduate school at the time of the annual meeting, and has not received a student award previously is eligible to compete. The deadline for submitting the long abstracts and the remainder of the application package for Peebles candidates is significantly earlier than the standard deadline. Winners will present their papers in the open Peebles Award Symposium, which serves as the competition for the Alan Gent Distinguished Student Paper Award. This award is judged by the Vice President and other members which typically includes a member from Henkel.



# The Adhesion Society 43<sup>rd</sup> ANNUAL MEETING

FEBRUARY 23-26, 2020  
Charleston Marriott • Charleston, South Carolina

## Join Your Peers in Charleston, SC!

### Annual Meeting (Technical Program) – FEBRUARY 23-26, 2020

The 43rd Annual Meeting is a four day event featuring a strong technical program of education sessions PLUS a two-day short course, poster session, exhibition, student award symposium and concurrent technical sessions. Our goal is to welcome 200 global adhesion professionals.

### Exhibition – FEBRUARY 23-25, 2020

The vendor exhibition is integrated with the president's reception, coffee breaks and poster session, providing high visibility for the entire meeting to all attendees. The exhibition is designed to help establish and strengthen ties between all attendees and exhibitors.

### Adhesion Science & Technology Short Course – FEBRUARY 21-22, 2020

This two day event provides an introduction and overview to a variety of critically important topics in the field of adhesion. Each subject is presented by a scientist who is a world leader in that area. This gives the attendees the opportunity to learn from and interact with scientists whose expertise provides a unique view into the history, science and relevance of their topic. For additional information and to register, visit [www.adhesionsociety.org](http://www.adhesionsociety.org) under events.

**Presentations (Abstracts) for the meeting are solicited for all areas of adhesion science and technology.**

For questions contact: Malinda Armstrong, Home Office Manager (301)986-9700 x1106 or [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org)

Hotel Accommodations:

**Charleston Marriott**  
170 Lockwood Boulevard  
Charleston, SC 29403  
Phone: (843) 723-3000

## Register today and save!

Registration for the Annual Meeting includes attendance at the technical meeting, all receptions and breaks, meeting proceedings and **membership** to the Adhesion Society.



[WWW.ADHESIONSOCIETY.ORG](http://WWW.ADHESIONSOCIETY.ORG)



## 2019 Peebles Awards and the Alan Gent Distinguished Student Paper Award Sponsored by Henkel

This year we had seven recipients of the Peebles Award for Graduate Student Research in Adhesion Science, sponsored by Henkel. The selection of awardees was based on abstracts submitted as contributions to the Annual Meeting. These awardees received partial support to attend the meeting and present their papers at an oral symposium. These presentations formed the basis for choosing the winner of the Alan Gent Distinguished Student Paper Award sponsored by Henkel. In addition to this support, registration fees for the short course and the meeting were waived.

**Link to nomination requirements:** <http://www.adhesionsociety.org/awards/student-awards/>

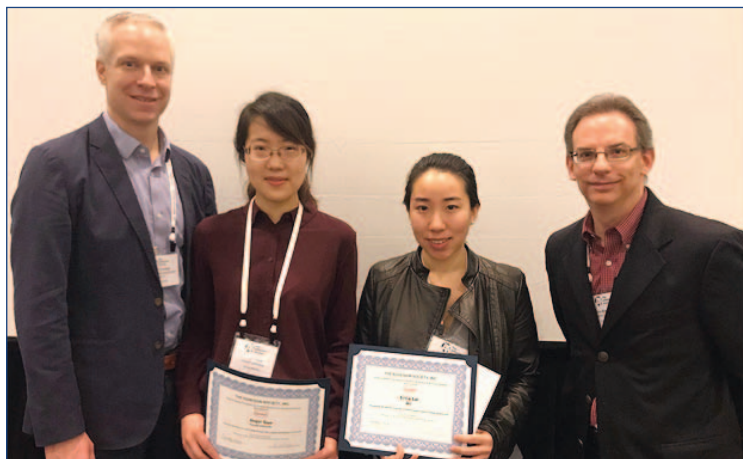


*Eric Silverberg (Henkel Corporation), right and Al Crosby (UMass Amherst), second left; with the winners of the 2019 Peebles Award (from left to right) Nitish Singh, Erica Lai (MIT), Jingyi Guo (Cornell University), Elliott Geikowsky, Siddhesh Narayan Dalvi, Hyunwoo Yuk, Siddhesh Narayan Dalvi, Juliette Sloodman*

