



UNIVERSITY OF MINNESOTA

**University of Minnesota
Short Course on
BioMEMS**

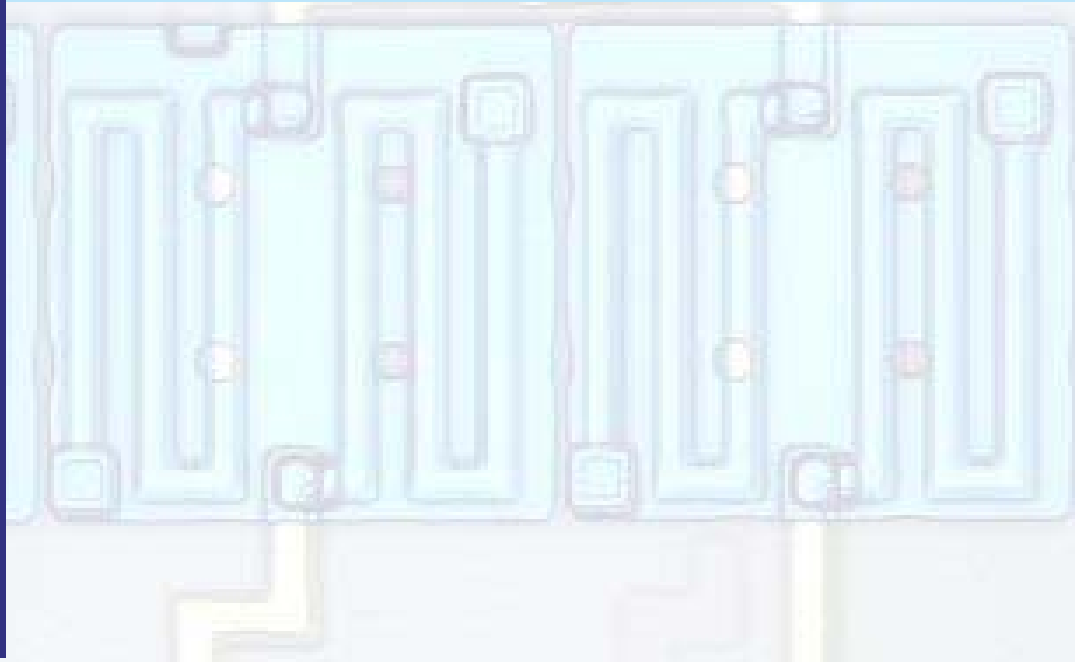
August 6 - 7, 2009

Room 3-230 Electrical &
Computer Engineering
200 Union Street SE
Minneapolis, Minnesota

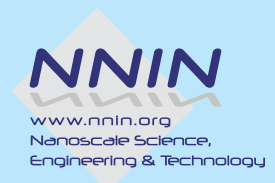
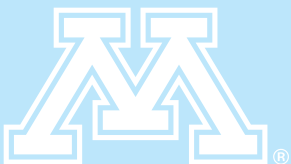
To register:

Becky von Dissen
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**BioMEMS and Microfluidics for the Life Sciences
A Hands-On Two-Day Introduction to the Field**



This two-day hands-on workshop will provide an understandable overview of microfluidics for biomedical applications. It is intended for those who might be interested in becoming involved in the microfluidics field, but need a basic outline of what is possible and how the devices are designed and built. A hands-on component will get the participants in the lab where they will build some basic microfluidic structures. Principles and software will be introduced to familiarize the participants with the design of more complex devices. Also, many of the current technology applications will be reviewed. The course will be taught by some of the leading researchers and educators in the field. A copy of Dr. Steven Saliterman's *Fundamentals of BioMEMS and Medical Microdevices*, one of the leading texts in the field, is available for an additional fee.



Day 1 – August 6, 2009

8:30	Welcome and BioMEMS Overview.....	Tianhong Cui
8:45	Hard Materials and Processes.....	Tianhong Cui
	Bulk micromachining	
	Surface micromachining	
9:45	Polymers.....	Tianhong Cui
	Polymeric materials	
	Embossing / Soft lithography	
10:45	Break	
11:00	Microfluidics.....	Sang-Hyun Oh
	Basic principles and scaling issues	
	Microfluidic components	
12:30	Networking Lunch - provided	
1:30	Lab 1 (finish around 5:00).....	Sang-Hyun Oh
	Basic lithography, SU-8 molding and PDMS replica	

Tianhong Cui is an Associate Professor and the Richard Nelson Endowed Chair in Mechanical Engineering. Tianhong holds degrees in Mechanical Engineering - his Ph.D. from the Chinese Academy of Sciences and his B.S. from Nanjing University of Aeronautics and Astronautics. His major research interests are micro/nanomanufacturing, MEMS/NEMS, and polymer/organic microelectronics.



Sang-Hyun Oh is an Assistant Professor in Electrical & Computer Engineering. Sang-Hyun holds a Ph.D. in Applied Physics from Stanford and a B.S. in Physics from Korea Advanced Institute of Science & Technology (KAIST). His goal is to integrate molecular recognition, nanofabrication, and photonics technologies on a single microchip.



Day 2 – August 7, 2009

8:30	Microfluidic design.....	Sang-Hyun Oh
10:30	Break	
10:45	Applications Part 1.....	Steven Saliterman
	Lab-on-a-Chip	
	Drug Delivery	
11:20	Applications Part 2.....	Steven Saliterman
	Genomics & DNA Microarrays	
	Proteomics & Protein Microarrays	
11:55	Biocompatibility, FDA and ISO 10993.....	Steven Saliterman
12:30	Lunch – on your own	
1:30	Lab 2 (finish around 5:00).....	Sang-Hyun Oh
	Fabrication and testing of simple microfluidic biochips	

Steven Saliterman is an Adjunct Assistant Professor in Biomedical Engineering. Steve received his M.D. from Mayo Medical School. He has been a guest lecturer at Johns Hopkins Hospital and the Mayo Clinic. He recently has been a guest speaker at the University of MN's Design of Medical Devices, and the Minnesota Medical Alley sponsored MedEdge International conferences.



Registration Information

The registration fee for academic participants is \$200, the fee for industry participants is \$500. This fee includes instructional materials, Day 1 lunch, and refreshment breaks. Registration payment may be made by credit card or check to the University of Minnesota or through Department ID number (for University of Minnesota faculty, staff and students).

To register contact:
 Becky von Dissen
 email: vondi001@umn.edu
 telephone: 612-625-3069

Registration is due by Thursday, July 23, 2009. Due to lab space, enrollment will be limited. Registration will be accepted on a first-come basis. A full refund of the registration fee will be made if the registration is cancelled by July 23, 2009. The University reserves the right to cancel the program if necessary.