EPES Seminar by Dr. Enis Tuncer, Oak Ridge National Laboratory
September 22, 2009

Title: Applied High Temperature Superconductivity Research at ORNL

Seminar Abstract:
Oak Ridge National Laboratory is involved in High Temperature Superconductivity (HTS) research extensively, in both development of superconducting wires and power apparatus that uses superconductors. The Applied Superconductivity Group has several projects for grid applications. Some of the group's projects will be presented.
In these applications although the HTS wires are an important part of devices, dielectrics employed for the applications have significance in equipment design. The objective of the group is to develop and characterize power equipment and cryogenic dielectric materials for use in HTS grid applications. A common feature in many of the HTS projects is the requirement for reliable high voltage electrical insulation. Failures in a few cases have underscored the need for improved dielectric materials and a better understanding of the high voltage design issues. The talk will focus on cryogenic dielectrics and high voltage issues in HTS equipment.

Speaker bio:
Enis Tuncer (M'99-SM'07) received the B.Sc. (1994) degree in physics from Middle East Technical University, Ankara Turkey, and the M.S. (1996), and Ph.D. (2001) degrees in nanophysics and high voltage engineering, respectively, from Chalmers University of Technology, Gothenburg Sweden. He is currently a Research Staff member in the Applied Superconductivity Group, Fusion Energy Division, at Oak Ridge National Laboratory (ORNL), Oak Ridge TN USA. Before joining ORNL, he worked for Alstom Power Sweden, Vaesteraas Sweden, on the development of high voltage hydrogenerators (PowerformerTM) and performed research activities on soft dielectrics for electromechanical applications, polymer physics and dielectric mixtures at University of Potsdam, Potsdam Germany, Ames Laboratory/Iowa State University, Ames IA USA and Uppsala University, Uppsala Sweden. Current research interests include dielectric mixtures; dielectric relaxation; impedance measurement techniques and data analysis; applied mathematics; breakdown statistics; cryogenic dielectrics; nanodielectrics; and thermal properties of dielectrics. He is a member of the Institute of Physics (IOP) and its Dielectric Group, IEEE Dielectrics and Electrical Insulation Society (DEIS). He is on the Editorial Advisory Board for The Open Electrical & Electronics Engineering Journal.