PHYSICS AND ASTRONOMY

SEMINAR

Dr. Akira Konaka

TRIUMF, University of Victoria

uture neutrino oscillation program

Abstract

Neutrino oscillation measurement entered a precision era. In summer 2017, T2K disfavoured CP conserving phase of δcp=0,π at 2σ level. CP asymmetry in neutrino and anti-neutrino νμ->νe appearances can be as large as 20% depending on the CP phase δcp, which is within the reach of new projects, HyperK and DUNE. HyperK aims at statistical error of ~3% for the asymmetry. It is essential to control the systematic uncertainties well below the statistical errors for the discovery. The mixing angle θ23, which was discovered in the atmospheric neutrino mixing, is consistent with maximal mixing (sin^2(2θ23)~1), possibly indicating μ-τ symmetry in the lepton mixing. This result is already started to be limited by the systematic uncertainty. I will describe essential challenges and opportunities in handling systematic uncertainties in precision neutrino oscillation measurements, and describe emerging efforts to handle them which are lead by the Canadian long baseline neutrino group.

Thursday, March 29, 2018
1:30 p.m.
Human & Social Development Building
Room A264