

WEDNESDAY

JANUARY 13

4:00 P.M.

RM 118 NSH

Refreshments
in Rm 202 NSH
@ 3:30 pm

A Brief History of Atmospheric Neutrino Oscillations

Prof. John LoSecco, University of Notre Dame

The modern picture of the neutrino as a multiple-mass, highly mixed neutral particle has emerged over 30 years of study. Best known of the issues leading to this picture was the apparent loss of neutrinos coming from the sun, known as the solar neutrino problem. This talk describes the discovery of another piece of evidence that supports the picture: the substantial reduction in the number of high-energy muon-type neutrinos observed in cosmic rays. For much of the past 30 years, this observation was known as the “atmospheric neutrino anomaly”, since these neutrinos originate in the Earth’s atmosphere in cosmic ray showers. We will explore the scientific context and motivations in the late 1970’s from which this discovery emerged, and the developments between 1983-86 that led to the realization that atmospheric neutrinos were not behaving as expected.