MICHELLE A. CALABRESE

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I. PROFESSIONAL PREPARATION

Univ. of Pennsylvania, Chemical & Biomolecular Engineering, minor in energy & sustainability, B.S. Magna Cum Laude (2012)
Univ. of Delaware (UD), Chemical & Biomolecular Engineering, Ph.D. under Norman J. Wagner (May 2017, GPA 3.87/4.0)

II. POSITIONS

WAGNER RESEARCH GROUP, Department of Chemical Engineering, University of Delaware, Newark DE
Graduate Research Assistant at UD (2012-2014) and NIST Center for Neutron Research (2014-present, Gaithersburg, MD)
Thesis: Structure-property relationships of branched wormlike micelles via rheology and small angle neutron scattering (SANS)

- Employed state-of-the-art, simultaneous time-resolved SANS and non-linear rheology (shear startup, large amplitude oscillatory shear) to characterize microstructure and macroscopic flow properties in branched wormlike micelles (WLMs)
- Developed new time-resolved analysis and data processing methods to improve SANS resolution in space and time while reducing scattering time; implemented at NIST and the Institut Laue-Langevin (ILL, Grenoble, France)
- Visiting scientist grant at ILL to develop SANS methods to determination of concentration gradients in flowing systems

WEBER RESEARCH GROUP, Lawrence Berkeley National Lab, Berkeley CA
Science Undergraduate Laboratory Intern (SULI) in Advanced Energy Technologies (2011)

- Designed & performed tests on PEM Nafion membranes to study synergistic chemical and mechanical degradation effects
- Current: Design, implementation of flow-SANS for local concentration changes, shear-induced effects in Nafion solutions

S. MARGULIES RESEARCH GROUP, Department of Bioengineering, UPenn, Philadelphia PA
Rachleff Scholars Research Assistant (2010-2011)

- Conducted studies to determine effects of traumatic brain injury (TBI) on biomarker levels in blood serums of piglets
- Designed and implemented new protocols; trained future lab employees on biomarker methods

III. HONORS

1. American Conference on Neutron Scattering Outstanding Student Poster (2016)
2. ACS Colloid & Surface Science Symposium Langmuir Graduate Student Award - Top Ten (2016)
3. Institut Laue-Langevin (ILL) Visiting Scientist Grant (2016)
4. Society of Rheology ICR Travel Award (2016)
5. University of Delaware Graduate Student Professional Development Award (2014; 2015)
6. Robert L. Pigford Teaching Assistant Award (2015)
7. American Physical Society FGSA Award for Excellence in Graduate Research (2015)
8. Exceptional Pass PhD Qualifying Exam (2013)
9. **UPenn-** Dean's List; Melvin Molstad 3rd Prize in Chemical Engineering; SWE Research Poster Winner; Hexagon Honor Senior Society; Rachleff Scholars Program (one of nine selected in class); 2nd prize in REU research symposium; 11 merit scholarships

IV. PEER-REVIEWED PUBLICATIONS

1. **M.A. Calabrese**, S.A. Rogers, L. Porcar & N.J. Wagner. "Understanding steady and dynamic shear banding in a model wormlike micellar solution," *Journal of Rheology,* 2016, 60(5), 1001-1016. *doi: 10.1122/1.4961035*

2. **M.A. Calabrese**, N.J. Wagner and S.A. Rogers. "An optimized protocol for the analysis of time-resolved elastic scattering experiments," *Soft Matter*, 2016, 12, 2301-2308. *doi: 10.1039/c5sm03039k*

3. **M.A. Calabrese**, S.A. Rogers, R.P. Murphy and N.J. Wagner. "The rheology and microstructure of branched micelles under shear," *Journal of Rheology*, 2015, 59(5), 1299-1328. *doi: 10.1122/1.4929486*

4. S.A. Rogers, **M.A. Calabrese**, N.J. Wagner. "Rheology of branched wormlike micelles," *Current Opinion in Colloid & Interface Science*, 2014, 19(6), 530-535. *doi: 10.1016/j.cocis.2014.10.006*

5. A. Kusoglu, **M. Calabrese** and A. Z. Weber. "Effect of mechanical compression on chemical degradation of Nafion membranes," *ECS Electrochemistry Letters*, 2014, 3(5), F33-F36. *doi: 10.1149/2.008405eel*

V. BOOK CHAPTERS & OTHER ARTICLES

1. **M.A. Calabrese** and N.J. Wagner. "New Insights from Rheo-SANS," chapter in: *Wormlike Micelles: Systems, Characterisation, Applications*, Royal Society of Chemistry, 2016.

2. **M.A. Calabrese**, N.J. Wagner, S.A. Rogers and L. Porcar. "Effect of branching on shear banding in worm-like micelles (WLMs) under large amplitude oscillatory shear (LAOS)," *Instrument & Technical Upgrades - ILL News*, Dec. 2015.

3. S.A. Rogers, **M.A. Calabrese** and N.J. Wagner. "Advances in Time Resolved Neutron Scattering from Flowing Complex Fluids," *NCNR Annual Report*, 2014.