

## Mark Bachman - Curriculum Vitae

Department of Electrical Engineering and Computer Science  
2227 Engineering Gateway Building, University of California at Irvine, Irvine, CA 92697  
Tel: (949)824-6421 Fax: (949)824-3732 email:mbahcman@uci.edu http://www.li-bachman.net

### Professional Preparation

B.S. Physics, University of Texas at Austin, 1985  
Ph.D. Experimental Particle Physics, University of Texas at Austin, 1994  
Post-doc and researcher High Energy Physics, Brookhaven National Laboratory AGS and University of California, Irvine. 1994-1997. MEMS research at UCI, 1997-1999.

### Professional Experience

2005–present Associate Director, Integrated Nanosystems Research Facility  
2005–present Associate Adjunct Professor, EECS, UC Irvine  
2001–2005 Assistant Director, Integrated Nanosystems Research Facility  
1999–2005 Assistant Adjunct Professor, EECS, UC Irvine  
1997–1999 Assistant Research Physicist, Physics and EECS, UC Irvine

### Honors and Awards

1993 Best Dissertation Award in Physical Science and Engineering, University of Texas, Austin  
2003 Outstanding UCI Engineering Professor in Teaching  
2005 UCI Innovation Award (one of 16 faculty awarded at UCI for technology innovation)

### Academic Services

2002 – present Reviewer for IEEE Sensors, Sensors and Actuators B, Audiology, UC Discovery Grants

### Publications (closely related to proposed subject)

Dr. Mark Bachman has published over 40 articles in peer reviewed conference proceedings and journals, and has given numerous invited talks in topics relating to MEMS, BioMEMS and experimental physics research. In addition, he is co-author of over 30 invention disclosures to UCI.

1. “Covalent Micropatterning of Poly(dimethylsiloxane) by Photografting Through a Mask.” Wang, Y., Li, H.H., Bachman, M., Sims, C.E., Li, G.P., Allbritton, N.L. *Analytical Chemistry*. 77:7539-7544, 2005.
2. “Low-voltage polymer-based scanning cantilever for in vivo optical coherence tomography.” Y Wang, M Bachman, GP Li, S Guo, BJ Wong, Z Chen, *Optics Letters* 30, pp.53-55 (2005).
3. “Dynamically focused OCT for endoscopic applications.” A. Divetia, TH Hsieh, J Zhang, Z Chen, M Bachman, GP Li, *Applied Physics Letters* 86, 103902 (2005).
4. “Polymeric micro-cantilever acoustic sensor array,” Tao Xu; M. Bachman, Fan-Gang Zeng; Guann-Pyng Li, *Transducers 2003, 12th International Conference on Solid-State Sensors, Actuators and Microsystems*, Vol 2, pages: 1116 –1119, June 9-12, 2003 (peer reviewed).
5. “RF MEMS switches fabricated on low cost microwave laminates using low temperature processes,” B. A. Cetiner, H. P. Chang, J. Y. Qian, M. Bachman, G.-P. Li, and F. De Flaviis, *Transactions on MTT special issue on RF MEMS*, December 2002.

### **Selected Other Five Publications**

1. "A wafer-level microcap array to enable high-yield microsystem packaging." Y-MJ Chiang, M Bachman, GP Li, *IEEE Transactions on Advanced Packaging* 27, pp.490-496 (2004).
2. "Fast Electrical Lysis of Cells for Capillary Electrophoresis," Futain Han, Y. Wang, Christopher E. Sims, Mark Bachman, R. Chang, G.-P. Li, Nancy Allbritton, *Analytical Chemistry* 75 (15), pp. 3688-3696, 2003.
3. "SU-8 processing on a variety of substrates," Yuh-Min Chiang, Mark Bachman, Hung-Pin Chang, Charles Chu, G.-P. Li, *Materials Science of Microelectromechanical Systems (MEMS) Devices II*, M.P. deBoer, A.H. Heuer, S.J. Jacobs, E. Peeters, Eds., MRS, December 1999 (peer reviewed).
4. "Cross linked coating for electrophoretic separations in poly(dimethylsiloxane) microchannels," Shuwen Hu, Xueqin Ren, Mark Bachman, Christopher E. Sims, G.-P. Li, Nancy Allbritton, *Electrophoresis* 24 (21), pp. 3679-3688, November 2003.
5. Charles Chu, Mark Bachman, Yuh-Min Chiang, Fernando Gonzales, G.-P. Li, "Characterizations of metallized plastic MEMS," *Materials Science of Microelectromechanical Systems (MEMS) Devices II*, M.P. deBoer, A.H. Heuer, S.J. Jacobs, E. Peeters, Eds., MRS, December 1999 (peer reviewed).

**Persons, Other Than Those Cited in the Publications, Who Have Collaborated on a Project or a Book, Article, Report, or Paper within Last 48 Months:** Dr. Bachman currently collaborates on active research projects with over 14 faculty from different UCI campus units, including departments within the UCI Medical School, School of Biological Sciences, School of Physical Sciences, and School of Engineering.

### **Names of Graduate and Post-Graduate Advisors**

Dr. Peter J. Riley (UT-Austin, Ph.D. advisor), Dr. William Molzon (UC-Irvine, Post-Doctoral Advisor).

### **Names of Graduate and Post-Graduate Advisees**

Dr. Bachman currently co-supervises

Postdoctoral researchers: Dr. Yuli Wang, Dr. Tao Xu, Dr. Hung-ping Chang

Ph.D. students: Asheesh Divetia, Cynthia Jensen-McMullin, Hsuan-Hong Lai, Zhian Lai, Wei Wei, Liang Wu, Wei Xu, Kevin Zanjani, Tiffany Chua, Paul Marc

MS students: Tomas Moran, Yuan-Kwei Chang, Victor Huang, David Crosley, Iman Kholdebarin, Brent Lin

### **Synergistic activities**

**Facility Administrator.** Dr. Bachman is co-founder and Associate Director of UCI's Integrated Nanosystems Research Facility, a world class microfabrication facility. He spends considerable time organizing internal infrastructure, initiating public education, and performing industry outreach for the facility, frequently giving public presentations on integrated nanosystems and research at UCI INRF at industry/academic conferences.

**Undergraduate Research.** Dr. Bachman actively promotes undergraduate research opportunities at UCI and personally supervises and mentors approximately 6-10 undergraduates per year. He has mentored students under the McNeil-Nair Scholars Program, Undergraduate Research Opportunities Program (UROP), California Alliance for Minority Participation program (CAMP), Center for Opportunities and Diversity in Engineering program (CODE), as well as undergraduate volunteers. Dr. Bachman also supervises 3 high school interns each summer.