Northeastern University
College *of* Engineering

Please join us for a
Chemical Engineering Special Seminar

Wednesday, April 25, 2012
220 Behrakis Health Sciences Center
11:00 a.m.

"Advanced Microelectronics Technology Development at MIT Lincoln Laboratory"

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ABSTRACT

The Microelectronics Laboratory (MEL) at MIT Lincoln Laboratory is the leading semiconductor research and advanced prototyping facility dedicated to supporting the current and future needs of the Department of Defense. The MEL also supports research for non-DoD agencies including NASA and national laboratories, and fabricates circuits using novel device technologies free-of-charge to university contributors through government-sponsored multiproject wafer runs. This presentation will provide an introduction to several technology focus areas in the MEL, including: 1) development the world's largest pixel-count focal plane arrays for terrestrial and space-based telescopes, 2) advanced 3-D integrated microelectronics for Si/III-V heterogeneous integration, 3) development of MEMS switches for communications devices, 4) fundamental plasma processing research for thin film deposition and etching, 5) novel electrowetting-based microfluidic device research, and 6) a new ultra-low-power silicon transistor processing technology to be used in implantable medical devices, portable biosensors, and space-based applications. Opportunities at Lincoln Laboratory for undergraduates, graduate students, and research collaborations will be discussed.

Steven A. Vitale received a BS in Chemical Engineering from Johns Hopkins University, and a PhD in Chemical Engineering from MIT, where he studied the chemistry and physics of plasma processing for environmental applications and nanofabrication. From 2001 to 2007, he was a Technical Staff member with Texas Instruments researching advanced semiconductor process technology for the 90-nm, 65-nm and 45-nm semiconductor nodes. Dr. Vitale then joined MIT Lincoln Laboratory in the Advanced Silicon Technology Group. He currently leads a research program to develop ultra-low-power microelectronics for energy starved applications, as well as programs to develop solid-state radiation detectors and plasma-enhanced atomic layer deposition processes. Dr. Vitale holds 6 patents, has authored over 25 refereed journal publications, serves as General Chairman of the 2012 IEEE Subthreshold Microelectronics Conference, and is a program committee member for several other international conferences.

Refreshments will be served.