

University of California, Santa Barbara

- 5th year Ph.D. candidate in chemical engineering under Dr. Matthew Tirrell, GPA: 3.6/4.0
 - Expected graduation: February 2009
 - Research interests: thermodynamics of self-assembly, multifunctional nanostructures, photophysical characterization techniques
 - **Symposium Co-organizer**, Organized 1st annual Chemical Engineering Graduate Student Symposium
 - **Award for Outstanding Service**, September 2005, coordinating graduate recruitment program
 - **E.P.S.E.M. Mentor (NSF)**, Summer 2004, mentoring 4 students in self-assembly techniques
 - **Undergraduates Advised**: Ryan Thacher, UCSB; Jan Ressler, Northwestern; Craig Silverman, Duke
 - **Research Website**: <http://www.chemengr.ucsb.edu/~mjk/>
 - **Career Goal**: Looking for a post-doctoral research position to prepare for a tenure-track faculty position
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Massachusetts Institute of Technology

- **Degrees**: S.B. Chemical Engineering; S.B. Brain & Cognitive Sciences, June 2003, GPA: 4.8/5.0
 - **Delta Upsilon Fraternity Brother**, Technology Chapter
 - Offices Held: *President, Scholarship Chair, House Manager*
 - **American Institute of Chemical Engineers**, *Class of 2003 Representative*, 2001-2003
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Technical Skills

Materials characterization: dynamic and static light scattering, neutron and x-ray scattering techniques, various fluorescence and light absorption spectroscopic techniques, circular dichroism, mass spectrometry (electrospray and matrix-assisted)

Material synthesis and purification: solid-phase peptide synthesis, high-performance liquid chromatography, photolithography for fabrication of traditional and polymeric microelectromechanical systems, layer-by-layer thin film self assembly techniques

Computer: Mathematica and MATLAB

Work Experience

- **Teaching Assistant**, *Fluid Mechanics*, Fall 2007, with Dr. Todd Squires
- **Teaching Assistant**, *Design of Chemical Processes*, Winter 2007, with Dr. Orville Sandall
- **Teaching Assistant**, *Process Safety*, Spring 2006, with Dr. Sanjoy Banerjee
- **Teaching Assistant**, *Advanced Transport Processes*, Winter 2006, with Dr. Sanjoy Banerjee
- **Teaching Assistant**, *Heat Transfer*, Winter 2005, with Dr. Joseph Zasadzinski
- **UROP Student at MIT**, *Microsystems Technology Lab*, Summer 2002 - Spring 2003
- **UROP Student at MIT**, *Dept. of Chem. Engineering* with Dr. Paula Hammond, Spring 2002
- **Head Undergraduate Tutor**, *MIT Dept. of Chem. Engineering*, Fall 2001 - Spring 2003
- **REU Student at Univ. of Maryland**, *Institute for Systems Research*, with Dr. Reza Ghodssi and Dr. Gary Rubloff, Summer 2001
- **Undergraduate Tutor**, *Dept. of Chem. Engineering*, Fall 2000 - Spring 2001
- **Grader**, *Introduction to Computer Methods*, Fall 2000 & 2001 and *Chemical Engineering Thermodynamics*, Spring 2000
- **Summer Intern in Biomedical Research**, *National Institutes of Health*, 1998 and 1999

Publications and Patents

- P. Karmali, V. Kotamraju, M. Kastantin, M. Black, D. Missirlis, M. Tirrell, and E. Ruoslahti. "Targeting of albumin-embedded taxol nanoparticles to tumors" *Nanomedicine: Nanotechnology, Biology and Medicine* (in press)
- J. Park, R. Ghodssi, G. Rubloff, M. Kastantin, S. Li, L.-Q. Wu, H. Yi, and T. Valentine, "Fabrication and integration of polymeric biomems," U.S. Patent 7,375,404, May 20, 2008.
- M. Kastantin, B. Ananthanarayanan, J. Ressler, M. Black, and M. Tirrell. "Fluorescence anisotropy increase upon self-assembly in headgroup-labeled surfactants" *Macromolecular Bioscience* **7** (2): 189-194, 2007.
- C.M. Waits, B. Morgan, M. Kastantin, and R. Ghodssi. "Microfabrication of 3D silicon MEMS structures using gray-scale lithography and deep reactive ion etching" *Sensors and Actuators A* **119** (1): 245-253, 2005.
- M.J. Kastantin, S. Li, A.P. Gadre, L.-Q. Wu, W.E. Bentley, G.F. Payne, G.W. Rubloff and R. Ghodssi. "Integrated fabrication of polymeric devices for biological applications" *Sensors and Materials* **15** (6): 295-311, 2003.
- D.M. DeLongchamp, M.J. Kastantin, and P.T. Hammond. "High contrast electrochromism from layer-by-layer polymer films" *Chemistry of Materials* **15** (8): 1575-1586, 2003.
- L.Q. Wu, A.P. Gadre, H. Yi, M.J. Kastantin, G.W. Rubloff, W.E. Bentley, G.F. Payne, and R. Ghodssi. "Voltage-dependent assembly of the polysaccharide chitosan onto an electrode surface" *Langmuir* **18** (22): 8620-8625, 2002.
- M.J. Domanski, M.A. Pfeffer, B.R. Davis, M.J. Kastantin, D. Exner, and G.F. Mitchell. "Stroke and total mortality in older patients with isolated systolic hypertension: Prognostic information provided by pulse pressure" *Hypertension* **34** (3): 375-80. 1999.
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Posters and Oral Presentations

- M. Kastantin and M. Tirrell, "The role of alpha-helix formation in the self-assembly of protein-analogous micelles", University of California Systemwide Bioengineering Symposium, University of California, Riverside, June 20-22, 2008.
- M. Kastantin, B. Ananthanarayanan, and M. Tirrell, "Design and characterization of protein-analogous micelles", Spring meeting of the Materials Research Society, San Francisco Hilton, March 24-28, 2008.
- M. Kastantin, M. Black, J. Ressler, and M. Tirrell, "Fluorescence anisotropy in aggregated protein-mimetic structures", Annual meeting of the American Institute of Chemical Engineers, San Francisco Hilton, November 12-17, 2006.
- M. Kastantin, W. Smitthipong and M. Tirrell, "Synthetic bioinspired and biomimicking materials: From peptide-amphiphiles to biopolymers", BASF Symposium on Bioinspired Materials, Institut de Science et d'Ingénierie Supramoléculaires, Strasbourg, France, August 7-9, 2006.
- M. Kastantin and M. Tirrell, "Entropic Stabilization of alpha-helix formation in a tethered peptide brush", 2005 KAIST / UCSB Symposium, Korea Advanced Institute of Science and Technology, Daejeon, South Korea, September 5-7, 2005.
- A. P. Gadre, L. Q. Wu, H. Yi, M. J. Kastantin, G. W. Rubloff, G. Payne, W. E. Bentley and R. Ghodssi, "Development of polymeric microfluidic devices for BioMEMS applications", 2002 Research Review Day, Inn and Conference Center, University of Maryland, College Park, MD, March 1, 2002.
- A. Gadre, M. Kastantin, S. Li, and R. Ghodssi, "An integrated BioMEMS fabrication technology", Proceedings of the 2001 International Semiconductor Device Research Symposium (ISDRS), pp. 186-189, Washington D.C., December 5-7, 2001.
- A. Gadre, M. Kastantin, S. Li, E. Smela, and R. Ghodssi, "An integrated MEMS fabrication technology using SU8 negative resist and conducting polymers", American Vacuum Society (AVS) 48th International Symposium, San Francisco, CA, October 28 - November 2, 2001.