

JOELLE FRECHETTE

Contact: Chemical & Biomolecular Engineering, University of California Berkeley

Professional Preparation

Ecole Polytechnique de Montreal, Canada, Materials Engineering, B.Eng. 1998

Princeton University, Chemical Engineering, M. A., 2000

Princeton University, Chemical and Materials Engineering Ph.D., 2005

University of California Berkeley, Chemical Engineering Department Postgraduate 11/2004-12/2005

Appointments

7/2021-present Professor, Chemical and Biomolecular Engineering Department UC Berkeley

7/2020-7/2021 Professor, Chemical and Biomolecular Engineering Department, JHU

1/2014- 7/2020 Associate Professor, Chemical and Biomolecular Engineering Department, JHU

- Faculty member CEA FM (Center for Environmental and Applied Fluid Mechanics) and HEMI (Hopkins Extreme Materials Institute)

1/2006- 1/2014 Assistant Professor, Chemical and Biomolecular Engineering Department, JHU

Awards and Honors

Fellow American Chemical Society (ACS), 2017

Selected attendee, USA NAE Frontiers of Engineering Symposium, 2012

ONR Young Investigator Award, 2011

W. H. Huggins Excellence in teaching, 2010

Outstanding chapter adviser award from the Office of student activities (for AICHe/SBE), 2010

NSF CAREER Award, 2008

3M Untenured Faculty Award, 2008-2010

Research interests

Adhesion of soft materials, Wetting, Colloid and Interface Science, Fluid Mechanics, Surface Forces

Selected recent publications

1. C. van Engers, Z. Lamberty, P. M. McGuiggan, and **J. Frechette***, “Template-stripped ultra-smooth aluminum films (0.2 nm RMS) for the surface forces apparatus”, *Langmuir*, 2021, *37*, 21, 6556–6565.
2. Y. Wang*, Ziyuan Feng, and **J. Frechette***, “Dynamic adhesion due to fluid infusion”, *Current Opinion in Colloid & Interface Science*, 101397, 2020. doi.org/10.1016/j.cocis.2020.101397.
3. P. Roberts, J.K. Perry, R. K. Gupta, S.Karna, and J. Frechette, “Confinement enhanced luminescence in protein-gold nanoclusters”, *J. Phys. Chem. Lett.* 2020. [10.1021/acs.jpcllett.0c03054](https://doi.org/10.1021/acs.jpcllett.0c03054).
4. D. Neibloom, M.A. Bevan*, and **J. Frechette***, “Surfactant-stabilized spontaneous 3-(trimethoxysilyl) propyl methacrylate nanoemulsions”, *Langmuir*, *36*, 284-292, 2020. doi.org/10.1021/acs.langmuir.9b03412.
5. D. Shin, T. Huang, D. Neibloom, M. A. Bevan, and **J. Frechette***, “Multifunctional liquid marble compound lenses”, *ACS Applied Materials & Interfaces*, *11* 34478-34486, 2019. [10.1021/acsami.9b12738](https://doi.org/10.1021/acsami.9b12738).
6. **M. Tan**, Y. Wang*, and **J. Frechette***, “Criterion for particle rebound during wet collisions on elastic coatings”, *Physical Review Fluids*, *4*, 084305, 2019. [10.1103/PhysRevFluids.4.084305](https://doi.org/10.1103/PhysRevFluids.4.084305)
7. Y. Wang and **J. Frechette***, “Morphology of soft and rough contact via fluid drainage”, *Soft Matter* *14*, 7605-7614, 2018. [10.1039/C8SM00884A](https://doi.org/10.1039/C8SM00884A)
8. X. Hua, M.A. Bevan*, and **J. Frechette***, “Competitive Adsorption between Nanoparticles and Surface Active Ions for the Oil–Water Interface”, *Langmuir*, *34*, 4830-4842, 2018. [10.1021/acs.langmuir.8b00053](https://doi.org/10.1021/acs.langmuir.8b00053)

9. P. Karnal, P. Roberts, S. Gryska, C.L. King, C. Barrios*, and **J. Frechette***, “Importance of substrate functionality on the adhesion and debonding of a pressure sensitive adhesive under water”, ACS Applied Materials & Interfaces, 9, 42344-42363, 2017. [10.1021/acsami.7b13984](https://doi.org/10.1021/acsami.7b13984)
10. Y. Wang, M. R. Tan, and **J. Frechette***, Elastic deformation of soft coatings due to lubrication forces, Soft Matter, 13, 6718-6729, 2017. [10.1039/C7SM01061C](https://doi.org/10.1039/C7SM01061C)
11. C. Pick, C. Argento, G. Drazer*, and **J. Frechette***, “Micropatterned Charge Heterogeneities via Vapor Deposition of Aminosilanes”, Langmuir, 31,10725-10733, 2015. [10.1021/acs.langmuir.5b02771](https://doi.org/10.1021/acs.langmuir.5b02771)

Synergistic Activities

1. *Editorial Activities*. Langmuir Editorial Advisory Board (ACS Publication) 2014-2020. Associate Editor Science Advances, 2021-present
2. *Courses Related to Research*: Transport Phenomena I, Engineering Thermodynamics, Interfacial Science with Applications to Nanoscale Systems
3. *Adhesion Society*. Vice-President (2020-present), Executive committee 2014-2015 (member-at-large), Chair Bio-inspired session (2015), judge poster session (2015). Program chair 2018 Annual Adhesion Society meeting and World Congress of Adhesion Research (>500 attendees from 20+ countries).
4. *ACS Colloid and Surface Division*. Symposium organizer/Chair of ACS Colloid and Surface Science Symposium at Johns Hopkins 2012 (600 participants). Victor K. LaMer Award Selection Committee (2014-2015), and Chair (2015-2018), Summer meeting executive committee (2008-2016), Member nomination committee for ACS Awards (2016-2018), Co-Chair General Paper session (2008, 2009, and 2014), co-chair Particles at Interfaces (2015 National Spring Meeting, 2019 ACS Colloids and Surface Symposium).
5. *Outreach activities*: Developed a 3h workshop for the National Federation of the Blind Youth Slam. Organized a booth for two days at the USA Science and Engineering Festival on the Washington Mall. Participate in SABES, a project to boost STEM education for 3rd-5th grades students in specific Baltimore City neighborhoods. Routinely host high school students in the lab.