

BIOGRAPHICAL SKETCH

DR. ALI DHINOJWALA

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ACADEMIC

12/08-11/12 Chair of the Department of Polymer Science, Akron, OH 44325
08/08-12/08 Interim Chair of the Department of Polymer Science, Akron, OH 44325
01/08-current H. A. Morton Professor of Polymer Science, Akron, OH 44325
05/06-current Professor in the Dept. of Polymer Science, Akron, OH 44325
05/03-05/06 Associate Professor in the Dept. of Polymer Science, Akron, OH 44325
09/97-05/03 Assistant Professor in the Dept. of Polymer Science, Akron, OH 44325
05/94-06/96 Research Scientist, University of Illinois, Urbana, IL 61801
03/89-05/94 Ph. D. Chemical Eng., Northwestern University, Evanston, IL 60208
06/82-06/86 B. Tech. Chemical Eng., Indian Institute of Technology, Bombay, India

INDUSTRIAL EXPERIENCE

7/96-8/97 Product Technologist, GE Plastics, Mt. Vernon, IN 47620
6/86-3/89 Production and Research Development Engineer, Expert Enamel Works, Bombay, India

AWARDS

I.N.S.P.I.R.E. Award from The University of Akron, 2016
Whitby Award for Outstanding Teaching and Research from ACS Rubber Division 2012
Outstanding Researcher Award, The University of Akron, 2010
NSF Creativity Award, 2009-2011
The Gecko Technology was selected as one of the six technologies that can change how manufacturing is done by SME in 2009
Cleveland Magazine, named one of the most interesting people in Cleveland in 2008
CAREER-NSF Award, 2000-2005
3M Young Faculty Award, 1997-2000
Omnia University Signature Awards 2000 and 2003
Terminal Year Cabell Fellowship, Northwestern University, 1992-93
1st place, Graduate Student Seminar Competition, Northwestern University, 1992

GRADUATE AND POSTDOCTORAL ADVISORS

Thesis advisor: John Torkelson, Northwestern University, Evanston, IL
Postdoctoral advisor: Steve Granick, University of Illinois, Urbana-Champaign, IL

SELECTED RESEARCH ARTICLES COVERED IN NATIONAL AND INTERNATIONAL MEDIA

My research on fabrication of synthetic gecko foot hairs published in Chemical Communications was the second most accessed article on line in the year 2005. This work was covered in the New York Times, Nature Publications, Science News, MRS Bulletin, Materials Today, Natuur Wetenschap &

Techniek, High-Performance Composites, Chemical Technology, NSF website, RPI News, Akron Alumni News Bulletin, and many national and international websites.

The PNAS article published in 2007 has been covered in Nature, Nature Materials, Chemical and Engineering News, Akron Beacon Journal, Columbus Dispatch, Cleveland Magazine, Popular Mechanics, Nanotoday, PSS Rapid research letters, Photonics Spectra, ABC-affiliate TV channels, Discovery Channel, Channel 8 News, and numerous websites.

Melanin: The color research using melanin (2016-2017) has been covered in C & E News, PBS Radio, IdeaStream, Cleveland Crain News, and numerous websites.

The adhesives designed by DOPA was covered in a TV series called Nature Knows Best (2017) and other websites.

Silk Research: The spider glue research has been covered in Nature, C & E News, and numerous websites. Invited speaker on a panel discussion for Spiderman, at Awesome Con 2017, held in Washington D.C.

