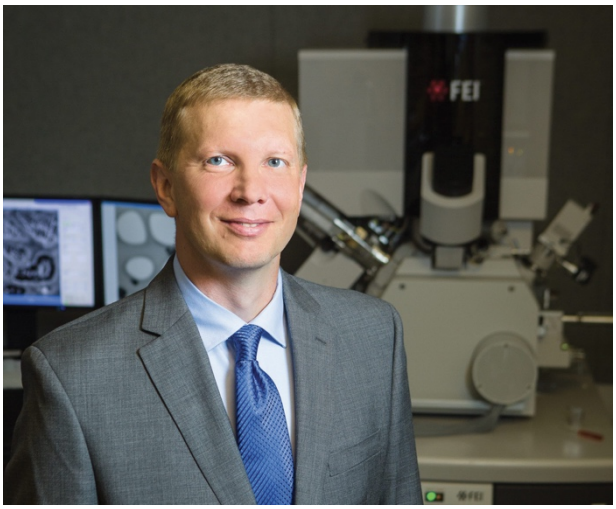
The University of Kentucky
Electron Microscopy Center (EMC)

T. John Balk
University of Kentucky, Lexington, KY

Abstract

The Electron Microscopy Center (EMC) at the University of Kentucky (UK) is a user center open to academia, government and industry. The center is part of the Kentucky node of the NSF-supported National Nanotechnology Coordinated Infrastructure (NNCI). Located in UK's Advanced Science and Technology Commercialization Center (ASTeCC), the center provides training to users so they can work independently on any of our instruments, and center staff will also perform service work if preferred. The EMC works with users and customers to characterize materials using a range of microscopy and spectroscopy techniques that involve electron, x-ray or ion probes. Three staff members each have primary responsibility for particular instruments and provide guidance on sample preparation, characterization work and analysis of results. The EMC has recently acquired several state-of-the-art instruments, including a new transmission electron microscope, focused ion beam and scanning electron microscope, small-angle x-ray scattering system, x-ray photoelectron spectrometer, and biological specimen preparation equipment. This instrumentation supports a broad portfolio of research via characterization of hard and soft materials, including biomaterials, at all length scales.

Biography of Presenter

T. John Balk is William T. Bryan Professor of Materials Engineering at UK and is also Director of the EMC. His research areas include size effects in the mechanical behavior of nanoscale materials; alloy development; and novel surfaces for enhanced thermionic electron emission. Prior to joining the University of Kentucky, he worked as a post-doc and staff scientist at the Max-Planck-Institute for Metals Research in Stuttgart, Germany, where he focused on in-situ transmission electron microscopy techniques. He completed a double-major B.S. degree in Mechanical Engineering and Materials Science & Engineering (MSE) at UC Berkeley, followed by M.S. and Ph.D. degrees in MSE at The Johns Hopkins University. He is a past recipient of the NSF CAREER award, served as chair of the 2012 Gordon Research Conference on Thin Film and Small-Scale Mechanical Behavior, and was one of five meeting chairs for the 2015 Fall Meeting of the Materials Research Society.