

NAME

XXX South Y St., Apt 1
Philadelphia, PA 19104
email@permanentaddress.edu • (AAA)BBB-CCC

EDUCATION:

University of Pennsylvania 2006-2011
Ph.D. in Bioengineering
Defended Dissertation April 29, 2011

Massachusetts Institute of Technology 2002 - 2006
S.B. in Chemistry GPA: 4.8/5.0
Minor in Biomedical Engineering and concentration in American Political Science.

RESEARCH EXPERIENCE:

Laboratories of Profs. Daniel Hammer and Jason Burdick September 2006-May 2011
Department of Bioengineering, University of Pennsylvania

- Chemical modifications to vesicle-forming diblock copolymers for the design of smart polymersomes:
 - Membrane stabilization of degradable polymersomes through end-group acrylation.
 - Modular synthesis of PCL-PEO polymers for polymer junction functionality (i.e. UV sensitivity).
 - Development of biocompatible and biodegradable soft polyester-PEG based polymersomes.
- Development of dual drug delivery polymersomes for applications to solid tumor therapies.
- Hydrogels containing photocleavable sidegroups to spatially alter hydrogel mechanics and cell adhesion.

Laboratory of Prof. Darrell Irvine January 2004-June 2006
Department of Materials Science and Engineering and Biological Engineering Division, MIT

- Applications of *o*-Nitrobenzyl Ester Photo-Rearrangement Chemistry to Biomaterials:
 - Synthesis and characterization of novel photoresists for protein patterning under biological conditions.
 - Development of protected, amine-functionalized hydrogels for UV immobilization of biological factors.
- Development of pH-sensitive, micron-sized hydrogel particles for gene and drug delivery.

Laboratory of Prof. Joachim Kohn Summer 2003
Department of Chemistry, Rutgers University and the NJ Center for Biomaterials

- Synthesis, reaction optimization and characterization of ABA-type, tyrosine-derived tri-block copolymers used for the self-assembly of vesicles as a method for non-viral gene and drug delivery.

Laboratory of Prof. Robert Langer January 2003
Department of Chemical Engineering and Biological Engineering Division, MIT

- Preparation of micro-fluidic channels for the study of stem cell differentiation across concentration gradients.

PROFICIENCIES:

Laboratory Techniques: Chemical and polymer synthesis, fundamental chemical and soft materials characterization, bioconjugations, mammalian cell culture, light microscopy, electron microscopy, micromanipulations, microfluidics.

Laboratory Instrumentation: NMR, FT-IR, GPC, TGA, UV/VIS, Ellipsometry, HPLC, GC/MS, DSC, DLS.

Computer Software: Microsoft Office, Topspin, Nicolet, ImageJ, ChemDraw, EndNote, Macromedia Dreamweaver.

AWARDS AND HONORS

DSM Polymer Technology Award Finalist, Division of Polymer Chemistry, American Chemical Society 2011
1 of 4 Finalists. Award to be presented at ACS Fall Meeting, August, 2011

Graduate Research Fellowship, National Science Foundation 2006-2009

Award for Service to the Department, Department of Chemistry, MIT Spring 2006

First Place, MIT Undergraduate Biomedical Engineering Society Poster Competition Fall 2005

WORK EXPERIENCE:

RegentAtlantic Capital, LLC., Chatham, NJ (now Morristown, NJ) 2000-2002
Office manager and assistant in document processing, client relations, and clerical and computer support.

USSF Certified Soccer Referee, Class 1 1998-2008
Over 250 youth and adult games officiated in NJ, MA, MD, and PA
Selected to officiate NJ State Cup Tournament Finals.

Morris County Family Court Summer 1999
Volunteer intern with domestic violence team.

TEACHING EXPERIENCE:

Research Mentor	January 2006-Present
Supervised and trained research assistants ranging in experience from high school to post-doctoral.	
Teaching Assistant	Spring, Fall 2010
BE553—Tissue Engineering and BE324—Chemical Basis of Bioengineering, University of Pennsylvania	
Lectured several classes, wrote and graded exams, and graded in-class presentations.	
Chemistry Tutor	Fall 2005
Tutor for several students in General Chemistry courses at MIT.	
Course Development Assistant	Fall 2005
Developed curriculum and study materials for joint Chemistry and Bioengineering thermodynamics course.	
Teaching Assistant Instructor	August 2005
Helped with training of teaching assistants for fall 2005 laboratory courses with MIT Chemistry faculty.	

PROFESSIONAL ACTIVITIES:

American Chemical Society.	2007-Present
Materials Research Society.	2003-Present
MIT Undergraduate Biochemistry Association.	2005-2006
Founding member. Held positions of President and Chemistry Representative on executive board.	