## Alan Gent Distinguished Student Paper Award

Congratulations to Jingyi Guo from Cornell University for winning 2019 Alan Gent Distinguished Paper Award, sponsored by Henkel Company at the 2019 Adhesion Soc. Meeting at Hilton Head, SC, USA. Erika Lai from Massachusetts Institute of Technology won the runner-up prize. Jingyi Guo is a 5th year Ph.D. student in Prof. Chung-Yuen Hui's group at Cornell University. Her research focuses on the large deformation time-dependent mechanical behavior of a self-healing hydrogels through constitutive modeling, fracture mechanics and finite element analysis that compare with experiments. Erica Lai is a PhD candidate at MIT in Prof. Holten-Andersen's research group. Her current research is focused on deciphering the adhesive properties of mussel-inspired metal-coordinate physical gels. Both were awarded a cash prize each in addition to the remuneration associated with being a Peebles Award winner. The winner's prize included a \$1,000 cash prize and a plaque, recognizing the winner. The runner up received a \$500 cash prize and a plaque.

**Link to nomination requirements:** <http://www.adhesionsociety.org/awards/student-awards/>



*Prof. Alfred Crosby (left) from UMass Amherst and Eric Silverberg (right) from Henkel Company presented Jingyi Guo (second left) University of Cornell with the Alan Gent Distinguished Student Paper Award. Erica Lai (second right) from MIT received the runner up prize.*

## Women's Networking Event



The Women's Networking Reception at the Annual Meeting of the Adhesion Society was a great success. About forty women enjoyed dinner, drinks and lively conversation. It provided the women in attendance a causal opportunity to meet and network across academia and industry. We had the opportunity to hear a bit about the structure of the society in the hopes of encouraging more participation from women in the future. Everyone is looking forward to the gathering at the next meeting!

## The 2018 Distinguished Paper Award

Typically, one paper presented at the annual meeting of the Society is selected each year to receive this award. This award is sponsored by Henkel Corporation. The selection process is decided upon by the Vice President. Recently the award has been selected by the members attending the conference via ballot. The guidance for voting has been to vote early and vote often with only one vote per person per paper (oral presentation).

**Link to nomination requirements:** <http://www.adhesionsociety.org/awards/distinguished-paper-award/>



*Nich Shephard (left), Dow Chemicals, Eric Silverberg (second left) from Henkel and Al Crosby (right) UMass Amherst presented Erika Arikan 2018 distinguished paper award; Elisa Arikan from Universität der Bundeswehr München and WI-WeB received the 2018 distinguished paper award for her paper titled "Surface modification of polyetheretherketone (PEEK) by Vacuum-UV pretreatment" presented at the Annual Meeting of the Adhesion Society.*

## The Best Poster Award

This award is presented to the best poster and poster presentation as judged during the annual meeting poster session. This award is sponsored by Avery Dennison and typically has a member from this company as the session chair and part of the judging panel.

**Link to nomination requirements:** <http://www.adhesionsociety.org/awards/best-poster-award/>



*Vice President Al Crosby (right) UMass Amherst, Nick Shephard (left) Dow Chemicals, and Chuck Williams (third right), Avery Dennison present Lance De Konich, Konane Bay, and Vishal Vignesh with the 2019 Best Poster Awards, sponsored by Avery Dennison*

## Membership Survey

Dear fellow Adhesion Society members: you already received a survey to ask you some specific questions on the annual meeting and the Society. This is one of your many opportunities to provide feedback and suggestions. The survey is brief yet very important. A link to the survey was emailed to you right after our Annual meeting and we appreciate your input. Thank you in advance for your attention and comments.



