Physics Department Colloquium

Dr. Taryl Kirk & Dr. AJ Richards

Department of Physics, TCNJ

Dr. Taryl Kirk
Title: Magnetic Contrast Imaging in NFESEM

Abstract: I will describe a technique that employs the image contrast mechanisms of low voltage scanning electron microscopy and the ultrahigh-precision position resolution of scanning probe microscopy; namely, near field emission scanning electron microscopy (NFESEM). In particular, I will discuss my current plans to implement NFESEM technology for magnetic contrast imaging. Previous studies of superconductor /ferromagnetic superlattices, composed of YBa2Cu3O7 (YBCO) and La0.67Ca0.33MnO3 (LCMO) respectively, indicated a proximity-induced localization of charge carriers rather than a large-scale charge transfer between YBCO and LCMO layers. The magnetic contrast mode of NFESEM can be used to spatially resolve the interaction between the magnetic domains of LCMO and the flux line distribution of YBCO. This study will provide further insight between the interplay of superconductivity and ferromagnetism.

Dr. AJ Richards
Title: Learning about Learning

Physics education research seeks to understand how students learn physics and how instructors can teach the subject more effectively. My research investigates how students combine small, more basic bits of knowledge to understand a complex physics topic. This work can help instructors to more easily facilitate this combination process to enhance students' learning gains. I will share results from a past study and discuss the implications for physics instruction.

Date: Friday, September 19, 2014
Time: 12:30 PM
Where: SCP 317