LEADERSHIP EXPERIENCE

- Polymer Science Department Chair, 2008-2012
- Biomimicry Research and Innovation Center (BRIC) co-PI, 2010-current
- Chair, Gordon Conference on Adhesion in 2019, Served as a Vice-Chair, 2017
- Program Chair, DPOLY Division (American Physical Society), 2010
- Program Chair, Adhesion Society, 2016
- District 5 Science Director, 1998-current (last twenty years)
- Member of the nomination committee for 3M award at the adhesion meeting, 2014-2017
- Chair of the nomination committee, DPOLY Division, American Physical Society, 2017-2018
- ADAP Nanotech President, Start-up company on gecko-inspired adhesives

EDUCATION

Ph.D. Students: Graduated 28 Ph.D. students

1. Alexander D. Schwab (**2002**): “Relaxations in thin polystyrene films”
2. Keshav Gautam (**2002**): “Molecular structure and order-to-disorder transitions of comb polymers at air and solid interfaces”
3. Gary Harp (**2004**): “Molecular structure and adhesion at “hidden” polymer interfaces”
4. Hasnain Rangwalla (**2005**): “Molecular origins of contact-angle hysteresis and other phenomena at aqueous interfaces of side-chain comb polymers”
5. Ashwin Rao (**2005**): “Nonlinear optical techniques to study polymer adsorption”
6. Betul Yurdumakan (**2006**): “Molecular Origin of Friction and Adhesion”
7. Shishir Prasad (**2007**): “Molecular Study of the Surface Freezing Phenomenon in Materials Containing Long Alkyl Chains”
8. Kumar Nanjundiah (**2007**): “Study of Confinement and sliding friction of fluids using sum frequency generation spectroscopy”
9. Veronique Lachat (**2008**): “Understanding oil resistance of nitrile rubber: CN group interactions at interfaces”
10. Sunny Sethi (**2010**): “Carbon nanotube based functional superhydrophobic coatings”
11. Anish Kurian (**2011**): “Molecular rearrangements at polymeric interfaces probed by sum frequency spectroscopy”
12. Liehui Ge (**2011**): “Synthetic Gecko Adhesives and Adhesion in Geckos”

13. Ping Hsu (2011): "Vibrational Sum Frequency Generation Studies of Aqueous and Biological Relevant Interfaces"
14. Vasav Sahni (2012): From Nano to Micro to Macro: Importance of Structure and Architecture in Spider Silk Adhesives
15. Mike Heiber (2012): Monte Carlo Simulation of Solar Cells
16. Yu-Tsan Tseng (2013): "Growth of CNT on Curved Surfaces"
17. Ila Badge (2013): "Tuning Wettability and Adhesion of Structured Surfaces"
18. Alyssa Stark (2014): "The Effect of Water on the Gecko Adhesive System"
19. He Zhu (2015): "Interfacial Structures and Interactions Probed Using Infrared-Visible Sum Frequency Generation Spectroscopy"
20. Emmanuel Anim-Danso (2015): "Understanding the Structure of Water, Ice, and Aqueous Solutions next to Solid Interfaces"
21. Adrian Defante: (2016) "The Role of Water in Interfacial Interactions"
22. Yu Zhang: (2016) "Understanding Ice and Water Transitions at Solid Surfaces for Anti-Icing Applications"
23. Mena Klittich: (2017) "Surface Interactions with Hierarchical Nanostructures from Gecko Adhesion to Thermal Behavior"
24. Nishad Dhopatkar (2017) "Understanding the Adsorption at Solid-Liquid Interface and Its Consequences on Interfacial Phenomena"
25. Zhengnan Yang (2017) "Kinetics of Polymer Chain Collapse in Dilute Solution"
26. Gaurav Amarpuri (2017) "A Detailed Investigation of Adhesion modulation in Spider Capture Silk at Macro, Micro, and Molecular Length"
27. Dharamdeep Jain (2017) "Humidity Driven Performance of Biological Adhesives"
28. Ming Xiao (2017) "Bio-Inspired Melanin-Based Structural Colors Through Self-Assembly"

Graduated 14 M.S. Students:

Jamel Lawrence, Janice Wasowski, Jing Zhou, Sinuo Li, Yu Wang, Laura Gonzalez, Zhengnan Yang, Ci Zhang, Farnaz Kabiri, Nick Kaiser, Yue Wang, Yizhou Chan, Jiuzhou Zhao, and Weiyao Li.