## CALENDAR OF EVENTS

### ADHESION SCIENCE & TECHNOLOGY SHORT COURSE

Feb. 21-22, 2020

Charleston Marriott • Charleston, SC

### ADHESION SCIENCE & TECHNOLOGY EXHIBITION

Feb. 23-25, 2020

Charleston Marriott • Charleston, SC

### 43<sup>RD</sup> ANNUAL MEETING

Feb. 23-26, 2020

Charleston Marriott • Charleston, SC



## Early Career Award

This award recognizes an early career scientist who has contributed in an outstanding, innovative, and interdisciplinary way to the progress of the field of adhesion science research and/or technology. The award is sponsored by the Adhesive and Sealant Council. The nominee shall not have exceeded a maximum number of five years in a permanent professional position in the year in which the award is presented. This award is typically coordinated by two of the previous past Presidents of the Society and voted on by the Executive Committee.

**Link to nomination requirements can be found at: <https://www.adhesionsociety.org/Awards/Early-Career-Award/>**



*Bill Allmond, President of the Adhesive and Sealant Council, congratulates Yuhan Lee for being awarded the 2019 Adhesion Society Early Career Scientist Award, sponsored by the ASC for his contributions to adhesive biomaterials for biomedical applications.*

## Robert L. Patrick Fellow of the Adhesion Society:

Elevation of a member to Fellow of the Society is a formal recognition of outstanding members. The award also commemorates the lifelong contributions made to the Adhesion community by the late Robert L. Patrick in recognition of his extensive contributions to wetting, adhesion science, and the Society. The nominee must have provided outstanding contributions to the field of adhesion over a sustained period. Such contributions can be in the form of service to the adhesion community, broad and productive research and/or teaching, or other conspicuous achievements in the field of adhesion. Nominees shall have been members of the Adhesion Society for five years at the time of nomination. Prof. David Dillard of Virginia Tech has been the long serving coordinator of this award. He has recently stepped down and we thank him for his service. Any member of the Society may submit a nomination to the President by October 30th and are encouraged to do so.

## Annual 5K



*The 42<sup>nd</sup> Meeting of the Adhesion Society included our Annual 5k Run/Walk. It was held in the morning of Tuesday, Feb 27. Fifty-three people participated with awards offered to fastest runner to Frank Palmieri, first quartile of distribution to Helen Minsky, median of distribution to Michael Charles Wilson, third quartile of distribution to David Dillard, and fastest hiker to Dale Haner. Congratulations to all who participated and special thanks to our generous sponsors: 3M Company and, Lawter™. All participants received a commemorative cap of the event.*

## Call for Executive Committee Nominations!

***It's time to elect our next Executive Committee for the term 2020-2022.*** In preparation for the upcoming election, the Nominating Committee has developed an initial list of nominated candidates for each of the Executive Committee. Each of the committee positions and current nominations can be found below. In addition, all members of the Adhesion Society are invited to nominate additional candidates. In order to nominate a person, the nomination must be submitted as a petition signed by at least 15 members and sent to Chelsea Davis, Secretary at [chelsea@purdue.edu](mailto:chelsea@purdue.edu). This general nomination period will be open for 45 days beginning on the date of release of this newsletter. Once all nominations are received, we will distribute a final ballot of candidates for all positions, and subsequently call for votes. The description of the Executive Committee positions, as well as the election procedures, can be found in the Constitution of the Adhesion Society on the website. Thank you to everyone who is running to serve on the Executive Committee. The strength of the Society depends on the great membership and its willingness to serve in so many ways!

### **VICE-PRESIDENT**

#### **Joelle Frechette**

My vision for the Society is to engage with a broad community in emerging technological and scientific areas, so that the Annual Meeting continues to be a welcoming platform to exchange ideas, expand our horizons, and nurture University-Industry relationships. The Society is also unique for being a forum with strong participation from industry, academia, and government laboratories. A strength of the society is its vitality, and how it is inclusive to new and emerging areas. There has been growth in the last few years in the areas of additive manufacturing, soft materials, and with the creation of the bioadhesion division. I would like to work with the three divisions to collectively foster engagement with scientists and engineers in related fields who can help support the Society's mission and advance the field. I served one term as member at large, where I started the women's networking event and organized technical sessions. I was then the program chair in 2018 for the Annual Meeting of the Society, when it was held jointly with WCARP (World Congress of Adhesion and Related Phenomena) and drew over 500 attendees. Joelle Frechette received her PhD from Princeton University in Chemical Engineering and Materials Science studying surface forces and adhesion in electrochemical environment. After postdoctoral work at UC Berkeley where she investigated unwanted adhesion in microelectromechanical systems, she joined the Hopkins Faculty in 2006. Joelle Frechette was awarded the NSF CAREER award and the 3M untenured faculty award in 2008, the ONR Young Investigator Award in 2011, and was elected as a Fellow of the American Chemical Society in 2017. Her research interests include soft adhesives, wet adhesion, fluid interfaces, and surface force measurements.

