



*Applied Physics & OSA
Optics Seminar*

MEMS-Actuated Microresonators and Optofluidics

Prof. Ming C. Wu

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This talk will describe two research topics in my group at Berkeley. The first is MEMS-actuated microresonators. We have developed a process to integrate MEMS-actuated deformable waveguides with high-Q microdisk and microtoroidal resonators on SOI. This gives us the ability to dynamically control the coupling of microresonators. We will show experimental results of dynamic add-drop multiplexers, bandwidth-tunable filters, and tunable slow light devices. The second topic is in the area of optofluidics. We will describe our recent results of using dynamic light patterns to control microfluidics and trap colloidal particles. This technique, called optoelectronic Tweezers (OET), converts light patterns into virtual electrodes using photoconductors and interact with liquid droplets via electrowetting or with colloidal particles via dielectrophoresis. OET enables us to individually address a large number of cells by light, as well as differentiate different cell phenotypes. Recently, we have also succeeded in trapping single nanowires.

Brief Biography:

Dr. Ming Wu is Professor of Electrical Engineering and Computer Sciences at the University of California, Berkeley, and Co-Director of Berkeley Sensors and Actuators Center (BSAC). His research interests include MEMS, optoelectronics, and biophotonics. He received his M.S. and Ph.D. in Electrical Engineering from UC Berkeley in 1985 and 1988, respectively, all in Electrical Engineering. Before joining the faculty of UC Berkeley, Dr. Wu was a Member of Technical Staff at AT&T Bell Laboratories, Murray Hill, from 1988 to 1992, and Professor of Electrical Engineering at UCLA from 1993 to 2004. In 1997, Dr. Wu co-founded OMM in San Diego, CA, to commercialize MEMS optical switches. He is an IEEE Fellow, and a Packard Foundation Fellow (1992-7). He has published over 400 technical papers, and holds 15 patents.

Tuesday, January 9, 2007.

4:00pm-5:00pm.

Watson 104

Refreshments will be available in the Watson Lobby at 3:45pm.

Host: Prof. Kerry Vahala