



FORTH/ICE-HT

SEMINAR SEMINAR

SPEAKER: Dr. Reza Ghodssi, Associate Professor

Department of Electrical and Computer Engineering
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THEME: MEMS/NEMS Integrative Materials and Technology for Biological and Chemical Microsystems

PLACE: FORTH/ICE-HT auditorium

DATE: Tuesday, 19th of June, 2007

TIME: 12:00

ABSTRACT: Materials technology and process integration are the key enabling tools for novel advances in MEMS/NEMS for future biological and chemical microsystems applications. In this talk, I present an overview of the various building block materials and process technologies developed in our group at the University of Maryland to address this exciting and diverse goal. First, the use of InP as an attractive monolithic integrative material for all-optical switching applications is described through micro and nano actuators for sensing gas molecules. Next, the challenges involved in developing a precision and batch fabricated 3-D micromachining technology in silicon by way of gray-scale lithography and deep reactive ion etching (DRIE) are presented. This powerful microfabrication technique is now enabling the development of next generation 3-D micro-scale devices for fuel delivery and gas sensing. Finally, selective deposition of the biopolymer chitosan as an interface between organic and inorganic materials is proved to be a versatile and robust biofabrication platform for multi-modal (opto-electro-mechanical) biosensing and biomolecular reactions in microfluidics.