

UNH Materials Science Seminar

11:00-12:00, Thursday, October 7, 2004

DeMeritt Hall 209B

University of New Hampshire

Materials Analysis in the Semiconductor Industry Using Secondary Ion Mass Spectrometry

Dr. Thanas Budri

National Semiconductor Inc.

South Portland, ME

As semiconductor devices are shrinking following Moore's Law, semiconductor processing has become a great challenge and requires more and more analytical technique involvement to monitor and ensure production of high yielding devices. Secondary Ions Mass Spectrometry (SIMS) is one of the analytical techniques adopted by the semiconductor industry that provides an advantage for process development, transfer to multiple fabrication plants and that enables companies to meet the time-to-market deadlines for product release. SIMS is used extensively for the dopant depth profiling on implanter matching in front-end semiconductor processing and depth profiling of high-k dielectrics used as gate materials. In the back-end processing SIMS analytical applications include depth profiling of different metals and dielectric films. Other SIMS applications include metallic contamination analysis, interface composition analysis and imaging of any material that can be retained in solid steady state after introduction in UHV chambers of the instruments.

Dr. Budri joined the materials analysis group of National Semiconductor in 1997. At the present, he manages the Secondary Ion Mass Spectroscopy Laboratory of NSC. He obtained the Diploma degree with double major on Chemistry and Chemical Engineering from the University of Tirana Albania in 1989 and the Candidate of Science Degree in Physical Chemistry from the same university in 1992. Previous experience includes research and development in area of chemical engineering processing and various management positions.