#### **Carlos Barrios**

Industrial Researcher (Ex-3Mer), Polymer Scientist (PhD The University of Akron) and Chemical Engineer (BE National University of Colombia; MS University of Akron). Worked during the past 15 years at the interface between adhesion science and technology development. As an academic researcher, in the areas of surface segregation in pressure sensitive adhesives; tip enhanced Raman spectroscopy for the analysis of soft, polymer surfaces; and foul-release coatings. As an industrial researcher, connecting fundamentals with practicality for adhesive technology development by designing and scaling-up novel copolymers to satisfy requirements of commercial applications. Focused on the role that substrate energetics play on deformation of pressure sensitive adhesives (PSAs) as well as how subtle changes in polymer architecture affect bulk properties of adhesive films. Successfully collaborated with other Society members to develop fundamental understanding on adhesion phenomena under extreme environments. Served as member of the Executive Committee (2014-2017), Annual Meeting Technical Program Chair (2015), Editor (2014-2017), Chair of The Adhesion Society's Award for Excellence in Adhesion Science Committee, sponsored by 3M (2017-2019), and 5K Sunrise Run Organizer (2017-2019). Recently relocated to Texas and currently redirecting his career to work on other areas of Materials Science and Technology.

### **TREASURER**

#### **Chris Campbell**

Dr. Chris Campbell joined 3M in 2007, after obtaining his PhD in Chemical Engineering from Northwestern University. Chris started in the Corporate Research Materials Laboratory, working on structural adhesive technology development. In 2011, Chris joined the Electronics Markets Materials Division and subsequently the Display Materials and Systems Division as a Product Developer for eBonding liquid adhesives, and both liquid and film optically clear adhesives. Chris Campbell is currently the Adhesives Platform Manager in the Display Materials and Systems Division, leading a team of researchers and developers that create optical bonding solutions in consumer electronics and automotive display applications. Chris is the inventor on 12 patents and recipient of two 3M Corporate Circle of Technical Excellence and Innovation Awards. Outside of the lab, Chris enjoys spending time traveling with his family—including an eight-week adventure of his entire family living in Seoul, South Korea—and cooking.

### **SECRETARY**

#### **Grace Wan**

Dr. Grace Wan is a Senior Research Scientist in Core R&D at The Dow Chemical Company where she has contributed to many commercialized products. Her research focuses on new product development in the area of water-borne, solvent-borne, solventless, and hot melt adhesives, along with coatings, home and personal care products. Dr. Wan holds a Ph.D. in Biomedical materials/Oral Biology from The Ohio State University as well as a M.S. in Polymer Materials and a B.S. in Polymer Chemistry from Wuhan University, China. She has authored over twenty peer-reviewed journal articles and more than 100 Dow internal technical reports. She is also the inventor on ten granted patents and 20 pending patent applications. Dr. Wan has actively participated in the annual Adhesion Society meetings and served as session chairs since 2015. Recently Dr. Wan and her team received a 2019 Second Place Adhesives and Sealants Council (ASC) Innovation Award for the "Development of a UV Curable Primer for Bonding of Olefin Block Copolymers for High Performance Footwear."

#### **Aaron Forster**

Dr. Aaron M. Forster is a staff scientist at NIST with over 10 years' experience in mechanics and failure of polymer coatings, nanocomposites, and elastomers. He has worked in the Security Technologies Group in the Materials Measurement Science Division at NIST since 2015. He recently served as the Structural Adhesives Division Chair in 2018-2019. Dr. Forster is the current technical lead for the advanced composites project. This project focuses on the characterization and modeling of electrical, diffusion, and mechanical properties of hierarchical fiber reinforced nanocomposites. Hierarchical nanocomposites have shown the ability to meet the needs of the infrastructure and impact protection communities for multifunctional composites, but the long-term properties are not established. Dr. Forster is also the co-lead for the suspensions and metamaterials for Impact Mitigation project. This project focuses on developing novel multi-axial dynamic test methods specifically for soft materials. These mechanical methods are coupled to novel imaging techniques to support the development of constitutive models.