20 Current Ph.D. Students:

Alankar Rastogi, Dona Foster, Diana Gorse, Saranshu Singla, Alex Nyarko, Yang Zhou, Pushkar Sathe, Sukhmanjot Kaur, Michael Wilson, Daniel Maksuta, Siddhesh Dalvi, Mario Echeverri, Anvay Patel, Weiyao Li, Jared Brown, Amanda Stefin, K. Zin Htut, Nityanshu Kumar, Nathaniel Ornsdorf, and Austin Garner (Biology).

5 Current Masters Students:

Xiaozhou, Yang, Dongliang Fan, Lan Yu, Zhuang Xu, Yiran Wang, and Jialu Li

6 Former Postdoctoral Students:

Dr. Tarak Burai (2015-2016), Dr. Mike Heiber (2013), Dr. Shishir Prasad (2009-2010), Dr. Frederic Siffer (2006-2008), Dr. Guifeng Li (May 2005-May 2006), and Dr. Sergey Mamedov (2000-2002)

Former and Current Undergraduate Students (40 Students):

Seth Perlman, Jennifer Dawson, Casey Shaffer, Pamela Crum, Alesi Rich, Brian Tefft, Leslie Merlot, Paul Crider, Laurie Hanne, Sarah Grisham, Melissa Zwilling, Joe Holt, Emily Hagan, Victoria Sain, Johanna Villiate, Rachel Shi, Evelyn Ojo, Disha Labhasetvar, Jared Harris, Kelley Chen, Sunandini Chopra, Roy Anderson, Vishal Chaurasia, Nathan Nawalaniec, Jamie Richards, Drew Fenton, Mario Echeverri, Rima Vasudevan, Chelsea Zoltowski, Catherine Donley, Bernard Craig, Drew Finton, Jordon Fitch, and Alexander Leong.

Current Research Funding:

1. MURI Grant on Melanin from DoD: \$7.5M, \$1.25M (my portion)
2. NSF Grant from DMR: 400K (PI)

3. NSF Grant from IOS: 384K (co-PI)
4. NSF Grant from Biomaterials Division: 390K (co-PI)
5. Air Force Grant (Corrosion): 500K (PI)
6. Army Research Office: 100K (co-PI)
7. Lubrizol CIGA: 125K
8. Kimberly-Clark CIGA: 125K
9. Avery Dennison CIGA: 30K

Completed Research Funding (not including the funding received as Department Chair):

1. NSF: \$492K (co-PI) (2013-2017)
2. NSF 1251895: \$201K (PI)
3. NSF-GOALI 9984996: \$109K (PI)
4. NSF 0512156: \$624K (PI)
5. NSF 1126544: \$300K (co-PI)
6. NSF GOALI 1006764: \$224K (PI)
7. NSF 0526797: \$566K (PI)
8. NSF-1047655: \$511K (co-PI)
9. NSF-0609077: \$1.05M(co-PI)
10. NSF-1105370: \$500K (co-PI)
11. NSF Career: \$375K (PI)
12. NSF Instrument: \$150K (co-PI)
13. Avery Dennison: CIGA: \$46K
14. ONR Funding for Gordon Conference: 10K (PI)
15. Ohio Willow Wood: \$338K (co-PI)
16. BD: \$43K (PI)
17. Coloplast: \$254K (PI)
18. Goodyear Corporation: \$177K (PI)
19. Navy SBIR sub-contract: \$10K (co-PI)
20. Exxon Mobil: \$90K (PI)
21. Exxon Mobil: \$35K (towards GOALI)
22. Bemis Corporation: \$270K (PI)
23. Lubrizol Corporation: \$200K (PI)
24. General Electric: \$20K (towards GOALI)
25. Parker Hannifin: \$93K (PI)
26. Petroleum Research Foundation: \$80K (PI)
27. Petroleum Research Funds: \$120K (PI)
28. OMNOVA Corporation: \$140K (70K donation of XPS Instrument)
29. NSF-REU: \$6.7K
30. NSF-REU: \$5K
31. Lord Corporation: \$18K
32. Omnova Signature Award: \$5K
33. GOJO Industries: \$52K
34. 3M Young Faculty Award: 45K
35. Petroleum Research Funds: 25K
36. OBR Matching Grant: 50K
37. Research II Incentive Grant: 20K
38. OBR Matching Grant: 20K
39. OBR Matching Grant for Instrument: 50K
40. OBR Matching Grant for instrument: 20K
41. Akron Summer Grant: 8K

