

Larissa M. Shepherd

CURRENT POSITION

Postdoctoral Associate & Lecturer

EDUCATION

College of Human Ecology at Cornell University, Ithaca, NY

- *Ph.D. in Fiber Science & Apparel Design* **May 2017**
Minor in Biochemical Engineering
- *M.S. in Fiber Science & Apparel Design* **May 2013**
Minor in Materials Science

Inamori School of Engineering at Alfred University, Alfred, NY

- *Bachelor of Science in Materials Science and Engineering* **May 2011**
Minor in Chemistry

PUBLICATIONS/COVERS/

7. (Buttaro) Shepherd, L.M.; Frey, M.W., *The degradation of cotton yarn by non-thermal radio frequency oxygen plasma*. *FIBERS* **2018**. (PEER REVIEWED ARTICLE)
6. Divvela, M; (Buttaro) Shepherd, L.M; Frey, M.W.; Joo, Y.L. *Discretized Modeling of Motionless Printing Based on Retarded Bending Motion and Deposition Control of Electrically Driven Jet*. *3D PRINTING AND ADDITIVE MANUFACTURING*. **2018**. (PEER REVIEWED ARTICLE)
5. (Buttaro) Shepherd, L.M.; Divvela, M.; Frey, M.W.; Joo, Y.L., *Immersion Electrospinning as a New Method to Direct Fiber Deposition*. *MACRO. MATER. ENG.* **2017**. (PEER REVIEWED COMMUNICATION)
4. (Buttaro) Shepherd, L.M.; González, E; Chen, E.X.; Frey, M.W., *Increasing the stability of biotin functionalized electrospun fibers for biosensor applications*. *ACS APP. MATER. INTERFACE*. **2017**. (PEER REVIEWED ARTICLE)
3. González, E.; (Buttaro) Shepherd, L.M.; Saunders, L.; Frey, M.W., *Surface functional poly (lactic acid) electrospun nanofibers for biosensor applications*. *MATERIALS*. **2016**. (PEER RIEVIEWED & OPEN SOURCE ARTICLE)
2. Harth, K.; (Buttaro) Shepherd, L.M.; Honaker, J.; Stannarius, R., *Dynamic interface tension of a smectic liquid crystal in anionic surfactant solutions*. *PHYS. CHEM. CHEM. PHYS.* **2015**. (PEER REIVIEWED ARTICLE)
1. Buttaro (Shepherd), L.M.; Drufva, E.; Frey, M. W., *Phase separation to create hydrophilic yet non-water soluble PLA/PLA-b-PEG fibers via electrospinning*. *J APPL POLYM SCI* **2014**. (PEER REVIEWED ARTICLE) (Cover *J APPL POLYM SCI* **2014**.)