PUBLICATIONS:

- List all authors; **My name in bold**; Last, F.M.; "Soft Biodegradable Polymersomes from Caprolactone-Derived Polymers." Submitted.
- List all authors; **My name in bold**; Last, F.M.; "Biodegradable Polymersomes for the Delivery of Gemcitabine to Panc-1 Cells." Submitted.
- List all authors; **My name in bold**; Last, F.M.; "Nanofiber-Nanorod Composites Exhibiting Light-Inducible LCST Transitions." *Nanotechnology*. In Press.
- List all authors; **My name in bold**; Last, F.M.; "Synthetic Biomaterials." In: Mikos, A.G. and Fisher, J.P., eds. *Biomedical Engineering Handbook, Tissue Engineering Section*. CRC Press. In Press.
- List all authors; **My name in bold**; Last, F.M.; "Engineering Polymersome Protocells." *Journal of Physical Chemistry Letters*. **2011**. 2:13, 1612-1623. (invited perspective)
- List all authors; **My name in bold**; Last, F.M.; "Indian Gold Treating Cancer in the Age of Nano." *Cancer Biology and Therapy*. **2011**. 11:5, 474-476. (invited commentary).
- List all authors; **My name in bold**; Last, F.M.; "Effects of Membrane Rheology on Leuko-Polymersome Adhesion to Inflammatory Ligands." *Soft Matter*. **2011**. 7:2, 769-779.
- List all authors; **My name in bold**; Last, F.M.; "UV Light Sensitive Hydrogels for Induced Swelling and Patterning." *Journal of Materials Chemistry*. **2010**. 20:40, 8920-8926. (* equal contribution)
- List all authors; **My name in bold**; Last, F.M.; "Modular Synthesis of Biodegradable Diblock Copolymers for Designing Functional Polymersomes." *Journal of the American Chemical Society*. **2010**. 132:11, 3654-3655. (cited 6 times)
- List all authors; **My name in bold**; Last, F.M.; "Light-Responsive Biomaterials: Development and Applications." *Macromolecular Bioscience*. **2010**. 10:4, 339-348. (invited review)
- List all authors; **My name in bold**; Last, F.M.; "Aqueous-processible photoresponsive polymers for addressable micro-patterning of multiple proteins and cells." *Langmuir*. **2010**. 26:14, 12112-12118.
- List all authors; **My name in bold**; Last, F.M.; "Membrane Stabilization of Biodegradable Polymersomes." *Langmuir*. **2009**. 25:8, 4429-4434.
- List all authors; **My name in bold**; Last, F.M.; "Sequential Crosslinking to Control Cellular Spreading in 3-Dimensional Hydrogels." *Soft Matter*. **2009**. 5:8, 1601-1606. (cover article, cited 23 times).
- List all authors; **My name in bold**; Last, F.M.; "Hydrogel Mediated Delivery of Trophic Factors for Neural Repair." *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology*. **2009**. 1:1, 128-139. (invited review)
- List all authors; **My name in bold**; Last, F.M.; "Controlling Poly(b-amino ester) Network Properties through Macromer Branching," *Acta Biomaterialia*, **2008**, 4, 207-217. (cited 13 times)
- List all authors; **My name in bold**; Last, F.M.; "Cytosolic Delivery of Membrane-Impermeable Molecules in Dendritic Cells Using pH-Responsive Core-Shell Nanoparticles." *Nano Letters*. **2007**. 7:10, 3056-3064. (cited 48 times)
- List all authors; **My name in bold**; Last, F.M.; "Composition-Tunable Properties of Amphiphilic Comb Copolymers Containing Protected Methacrylic Acid Groups for Multicomponent Protein Patterning." *Langmuir*. **2006**. 22:1, 353-9. (cited 28 times)

ORAL PRESENTATIONS:

1. List all authors; **My name in bold**; Last, F.M.; "Modular Synthesis of Diblock Copolymers for Functional Polymersomes." 2010 Materials Research Society Fall Meeting, Boston, MA.
2. List all authors; **My name in bold**; Last, F.M.; "Synthesis and Design of Soft Biodegradable Polymersomes." 2010 Materials Research Society Fall Meeting, Boston, MA.
3. List all authors; **My name in bold**; Last, F.M.; "Photocleavable Polymer Side Groups to Spatially Alter Hydrogel Properties and Cellular Interactions." 2010 American Chemical Society Fall Meeting, Division of Polymeric Materials Science and Engineering, Boston, MA.
4. List all authors; **My name in bold**; Last, F.M.; "Polyethylene-b-Polycaprolactone Vesicles for Therapeutic Applications." 2009 International Nanomedicine and Drug Delivery Symposium, Indianapolis, IN.
5. List all authors; **My name in bold**; Last, F.M.; "Rational Polymer Design for the Development of Stable Functional Polymer Vesicles." Molecular Recognition Section Seminar, Laboratory for Bioorganic Chemistry, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, Bethesda, MD. June 26, 2009.
6. List all authors; **My name in bold**; Last, F.M.; "Controlled Stem Cell Spreading in 3-Dimensional Hydrogel Microenvironments." 2009 Society for Biomaterials Annual Meeting, San Antonio, TX.
7. List all authors; **My name in bold**; Last, F.M.; "Acrylation of PCL-PEO Diblock Copolymers to Slow the Passive Release of Doxorubicin from Self-Assembled Polymersomes." 2008 American Chemical Society Fall Meeting, Division of Polymer Chemistry, Philadelphia, PA.

POSTER PRESENTATIONS:

1. List all authors; **My name in bold**; Last, F.M.; "Modular Synthesis of Diblock Copolymers for Functional Polymersomes." 2010 American Chemical Society Fall Meeting, Division of Polymer Chemistry, Boston, MA.
2. List all authors; **My name in bold**; Last, F.M.; "o-Nitrobenzyl-Protected Polymer Surfaces for Protein Photopatterning Under Mild Aqueous Conditions." 2005 Materials Research Society Fall Meeting, Boston, MA.
3. List all authors; **My name in bold**; Last, F.M.; "o-Nitrobenzyl-Protected Polymer Surfaces for Protein Photopatterning Under Mild Aqueous Conditions." MIT Biomedical Engineering Society Undergraduate Poster Competition. November 17, 2005. First place.