Publications of Peer-Reviewed Articles (March 2018):

- 139) Singla, S.; Amarपुरi, G.; Dhopatkar, N.; Blackledge, T.A.; Dhinojwala, A. accepted in Nature Communication **2018**.
- 138) Opell, B.D.; Jain, D.; Dhinojwala, A.; Blackledge, T.; Tuning Orb Spider Glue Performance to Habitat Humidity, *J. Exp. Biol*, **2018**, 221.
- 137) Defante, A. P.; Nyarko, A.; Kaur, S.; Burai, T. N.; Dhinojwala, A., "Interstitial Water Enhances Sliding Friction", *Langmuir*, **2018**, ASAP.
- 136) Xiao, M.; Chen, W.; Li, W.Y.; Zhao, J. Z.; Hong, Y.L.; Nishiyama, Y.; Miyoshi, T.; Shawkey, M.D.; Dhinojwala, A., "Elucidation of the hierarchical structure of natural eumelanins", *J. R. Soc. Interface*, **2018**, 15, 140, 20180045.
- 135) Xu, Y.; Liu, Q.; Narayanan A.; James D.; Dhinojwala, A., Joy. A., "Mussel-Inspired Polyesters with Aliphatic Pendant Groups Demonstrate the Importance of Hydrophobicity in Underwater Adhesion", *Adv. Mat. Inter.* **2017**, 4 (22), 1700506.
- 134) Xiao, M.; Hu, Z.; Wang, Z.; Li, Y.; DiazTormo, A.; LeThomas, N.; Wang, B.; Gianneschi, N. C.; Shawkey, M. D.; Dhinojwala, A., "Bio-Inspired Bright Non-Iridescent Photonic Melanin Supraballs", *Sci. Adv.* **2017**, 3, e1701151.
- 133) Zhou, Y.; He, Q., Zhang, F.; Yang, F.; Narayanan, S.; Yuan, G., Dhinojwala; A.; Foster, M.D., "Modifying Surface Fluctuations of Polymer Melt Films with Substrate Modification", *ACS Macro Letters*, 2017, 915-919.
- 132) Singla S.; Anim-Danso E.; Islam A.; Ngo Y.; Kim S.; Naik R.; Dhinojwala A." Insight on Structure of Water and Ice Next to Graphene Using Surface-Sensitive Spectroscopy", *ACS Nano* **2017** 11, 4899-4906.
- 131) Yang Z.; Foster D.; Dhinojwala A. "Continuous production of polymer nanoparticles using a membrane-based flow cell" *J. Colloid Interface Sci.* **2017**, 501, 150-155.
- 130) Zhang Y.; Klittich M.; Gao M.; Dhinojwala A. "Delaying Frost Formation by Controlling Surface Chemistry of Carbon Nanotube-Coated Steel Surfaces" *ACS Appl. Mater. Interfaces* **2017**, 9, 6512-6519, DOI: 10.1021/acsami.6b11531.
- 129) Nyarko, A.; Barton, H.; Dhinojwala, A. "Scaling down for a broader understanding of underwater adhesives – a case for the *Caulobacter crescentus* holdfast" *Soft Matter*. **2016**, 12, 9132, DOI: 10.1039/c6sm02163h.
- 129) Dhopatkar, N.; Defante, A. P.; Dhinojwala, A. "Ice-like Water Supports Hydration Forces and Eases Sliding Friction" *Sci. Adv.* **2016**, 2:e1600763, DOI: 10.1126/sciadv.1600763.
- 128) Stark, A. Y.; Klittich, M. R.; Sitti, M.; Niewiarowski, P. H.; Dhinojwala, A. "The Effect of Temperature and Humidity on Adhesion of a Gecko-Inspired Adhesive: Implications for the Natural System" *Sci. Rep.* **2016**, 6:30936, DOI: 10.1038/srep30936.
- 127) Xiao, M., Li, Y., Zhao, J., Wang, Z., Gao, M., Gianneschi, N. C., Dhinojwala, A., Shawkey, M. D. "Stimuli-Responsive Structurally Colored Films from Bioinspired Synthetic Melanin Nanoparticles" *Chem. Mater.* **2016**, 28, 5516-5521.

