SPECIAL PUBLIC LECTURE*

Neutrino Oscillations; Winners of the Nobel and the Breakthrough Prizes in Physics

Speaker: Walter Toki
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Colorado State University
7:30 PM, Thursday; December 3, 2015
Location: Plant Sciences C101

Abstract

The discoveries of neutrino oscillations have been awarded the 2015 Nobel Prize in Physics and the 2016 Breakthrough Prize in Fundamental Physics. The 15 member CSU research team, including faculty, Walter Toki, Robert Wilson, Norm Buchanan and Bruce Berger, and postdocs and graduate students, all shared the Breakthrough prize for their contributions in the T2K experiment that is based in Japan and measured oscillations between muon type and electron type neutrinos. This public lecture will explain what neutrinos are, why they are important, and their remarkable oscillation properties that have now been measured over distances of 100’s miles to 93 million miles. The Nobel Prize winning experiments, Super Kamiokande and SNO, and the Breakthrough Prize winning experiment T2K will be described. The scientific ideas will be presented for the general non-specialist audience.

Biographical Sketch of the Speaker

Walter Toki graduated with a B.A. from the University of California, Berkeley, in 1973 and received his PhD from MIT in 1976. He worked on particle collider experiments at CERN, the Stanford Linear Accelerator Center and Institute of High Energy Physics in Beijing. He joined CSU Physics faculty in 1992 and in 2006, he joined the T2K experiment in Japan, which observed the first electron appearance neutrino oscillations, $\nu_\mu \rightarrow \nu_e$, in 2011. He is the leader of the 15 member CSU team that received the Breakthrough Prize award for Neutrino Oscillation measurements by the T2K experiment. He was elected in 2005 an American Physical Society fellow for contributions to charm, tau and B meson decays and is a fellow of the Japan Society for the Promotion of Science.

*http://www.nobelprize.org/nobel_prizes/physics/
*http://www.physics.colostate.edu/2015/11/10/2016-breakthrough-prize/

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