A. Pasha Tabatabai — *Curriculum Vitae*

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Yale University
Department of Biomedical Engineering

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Career Objectives

- To utilize my broad soft matter/biophysics skill set to understand fundamental problems in biological systems, biomechanics, and soft matter
- To investigate the role of activity in differentiating living from non-living materials
- To pursue a career in research and teaching

Education

- **Ph.D.** Physics
  Georgetown University, 2017
- **M.S.** Physics
  Georgetown University, 2014
- **B.S.** Physics *cum laude*
  Gonzaga University, 2011

Positions Held

- *Postdoctoral Associate,* Yale University, Department of Biomedical Engineering
  June 2017 – current. Advisor: Michael P. Murrell
- *Research Assistant,* Georgetown University, Department of Physics
  June 2013 – May 2017. Advisor: Daniel L. Blair

Teaching

- *Guest Lecturer,* Introduction to Biomechanics, Physics 353, Yale University 2018
- *Guest Lecturer,* Molecular and Cellular Biomechanics, Engineering 556, Yale University 2018
- *Teaching Assistant,* Georgetown University, Department of Physics
  September 2011 – May 2013.
- *Teaching Assistant,* Gonzaga University, Department of Physics
  September 2008 – May 2011

Mentorship

- Frank Fazekas, Undergraduate, 2018
  Diffusion of semiflexible filaments within 2D nematics
- Joseph Tibbs, Undergraduate, 2018
  Implementing a variable timestep in molecular dynamics simulations of the cytoskeleton
- Clare Singer, High School/Undergraduate, 2013/2014
  Measuring the intrinsic viscosity of reconstituted silk fibroin

Awards

- Mayer Fellowship, Georgetown University, 2016
- Mayer Fellowship, Georgetown University, 2015
- NSF Research Experience for Undergraduates, Advisor: Daniel L. Blair, 2010
- NSF Research Experience for Undergraduates, Advisor: Jeffrey S. Olafsen, 2009

Scientific Skills

- Confocal microscopy
- Bulk rheology
- Practical biochemistry
- Cell culture
- MATLAB® (data and image processing)
- Molecular dynamics simulations
- Neutron and optical scattering

Communication Skills

- Mentoring both undergraduate and graduate students
- Explaining complicated scientific results and significance to a general audience
- Organizing and leading group discussions

Invited Talks

- University of Massachusetts, Amherst - Soft Matter Day, July 2018
  What conserved physical principles govern the mechanical outputs of cells?
- Tufts University, March 2016

A silk protein's guide to aggregation

- George Mason University, March 2016
  Associating microscope structure with mechanical properties in silk gels
- Technische Universität München, June 2015
  From cocoon to gel: making silk based materials

Contributed Talks

- 74th New England Complex Fluids, March 2018
- Multidisciplinary University Research Initiative - Traction Force Workshop, March 2018
- American Chemical Society Colloid and Surface Science Symposium, 2015, 2016
- Society of Rheology Annual Meeting, 2014
- American Physical Society March Meeting, 2013, 2014, 2016, 2017

Poster Presentations

- Cancer Systems Biology at Yale, May 2018
- Cancer Systems Biology at Yale- Flipped Science Fair, May 2018
- Multidisciplinary University Research Initiative, March 2018
- Yale Systems Biology Retreat, November 2017 –**poster award**
- Murdock Charitable Trust, 2010, 2011

Proposals

- Accepted, NIST Neutron Beam Time Proposal S32-21: 2.0 days of SANS
- Accepted, NIST Neutron Beam Time Proposal U32-08: 6.0 days of USANS

Schools/Workshops

- Rheology of Dense Particulate Suspensions, Georgetown University, Summer 2016
- SUPOLEN Workshop on Supramolecular Polymeric Assemblies, Capri Italy, Summer 2015
- University of Delaware Colloidal Gel Day, January 2015
- **Founder**: Georgetown Institute for Soft Matter Synthesis and Metrology Journal Club, 2014 – 2017
- NIST Center for Neutron Research Fundamentals of Neutron Scattering, Summer 2014
- Soft Solids and Complex Fluids, University of Massachusetts Amherst, Summer 2013
- Mid-Atlantic Soft Matter Workshop, 2010 – 2017

Active Collaborations

- David Kaplan, Tufts University - Department of Biomedical Engineering
- Shiladitya Banerjee, University College of London - Department of Physics

Publications

- **A.P. Tabatabai**, D.L. Kaplan, and D.L. Blair, Rheology of reconstituted silk fibroin protein gels: the epitome of extreme mechanics, Soft Matter (11) 2015.
- B.P. Partlow*, **A.P. Tabatabai***, G.G. Leisk, P. Cebe, D.L. Blair, and D.L. Kaplan, Silk fibroin degradation and its impact on mechanical properties, Macromolecular Bioscience (16) 2016.
- **A.P. Tabatabai**, K.M. Weigandt, and D.L. Blair, Acid-induced assembly of a reconstituted silk protein system, Physical Review E (96) 2017.
- M.F. Staddon, D. Bi, **A.P. Tabatabai**, M.P. Murrell, and S. Banerjee, Cooperation of dual modes of cell motility promotes epithelial stress relaxation to accelerate wound healing, PLoS Computational Biology 14 (10) 2018.
- D.S. Seara, V. Yadav, I.A. Linsmeier, **A.P. Tabatabai**, P.W. Oakes, S.M.A. Tabei, S. Banerjee, and M.P. Murrell, Entropy production rate is maximized in non-contractile actomyosin, Nature Communications (9) 2018.
- **A.P. Tabatabai**, B.P. Partlow, N.R. Raia, D.L. Kaplan, and D.L. Blair, Silk molecular weight affects the kinetics of enzymatically crosslinked silk hydrogel formation, Langmuir (accepted 2018).
- V. Ajeti*, **A.P. Tabatabai***, A.J. Fleszar, M.F. Staddon, D.S. Seara, C. Suarez, S. Yousafzai, D. Bi, D. Kovar, S. Banerjee, and M.P. Murrell, Epithelial wound healing coordinates distinct actin architectures to conserve mechanical work and balance power (under review).

*These authors contributed equally