- 126) Zhang, Y., Anim-Danso, E., Bekele, S., Dhinojwala, A. "Effect of Surface Energy on Freezing Temperature of Water" *ACS Appl. Mater. Interfaces* **2016**, 8, 17583–17590.
- 125) Niewiarowski, P. H., Stark, A. Y., Dhinojwala, A. "Sticking to the Story: Outstanding Challenges in Gecko-Inspired Adhesives" *J. Exp. Bio.* **2016**, 219, 912-919. doi: 10.1242/jeb.080085
- 124) Stark, A. Y.; Subarajan, S.; Jain, D.; Niewiarowski, P.H.; Dhinojwala, A. "Superhydrophobicity of the gecko toe pad: biological optimization versus laboratory maximization" *Phil. Trans. R. Soc. A* **2016**, 374, 20160184, DOI: 10.1098/rsta.2016.0184.
- 123) Anim-Danso, E., Zhang, Y., & Dhinojwala, A. "Surface Charge Affects the Structure of Interfacial Ice" *J. Phys. Chem. C*, **2016**, 120, 3741–3748.
- 122) Zhu, H.; Dhopatkar, N.; Dhinojwala, A. "Effect of Acid–Base Interactions on Conformation of Adsorbed Polymer Chains" *ACS Macro Letters* **2016**, 5, 45-49.
- 121) Jha, K. C.; Dhinojwala, A.; Tsige, M. "Local Structure Contributions to Surface Tension of a Stereoregular Polymer" *ACS Macro Letters* **2015**, 4, 1234-1238.
- 120) Zhou, J.; Anim-Danso, E.; Zhang, Y.; Zhou, Y.; Dhinojwala, A. "Interfacial Water at Polyurethane-Sapphire Interface" *Langmuir* **2015**, 31 (45), 12401–12407.
- 119) Amarpuri, G.; Zhang, C.; Diaz, C.; Opell, B. D.; Blackledge, T. A.; & Dhinojwala, A. "Spiders Tune Glue Viscosity to Maximize Adhesion" *ACS Nano*, **2015**, 9 (11), 11472–11478.
- 118) Jain, D.; Zhang, C.; Cool, L.R.; Blackledge, T.A.; Wesdemiotis, C.; Miyoshi, T.; Dhinojwala. "Composition and Function of Spider Glues Maintained During the Evolution of Cobwebs" *Biomacromolecules* **2015**, 16, 3373–3380.
- 117) Stark, A.Y.; Dryden, D.M.; Olderman, J.; Peterson, K.A.; Niewiarowski, P.H., French, R.H.; Dhinojwala, A. "Adhesive Interactions of Geckos with wet and dry fluoropolymer substrates" *J. R. Soc. Interface* **2015**, 12, 20150464.
- 116) Xiao, M.; Li, Y.; Allen, M. C.; Deheyn, D. D.; Yue, X.; Zhao, J.; Gianneschi, N. C.; Shawkey, M. D.; Dhinojwala, A. "Bio-Inspired Structural Colors Produced via Self-Assembly of Synthetic Melanin Nanoparticles" *ACS Nano* **2015**, 9, 5454–5460.
- 115) Jain, D.; Stark, A.Y.; Niewiarowski, P. H.; Miyoshi, T.; Dhinojwala, A. "NMR spectroscopy reveals the presence and association of lipids and keratin in adhesive gecko setae" *Sci. Rep.* **2015**, 5, 9594.
- 114) Amarpuri, G.; Chaurasia, V.; Jain, D.; Blackledge, T. A.; Dhinojwala, A. "Ubiquitous distribution of salts and proteins in spider glue enhances spider silk adhesion" *Sci. Rep.* **2015**, 5, 9030.
- 113) Zhu, H; Dhinojwala, A. "Thermal Behavior of Long-Chain Alcohols on Sapphire Substrate." *Langmuir* **2015**, 31, 6306–6313.
- 112) Zhou, J.; Defante, A.P.; Lin, F.; Xu, Y.; Yu, J.; Gao, Y.; Childers, E.; Dhinojwala, A.; Becker, M.L."Adhesion Properties of Catechol-Based Biodegradable Amino Acid-Based Poly(ester urea) Copolymers Inspired from Muscle Proteins." *Biomacromolecules* **2015**, 16, 266-274.
- 111) Defante, A. P.; Burai, T. N.; Becker, M. L.; Dhinojwala, A. "Consequences of Water between Two Hydrophobic Surfaces on Adhesion and Wetting" *Langmuir* **2015**, 31, 2398-2406.

