

Boston University's 2009 SPS Zone 1 Meeting Speaker Bios:



Professor Ed Kearns

<http://physics.bu.edu/people/show/kearns>

Ed Kearns received his PhD in particle physics from Harvard University. His research specialization is in neutrino physics and particle astrophysics, where he says that he can frequently test Grand Unified Theories – theories which predict the existence of massive magnetic monopoles, the radioactive decay of the proton, and non-zero neutrino mass. He was deeply involved in the discovery and measurement of neutrino mass and neutrino oscillations using the Super-Kamiokande detector in Japan. The

paper reporting this evidence (Phys. Rev. Lett. 81 (1998) 1562) initiated an explosion of interest in neutrino research and is now the most frequently cited experimental particle physics paper on record. For a non-specialists account, see the August 1999 Scientific American, which he coauthored with T. Kajita and Y. Totsuka. He also participated in the now completed MACRO and K2K experiments, both of which provided valuable independent confirmation of the neutrino oscillation effect.

The next experiment that he and collaborators are performing, called T2K (Tokai-to-Kamioka), hopes to more precisely measure the neutrino properties they discovered in 1998. Moreover, it is specifically designed to detect, for the first time, the appearance of a neutrino flavor in a nearly pure beam that lacks that flavor to begin with. This is the measurement of the parameter θ_{13} , which is the gateway to future studies of CP violation and mass hierarchy.

Professor Richard Averitt

<http://physics.bu.edu/people/show/raveritt>

Richard Averitt received his PhD degree in Applied Physics from Rice University. His PhD thesis work was for the synthesis and optical characterization of gold nanoshells, a new type of nanoparticle for which Richard has several patents. Following his PhD work, Richard was a Los Alamos Director's Postdoctoral Fellow. His postdoctoral work focused on time resolved far-infrared spectroscopy of strongly correlated electron materials. In February 2001, Richard became a member of the technical staff at Los Alamos, and in 2005 a member of the Center for Integrated Nanotechnologies co-located at Los Alamos and Sandia National Laboratories. In 2007, Richard joined Boston University as a faculty member in the Department of Physics.

Richard's research interests are primarily directed towards characterizing the optical and electronic properties of materials including metamaterial and plasmonic composites, transition metal oxides, and correlated electron materials using experimental techniques that span from the far-infrared through the visible.