PUBLICITY

1. Demo of Electrospinning for Science Channel. Program: *This Changes Everything*. Aired November 26, **2013**.

CONFERENCES/PRESENTATIONS

11. Fiber Society meeting in Ithaca, NY. Student Paper/Speaking Competition: **2nd Place**. October 2016. **Type: Oral presentation**
10. Fiber Society meeting in Mulhouse, France. Date of presentation May, 2016. **Type: Oral Presentation**. Increasing surface available biotin and improving water stability of PLA/PLA-b-PEG nanofibers. Larissa M. (Buttaro) Shepherd¹, Edurne Gonzalez¹, Laura Saunders², Ether Chen¹, Margaret W. Frey¹. ¹Cornell University, ²University at Buffalo.
9. Cornell University: Human Ecology Graduate Student Speaking Competition: **Winner**. April, 2016. **Type: Oral Presentation**. Electrospun fibers for residual cytotoxic drug detection and removal from water. Larissa M. (Buttaro) Shepherd¹, Edurne Gonzalez¹, Laura Saunders², Ether Chen¹, Margaret W. Frey¹. ¹Cornell University, ²University at Buffalo.
8. ACS National meeting 2015 in Boston, MA. Date of presentation August, 2015. **Type Poster Presentation**. Hydrophilic yet non water-soluble fibers for specific contamination detection using electrospinning and microfluidics. Larissa Buttaro (Shepherd), Margaret Frey. Cornell University
7. ACS regional meeting 2015 in Ithaca, NY. Date of presentation June, 2015. **Type: Poster Presentation**. Synthesis and Electrospinning of Block Copolymers. Larissa Buttaro (Shepherd), Edurne González, Margaret Frey. Cornell University.
6. Fiber Society meeting Philadelphia, PA. Date of presentation October, 2015 **Type: Poster Presentation**. Phase Separation of PLA/PLA-b-PEG Driven by Electrospinning to Yield Hydrophilic, Non-water Soluble Fibers. Larissa Buttaro (Shepherd), Margaret Frey. Cornell University.
5. CCMR Symposium 2013 in Ithaca, NY. Date of presentation: May, 2013. **Type: Poster Presentation**. Phase Separation Via Electrospinning to Create Hydrophilic yet Non-Water Soluble PLA/PLA-b-PEG Fibers. Larissa Buttaro (Shepherd)¹, Margaret Frey¹, Erin Drufva². ¹Cornell University, ²Mount Holyoke College.
4. ASM Poster Conference 2013 in Ithaca, NY. Date of presentation: May, 2013. **Type: Poster Presentation**. Phase Separation Via Electrospinning to Create Hydrophilic yet Non-Water Soluble PLA/PLA-b-PEG Fibers. Larissa Buttaro (Shepherd)¹, Margaret Frey¹, Erin Drufva². ¹Cornell University, ²Mount Holyoke College.
3. Fiber Society Fall 2012 Conference in Boston, MA. Date of presentation: November, 2012. **Type: Poster Presentation**. Phase Separation to Create

Hydrophilic yet Non-Water Soluble PLA/PLA-b-PEG Fibers via Electrospinning. Larissa Buttaro (Shepherd)¹, Margaret Frey¹, Erin Drufva². ¹Cornell University, ²Mount Holyoke College.

2. ACS NERM 2012 Conference in Rochester, NY. Date of presentation: October, 2012. **Type: Oral Presentation.** Phase Separation to Create Hydrophilic yet Non-Water Soluble PLA/PLA-b-PEG Fibers via Electrospinning. Larissa Buttaro (Shepherd), Margaret Frey. Cornell University.
1. CCMR Symposium 2012 in Ithaca, NY. Date of presentation: May, 2012. **Type: Poster Presentation.** Creating Specialized PLA/PLA-b-PEG Fibers Via Electrospinning. Larissa Buttaro (Shepherd), Margaret Frey. Cornell University.

CURRENT COURSES

FSAD 2370: Structural Fabric Design Lecturer, Cornell University, Ithaca NY

PREVIOUS COURSE EXPERIENCE

FSAD 3350: Fiber Science Teaching Assistant, Cornell University, Ithaca, NY

- January 2013-May 2013
- Prepared laboratory experiments and taught lab (Instron, dynamic modulus, vibroscope, etc.) to help students determine fiber properties.
- Graded both labs and homework, and helping in each case when needed for students to further understand the material.
- Taught lecture when needed.

FSAD 3310: Apparel Product Management and FSAD 4440: Global Fashion Management Teaching Assistant, Cornell University, Ithaca, NY

- The main purpose was to help students understand the business aspects of companies, analyzing both things that help and hinder different apparel companies.
- For both classes I helped students with case studies and when needed helped prepare presentations to be presented in the classes.

FSAD 3350: Fiber Science Teaching Assistant, Cornell University, Ithaca, NY

- January 2012-May 2012
- Prepared laboratory experiments and taught lab (Instron, dynamic modulus, vibroscope, etc.) to help students determine fiber properties.
- Graded both labs and homework, and helping in each case when needed for students to further understand the material.

FSAD 1350/1360: Fibers, Fabrics, and Finishes / Fiber and Yarns Analysis Lab. Teaching Assistant, Cornell University, Ithaca, NY

- August 2011-December 2011
- Prepared lab experiments and taught lab (dyeing, solubility, flammability, etc.) to determine fiber identification.