- 110) Jain, D.; Stark, A.; Niewiarowski, P.; Miyoshi, T.; Dhinojwala, A. "Tracing lipids and their association with keratin in the adhesive gecko setae by NMR Spectroscopy." *Biophysical Journal* **2015**, 108, 250a.
- 109) Dhopatkar, N; Park, J. H.; Chari, K.; Dhinojwala, A. "Adsorption and Viscoelastic Analysis of Polyelectrolyte-Surfactant Complexes on Charged Hydrophilic Surfaces" *Langmuir* **2015**, 31, 1026-1037.
- 108) Webber, C.M.; Klittich, M.R.; Dhinojwala, A.; Davis, B.L. "Thermal Conductivities of Commercially Available Prosthetic Materials" *J. Prosthet. Orthot.* **2014**, 26 (4), 212-215.
- 107) Bhatta, R.S.; Iyer, P.P.; Dhinojwala, A.; Tsige, M. "A Brief Review of Badger-Bauer Rule and its Validation from a First-Principles Approach." *Modern Physics Letters B* **2014**, 28 (29), 1430014_1-16.
- 106) Zhang, Y.; Anim-Danso, E.; Dhinojwala, A. "The Effect of Solid Surface on the Segregation and Melting of Salt Hydrates" *J. Am. Chem. Soc.* **2014**, 136, 14811-14820 .
- 105) Zha, K. C.; Zhu, H.; Dhinojwala, A.; Tsige, M. "Molecular Structure of Poly(methyl methacrylate) Surface II. Effect of Stereoregularity Examined through All-atom Molecular Dynamics" *Langmuir* **2014**, 30, 12775-12785.
- 104) Zhu, H.; Jha, K. C.; Bhatta, R. S.; Tsige, M.; Dhinojwala, A. "Molecular Structure of Poly(methyl methacrylate) Surface. I. Combination of Interface-Sensitive Infrared-Visible Sum Frequency Generation, Molecular Dynamics Simulation, and ab Initio Calculations" *Langmuir* **2014**, 30, 11609-11618.
- 103) Badge, I.; Stark, A.; Paoloni, E. L.; Niewiarowski, P. H.; Dhinojwala, A. "The Role of Surface Chemistry in Adhesion and Wetting of Gecko Toe Pads" *Scientific Reports* **2014**, 4:6643, DOI: 10.1038/srep06643.
- 102) Sahni, V.; Miyoshi, T.; Chen, K.; Jain, D.; Blamires, S. J.; Blackledge, T. A.; Dhinojwala, A. "Direct Solvation of Glycoproteins by Salts in Spider Silk Glues Enhances Adhesion and Helps to Explain the Evolution of Modern Spider Orb Webs" *Biomacromolecules* **2014**, 15, 1225-1232.
- 101) Heiber, M. C.; Dhinojwala, A. "Efficient Generation of Model Bulk Heterojunction Morphologies for Organic Photovoltaic Device Modeling" *Physical Review Applied* **2014**, 2, 014008.
- 100) Stark, A. Y.; Wucinich, N. A.; Paoloni, E. L.; Niewiarowski, P. H.; Dhinojwala, A. "Self-Drying: A Gecko's Innate Ability to Remove Water from Wet Toe Pads" *PLOS ONE* **2014**, 9, e101885.
- 99) Stark, A. Y.; McClung, B.; Niewiarowski, P. H.; Dhinojwala, A. "Reduction of Water Surface Tension Significantly Impacts Gecko Adhesion Underwater" *Integrative and Comparative Biology*, pp. 1-8, doi:10.1093/icb/icu066.
- 98) Blamires, S. J.; Sahni, V.; Dhinojwala, A.; Blackledge, T. A.; Tso, I. "Nutrient Deprivation Induces Property Variations in Spider Gluey Silk" *PLOS ONE* **2014**, 9, e88487.
- 97) Jain, D.; Sahni, V.; Dhinojwala, A. "Synthetic Adhesives Attachment Discs Inspired by Spider's Pyriform Silk Architecture" *J. Poly. Sci., Part B: Poly. Phys.* **2014**, 52, 553-560.
- 96) Xiao, M.; Dhinojwala, A.; Shawkey, M. "Nanostructural basis of rainbow-like iridescence in common bronzewing *Phaps chalcoptera* feathers" *Optics Express* **2014**, 22, 14625-14636.

