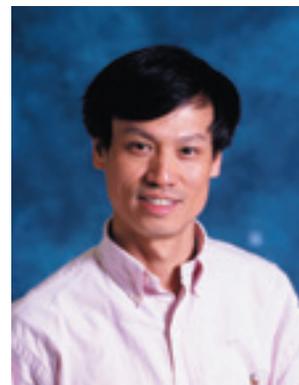


TcSUH Bi-Weekly Seminar

Texas Center for Superconductivity at the University of Houston



Prof. Chonglin Chen

Department of Physics and Astronomy, University of Texas at San Antonio, Texas
and Texas Center for Superconductivity and Department of Physics, University of Houston, Texas

Interface Engineered Nanostructural Metamaterials with Anomalous Physical Phenomena

Friday, April 17, 2009

Room 102, University of Houston Science Center

12:00 Noon – 1:00 p.m.

Abstract

Interface engineered material has attracted more and more attention in the multifunctional materials research and active device fabrication. It plays a key role to control the physical properties of advanced nanomaterials and results in the discovery of various new physical phenomena with excellent opportunity for developing new metamaterials for active devices and engineered nanosystems. We have focused on the systematic studies on the formations and the characterizations of various highly epitaxial oxide thin films and multilayered layered structures to understand the nature of interface induced anomalous physical phenomena. Recently, by optimizing the epitaxial conditions we have successfully controlled and systematically investigated the highly epitaxial ferroelectric thin films and highly ionic conductive oxide thin films and the multilayered nanostructures. We have observed strong anisotropic phenomena in highly epitaxial (Pb,Sr)TiO₃ thin films, and observed various anomalous physical phenomena such as locked ferroelectric domain formation from the multilayered BaTiO₃/SrTiO₃ superlattices for memory capacitance device and active actuator applications, extremely high ionic conductivity in the multilayered YSZ/GCO structures solid state fuel cells, and many others. Also, a series of models were developed to understand these interface phenomena. Details will be presented in the talk.

Bio

Dr. C. L. Chen is currently a professor of physics at the Department of Physics and Astronomy in the University of Texas at San Antonio and a joint professor at the Texas Center for Superconductivity at the University of Houston. He received his Ph. D. degree in solid state science from the Pennsylvania State University in 1994. He was the Director's Funded Post-doctoral Fellow in the Los Alamos National Laboratory before he became a research assistant professor at TcSUH in June 1996. His research interests have spanned over the areas of multifunctional oxide thin film epitaxy, nanostructure fabrication, surface and interface physics and chemistry, and materials modeling developments. He has authored and/or coauthored about 100 refereed papers that have appeared in *Nature*, *Physical Review Letters*, *Applied Physics Letters*, and others, and has delivered about 130 invited talks/lectures at international/national conferences (MRS, ACerS, IMRUS, etc.) and universities. He has served as an international advisory board member for various international conferences, and as chair and/or co-chair in a number of international and national symposiums such as the American Ceramics Society, Materials Science and Engineering, and others. His current research is supported by NSF-NIRT and NSF-CMS programs, DoE, Army Research Office, Texas-ARP, the State of Texas through the TcSUH, and government labs, etc.

Persons with disabilities who require special accommodations in attending this lecture should call (713) 743-8210 as soon as possible.



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