

Physics Colloquium

Michigan Technological University

October 19 (Thursday) 2006, 4:00 to 5:00 pm
Room 139, Fisher Hall

Ion beam Analysis and Modification techniques at SUNY – Albany

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Abstract

The 4 MeV Dynamitron Accelerator and a 3 MeV Tandem Accelerator are being utilized for the Ion Beam Analysis and Modification at SUNY Albany. Various Ion Beam analysis techniques, setup on the eight beam lines of the accelerators and commonly used are: Rutherford Backscattering Spectroscopy (RBS); Channeling; Particle Induced X-Ray Emission (PIXE); Nuclear Reaction Analysis (NRA) including Hydrogen, Lithium, Boron, Nitrogen, Oxygen and Aluminum Depth profiling; a microbeam scanning system with a spatial resolution of 1 μm in conjunction with RBS and PIXE and, a high resolution magnetic spectrometer with spatial resolution of 10 \AA for RBS. The damage studies are conducted using Ion Implantation in wafers of diameter 2" to 8" at various temperatures up to 1100 $^{\circ}$ C. Studies on several Ion Beam analysis Techniques will be presented. Several examples of chemical and micro-structural analysis will be given.

Biography



Prof. Bakhru received his Ph. D. from Saha Institute of Nuclear Physics, Calcutta, India in 1965. He is currently the Head of the Nanoscience constellation at the College of Nanoscale science and engineering at University at Albany, State University of New York. His research focuses on industrial applications of high-energy microbeams, surface modification and characterization of materials using ion beams. His lab also conducts nanomaterials analysis using state-of-the-art ion beams and micro-beam facilities at University at Albany. This includes RBS, channeling, various nuclear reactions for low mass elements including Hydrogen, Nitrogen, Carbon, Fluorine, and other low mass elemental profiling and high energy implantation of large (up to 8 inch) wafers.