- 95) Alizadeh, A.; Bahadur, V.; Shang, W.; Zhu, Y.; Buckley, D.; Dhinojwala, A.; Sohal, M. "Influence of Substrate Elasticity on Droplet Impact Dynamics" *Langmuir* **2013**, *29*, 4520-4524.
- 94) Heiber, M. C.; Dhinojwala, A. "Estimating the Magnitude of Exciton Delocalization in Regioregular P3HT" *J. Phy. Chem. C* **2013**, *117*, 21627-21634.
- 93) Prasad, S.; Zhu, H.; Kurian, A.; Badge, I.; Dhinojwala, A. "Interfacial Segregation in Polymer Blends Driven by Acid-Base Interactions" *Langmuir* **2013**, *29*, 15727-15731.
- 92) Nanjundiah, K.; Dhinojwala, A. "Melting of Linear Alkanes between Swollen Elastomers and Solid Substrates" *Langmuir* **2013**, *29*, 12168-12175.
- 91) Anim-Danso, E.; Zhang, Y.; Alizadeh, A.; Dhinojwala, A. "Freezing and melting of salt hydrates next to solid surfaces probed by infrared-visible sum frequency generation spectroscopy" *J. Am. Chem. Soc.* **2013**, *135*, 8496-8499.
- 90) Anim-Danso, E.; Zhang, Y.; Alizadeh, A.; Dhinojwala, A. "Freezing of water next to solid surfaces probed by infrared-visible sum frequency generation spectroscopy" *J. Am. Chem. Soc.* **2013**, *135*, 2734-2740.
- 89) Stark, A. Y.; Badge, I.; Wucinich, N. A.; Sullivan, T. W.; Niewiarowski, P. H.; Dhinojwala, A. "Surface wettability plays a significant role in gecko adhesion underwater" *Proc. Natl. Acad. Sci.* **2013**, *110*, 6340-6345.
- 88) Alizadeh, A.; Bahadur, V.; Shang, W.; Zhu, Y.; Buckley, D.; Dhinojwala, A.; Sohal, M. "Influence of substrate elasticity on droplet impact dynamics" *Langmuir* **2013**, *29*, 4520-4524.
- 87) Badge, I.; Bhawalkar, S.; Jia, L.; Dhinojwala, A. "Tuning surface wettability using single layered and hierarchically ordered arrays of spherical colloidal particles" *Soft Matter* **2013**, *9*, 3032-3040.
- 86) Sahni, V.; Harris, J.; Blackledge, T. A.; Dhinojwala, A. "Cobweb-weaving spiders produce different attachment discs for locomotion and prey capture. *Nat. Commun.* **2012**, *3*:1106, doi: 10.1038/ncomms2099.
- 85) Yenenah, Y. Y.; Dhinojwala, A.; Tsige, M. "Interfacial Properties of Free-Standing Poly(3-hexyl thiophene) Films" *J. Chem. Phys.* **2012**, *137*, 044703.
- 84) Heiber, M.; Dhinojwala, A. "Dynamic Monte Carlo modeling of exciton dissociation in organic donor acceptor solar cells" *J. Chem. Phys.* **2012**, *137*, 014903.
- 83) Ahn, S. and Dhinojwala, A. "Sum Frequency Generation Vibrational Spectroscopy of Silicone Surfaces and Interfaces" *Silicone Surface Science*, eds. Dvornic, P.R. and Owen, M. J., **2012**, Chapter II.
- 82) Alizadeh, A.; Masako, Y.; Li, R; et al. "Dynamics of Ice Nucleation on Water Repellent Surfaces" *Langmuir* **2012**, *28*, 3180-3186.
- 81) Alizadeh, A.; Bahadur, V.; Zhong Sheng; et al. "Temperature Dependent Droplet Impact Dynamics on Flat and Textured Surfaces" *Appl. Phys. Lett.* **2012**, *100* (11), 111601.
- 80) Hsu, P. Y.; Ge, L.; Li, X.; Stark, A. Y.; Wesdemiotis, C.; Niewiarowski, P.; Dhinojwala, A. "Direct Evidence of Phospholipids in Gecko Footprints and Spatula-Substrate Contact Interface Detected