- Worked to help verify concepts in homework when needed as well as graded homework.

Integrated Science (SCIE 117) Teaching Assistant, Alfred, NY

- January 2010 - December 2010 (during academic year)
- Organize and set up laboratory experiments
- Assist students in laboratory and course work
- Grade students' work

EXPERIENCE

Research Supervisor: Cornell University, Ithaca, NY

- Sept. 2015- May 2016
- Supervise undergraduate research student
- Taught and provided guidance in experimental methods

LCRF-IREs Program at Otto Von Guericke University, Magdeburg, Germany

- June 2014- July 2014
- Determined surface tension of non-polar liquid crystal bubbles over time in and surrounded by surfactant at various concentrations below the critical micelles concentration
- Designed new apparatus for liquid crystal bubble formation
- Analyzed detaching and inflation/deflation of air bubbles that popped outside of liquid crystal bubbles but were still attached with video
- Worked on formation of polar liquid crystal bubbles

INVISTA™: Market Development Intern, Newark, DE

- June 2013-August 2013
- Conducted physical testing of intimate apparel garments
- Operated garment engineering instruments
- Analyzed and reported data
- Designed and implemented upgrades to laboratory test equipment

Lab Supervisor: CCMR REU 2012, Cornell University, Ithaca, NY

- June 2012-August 2012
- Taught undergraduate student how to electrospin and analyze fibers

Department of Fiber Science and Apparel Design, Cornell University, Ithaca, NY

- Research Assistant: June 1- July 30, 2010
- Electrospun PLA/PEG & pH sensitive nanoparticles onto glass slides
- Performed SEM and Confocal Microscopy
- Tested wettability of the electrospun fibers

Cornell Center for Materials Research (CCMR), REU 2009, Ithaca, NY

- Intern: May 31- August 6, 2009
- Electrospun Cellulose Acetate & pH sensitive nanoparticles onto a cotton substrate
- Performed SEM and Confocal Microscopy
- Researched possibility of a fabric sweat monitor

Sydor Optics, Rochester, NY

- Inspector: May 2008 - August 2008
- Inspected, washed, cleaned, and packed optical glass to be sent out to various businesses partners

ACTIVITIES/SERVICE

Grant Writing: September 2016 Assisted in writing an NSF research proposal.

Journal Reviewer: 2016 for Nanotechnology

Colman Leadership Program: June 2016: Selected for and attended four-day intensive leadership program at Cornell University.

Volunteer for Expanding Your Horizons (EYH) Cornell: April, 2016: This program is an interactive event for young girls in grades 7-9. It is used to motivate and inform them of the opportunities in science and math. For the event I was a “Buddy” for one girl that I chaperoned around to the events during the day.

GET SET Work Shop Series: Spring 2016 Participated in the Center for Teaching Excellence workshops at Cornell University. Completed series for Understanding Undergraduate Learners.

ACS member: Spring 2015-April 2017

All girl & co-ed soccer team: Summer 2015

Volunteer for STEM-oriented career conference “Girls Summit” organized by Girls Inc.: April, 2015: Taught middle school and high school girls in the Syracuse, NY area to gather interest in science fields. Gave a presentation about careers in Fibers science and demonstrated experiments.

Head of laboratory Safety/Cleaning in my Lab group: received green lab certification from Cornell University 2015-2017

Grant Writing: Spring 2015 Assisted in the writing of a HATCH grant (FUNDED).

AATCC member: Spring 2014-Spring 2015

Relay for Life Captain: 2014

Fiber Society Member: Fall 2013

Vice President of Journal Club: Fall 2012- Spring 2013: Club for Graduate Human Ecology students to practice presentations, get together, and put on social events.

Member of Graduate and Professional Student Assembly (non-voting): Fall 2012-Spring 2013

AWARDS/FELLOWSHIPS

Mary E. Purchase, Evelyn E. Stout, and Lillian B. Powell Fellowships for the 2015-16 academic year: Award is made in recognition of fine academic record and promise as a graduate student in the College of Human Ecology, Cornell University.

Outstanding Tutor Award: Alfred University, 2010.