## **MEMBER-AT-LARGE**

### **Rong Long**

Rong Long is currently an Assistant Professor in the Department of Mechanical Engineering at University of Colorado at Boulder. Prior to that he was an Assistant Professor at University of Alberta in 2013-2014, a Research Associate at University of Colorado in 2012, and a Postdoctoral Associate at Cornell University in 2011. He received his Ph.D. degree in Theoretical and Applied Mechanics from Cornell University in 2011 and B.S. degree in the same field from University of Science and Technology of China in 2006. His research interests include: continuum mechanics, fracture mechanics, contact mechanics, adhesion and friction of soft materials. He received a number of awards including the Young Adhesion Scientist Award from the Adhesion Society in 2014, the 3M non-Tenured Faculty Award in 2017 and the NSF CAREER Award in 2018.

### **Andrew B. Croll**

Andrew B. Croll is an Associate Professor in the Department of Physics and part of the Materials and Nanotechnology Program at North Dakota State University. He received his B.Sc. in Physics from the University of Waterloo in Waterloo Canada, and, in 2009, his Ph.D. in Polymer Physics from McMaster University in Hamilton, Canada. Andrew's research focuses on fundamental details of the interplay between adhesion and complexity in soft condensed matter systems, often highlights practical applications of novel polymeric systems. His work has often received recognition, most notably through an AFOSR YIP award.

### **Marleen Kamperman**

Professor Dr. Marleen Kamperman is interested in the biologically inspired synthesis of polymers and nanostructured surfaces with controlled adhesive and mechanical properties. She received her PhD in Materials Science & Engineering from Cornell University, Ithaca, NY, where she worked in the group of Professor Wiesner on the development of ordered mesoporous high-temperature ceramics using block copolymers. From 2008 to 2010, she was a postdoctoral researcher in the Functional Surfaces group of Professor Arzt at INM – Leibniz Institute for New Materials in Saarbrücken, Germany, where she worked on the development of bio-inspired responsive adhesive systems. She started her group 'Bioinspired Functional Polymers' at Wageningen University in the Physical Chemistry and Soft Matter department in September 2010. In 2018 she was appointed Full Professor in Polymer Science at the University of Groningen. In the new research group that she established in Groningen she combines her experience in polymer science and material development with the fundamentals of coacervation and bio-inspiration.

## **EDITOR**

### **Shantanu Ranade**

Dr. Shantanu Ranade recently joined Apple as a Materials Eng. Prior to Apple Shantanu joined 3M in 2014, after obtaining his PhD in Polymer science and Engineering from Virginia Tech where his research was focused on performance evaluation and durability studies of adhesive joints. At 3M Shantanu works as a product development specialist in Industrial Adhesives and Tape division where he is involved in developing new technologies that could lead to new categories of adhesives with novel and disruptive properties. For past nine years he has been actively engaged in elucidating mechanics of adhesive joints and structure-property relationships of adhesive formulations. As an academic researcher, he was a regular contributor to the Annual Meeting of the Adhesion Society (2011-2014) in the areas of crack path selection in adhesive joints and durability studies. He has been actively engaged with our society as editor (2018-2019), co-editor (2017) and during society's annual meetings (2014-2019). His social media initiative for the society during his time as editor has started garnering interest and already has accumulated 166 followers from the field of adhesion science.

## **Adhesion Science and Technology EXHIBITION**

**FEBRUARY 23-25, 2020**

**Charleston Marriott  
Charleston, SC**



*Co-located at  
The Adhesion Society 43<sup>rd</sup> Annual Meeting*

## **Adhesion Connection** ... *an update from the society*

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*Queries can be sent to Malinda Armstrong, the Adhesion Society Home Office Manager at [adhesionsociety@ascouncil.org](mailto:adhesionsociety@ascouncil.org).*



**The Adhesion Society**