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## Molecular Insight to Understand Fracture and Adhesion

July 22 - 23, 2017

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### Chairs

Adrian P. Defante and Sarah Fischer

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### Mount Holyoke College

50 College Street

South Hadley, MA, US

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### Conference Description

This "Science of Adhesion" GRS program complements the topics of the GRC focused around the molecular insight to understanding fracture and adhesion. Unique to the GRS, it provides an environment focused for graduate students and post docs to discuss and exchange cutting edge ideas in adhesion science. The topics cover a range of surface related phenomena such as adhesion, friction, and wetting at many different length scales from single molecules to large scale mechanics. The GRS offers opportunities for technical and professional development through invited talks, poster sessions and career planning. For many attendees, this is their first exposure to this community and it offers perspectives from various backgrounds and most importantly seeks to promote stimulating and open discussion amongst your peers.

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### Related Meeting



This GRS will be held in conjunction with the "Science of Adhesion" Gordon Research Conference (GRC). Those interested in attending both meetings must submit an application for the GRC in addition to an application for the GRS. Refer to the [associated GRC program page](#) for more information.

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### Conference Program

#### Saturday

2:00 pm - 5:00 pm

Arrival and Check-in

3:30 pm - 3:45 pm	Introductory Comments by GRC Site Staff / Welcome from the GRS Chair
3:45 pm - 4:30 pm	<b>Keynote Session: Bioinspired Fibrellar Adhesives</b> Discussion Leader: <b>Mattia Bacca</b> (University of British Columbia, Canada)
3:45 pm - 4:15 pm	<b>Kim Foster</b> (University of California, Santa Barbara, USA) "Sharing the Load: Understanding and Effectively Designing Bioinspired Fibrillar Adhesives"
4:15 pm - 4:30 pm	Discussion
4:30 pm - 6:00 pm	<b>Poster Session</b>
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	<b>Molecular Origins to Adhesion and Friction</b> Discussion Leaders: <b>Shaoting Lin</b> (Massachusetts Institute of Technology, USA) and <b>Zhuangsheng Lin</b> (Cornell University, USA)
7:30 pm - 7:50 pm	<b>Selemon Bekele</b> (University of Akron, USA) "Structural and Dynamical Properties of Water on Chemically Modified Surfaces Relative to an Instantaneous Surface"
7:50 pm - 8:00 pm	Discussion
8:00 pm - 8:20 pm	<b>Johanna Blass</b> (Program in Cellular and Molecular Medicine (PCMM), Boston Children's Hospital, USA) "Mechanisms of Adhesion and Friction Mediated by Supramolecular Bonds"
8:20 pm - 8:30 pm	Discussion
8:30 pm - 8:50 pm	<b>Maruti Hegde</b> (Virginia Tech, USA) "Understanding the Influence of Interfacial Adhesion in 3D Printing"
8:50 pm - 9:00 pm	Discussion
9:00 pm - 9:20 pm	<b>Hongseung Yeon</b> (University of Wisconsin-Madison, USA) "Influence of Order Within Non-Polar Self-Assembled Monolayers on Hydrophobic Adhesion"

9:20 pm - 9:30 pm	Discussion
<b>Sunday</b>	
7:30 am - 8:30 am	Breakfast
9:00 am - 11:00 am	<b>Mechanical Insights to Adhesion and Fracture</b> Discussion Leaders: <b>Jingjie Hu</b> (Princeton University, USA) and <b>Julian Langowski</b> (Wageningen University, The Netherlands)
9:00 am - 9:20 am	<b>Yinjun Chen</b> (ESPCI ParisTech, France) "Mechanophores for the Detection of Stress and Strain in Soft Materials"
9:20 am - 9:30 am	Discussion
9:30 am - 9:50 am	<b>Stefanie Schmier</b> (Plant Biomechanics Group Freiburg, University of Freiburg, Germany) "Tight Junction: Mechanics of the Tendrils of <i>Passiflora discophora</i> "
9:50 am - 10:00 am	Discussion
10:00 am - 10:20 am	<b>Helen Minsky</b> (University of Pennsylvania, USA) "Arrays of Micro-Scale Composite Pillars for Enhanced and Tunable Adhesion"
10:20 am - 10:30 am	Discussion
10:30 am - 10:50 am	<b>David Labonte</b> (University of Cambridge, United Kingdom) "Dynamic Biological Adhesives"
10:50 am - 11:00 am	Discussion
11:00 am - 12:30 pm	<b>Poster Session</b> <i>Coffee will be served in the poster area from 11:00 am - 11:30 am</i>
12:30 pm - 1:30 pm	Lunch
1:30 pm - 2:30 pm	<b>Mentorship Component: Panel Discussion</b> Discussion Leaders: <b>Adrian Defante</b> (National Institute of Standards and Technology, USA) and <b>Sarah Fischer</b> (Leibniz Institute for New Materials, Germany)

1:30 pm - 2:30 pm	<p><b>Panel Discussion</b>  <i>Managing Expectations and Work Life Balance</i></p> <ul style="list-style-type: none"> <li>• <b>Kim Foster</b> (University of California, Santa Barbara, USA)</li> <li>• <b>Kenneth Shull</b> (Northwestern University, USA)</li> <li>• <b>Alla Synytska</b> (Leibniz Institute of Polymer Research, Germany)</li> </ul>
2:30 pm - 3:00 pm	<p><b>Evaluation Period</b>  <i>Fill in GRS Evaluation Forms</i></p>
3:00 pm	Seminar Concludes

**Contributors**

		