

Spring 2023 Colloquium

Department of Physics & Astronomy, A&M-Commerce

Feb 16, Thursday, 4-5 PM in Science Building 127

(coffee and cookies will be served at 3:50 PM)

Condensed Matter Physics

Materials micro-analysis and modifications using energetic ion beams

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Dr. Bibhudutta Rout earned BS (1990), MS (1992), and Ph.D. degrees (2001) in Physics at Utkal University (India). His Ph.D. research topic was on condensed matter physics. He has worked as a postdoc at the university of Melbourne, Australia on development of a high energy focused ion beam system. Then he spent another 3 years as a postdoctoral associate at the University of Louisiana at Lafayette working on the development of high energy focused ion beam. In 2007, Dr. Rout began his appointment as an assistant professor at the University of North Texas, where he is currently doing research in experimental condensed matter physics. More information about Dr. Rout and his research can be found at <https://physics.unt.edu/people/bibhudutta-rout-phd>

Abstract

Ion beams with energies from a few kilo electron-volts (keV) to Mega electron-volts (MeV) have been used for materials analysis, modifications, and synthesis in a wide range of fields involving semiconductors, photovoltaic, metallurgy, and biomaterials. In this presentation, we will review some of our works on ion irradiation-induced effects in electronics, photovoltaic devices, and high-entropy alloy materials as well as the development and use of proton microprobe for quantitative elemental micro-analysis of a wide range of elements in electronic and biomaterials.