

Physics Colloquium

Michigan Technological University

Thursday, April 12, 2007

4:00 pm

Room 139, Fisher Hall

Theory of the Oxide Interfaces: Perspectives and New Physics...

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Abstract

Interfaces between perovskite oxides provide the exciting prospect for incorporating new correlated-electron physics, different from the standard semiconductor physics, into device applications. The recent landmark demonstration of the growth of high-quality, lattice-matched oxide interfaces, hitherto not possible, has led to a flurry of activities in this area, leading to the hope of using these structures for new fundamental science as well as for novel applications. In this talk, I will focus on several specific interfaces on which there is considerable current research activity such as the $\text{LaTiO}_3/\text{SrTiO}_3$ interface. These structures have been grown and experimentally studied by several groups.

Biography



Professor Sashi Satpathy obtained his Ph. D. in Physics from the University of Illinois at Urbana-Champaign in 1982, after receiving his undergraduate degree from the Indian Institute of Technology, Kanpur in 1977. Well known for a number of seminal contributions to the electronic theory of solids as well as to the photonic band structure, Professor Satpathy uses numerical and analytical techniques as well as interpretation of experiments to study contemporary problems in the electronic structure of solids. Professor Satpathy is a Fellow of the American Physical Society as well as of the American Association for the Advancement of Science. He is a recipient of the Mercator Professorship Award of the German Science Foundation (2006).