- Using Surface-Sensitive Spectroscopy Techniques” *J. R. Soc. Interface* **2012**, 9, 657-664.
- 79) Hsu, P. Y.; Dhinojwala, A.; “Contact of Oil with Solid Surfaces in Aqueous Media Probed Using Sum Frequency Generation Spectroscopy” *Langmuir* **2012**, 28, 2567-2573.
- 78) Sahni, V.; Labhasetvar, D.; Dhinojwala, A. “Spider Silk Inspired Functional Microthreads” *Langmuir* **2012**, 28, 2206-2210.
- 77) Badge, I.; Sethi, S.; Dhinojwala, A.; “Carbon Nanotube-Based Robust Steamphobic Surfaces” *Langmuir* **2011**, 27, 14726-14731.
- 76) Sahni, V.; Blackledge, T. A.; Dhinojwala, A. “Changes in the Adhesive Properties of Spider Aggregate Glue During the Evolution of Cobwebs” *Scientific Reports* **2011**, 1, Article # 41.
- 75) Sahni, V.; Blackledge, T. A.; Dhinojwala, A. “A Review on Spider Silk Adhesion” *J. Adhes.* **2011**, 87 (6), 595-614.
- 74) Alibardi, L.; Edward, D. P.; Patil, L.; Bouhenni, R.; Dhinojwala, A.; Niewiarowski, P. *J. Morph.* **2011**, 272, 758-768.
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