EP Seminar

SPEAKER: Alexander Himmel

TITLE: **New neutrino oscillation results from NOVA**

DATE: 30 Jan 2018, 11:00

PLACE: 222-R-001

ABSTRACT

Neutrinos oscillate among flavors as they travel because a neutrino of a particular flavor is also a superposition of multiple neutrinos with slightly different masses. The interferometric nature of oscillations allows these tiny mass differences to be measured, along with the parameters of the PMNS matrix which governs the mixing. However, since neutrinos only interact weakly, a powerful neutrino source and massive detectors are required to measure them. In this talk I will show recently updated results from NOvA, a long-baseline neutrino oscillation experiment at Fermilab with two functionally identical scintillator detectors. I will present measurements of muon neutrino disappearance and electron neutrino appearance, and what constraints those measurements put on the remaining open questions in neutrino oscillations: Is the neutrino mass hierarchy "normal" or "inverted?" Do neutrino oscillations violate CP symmetry? Is the mixing in the atmospheric sector maximal? The recent update includes 50% more data than previous results as well as simulation and analysis improvements.

Organised by: M.Pepe-Altarelli, G. Unal.....
Refreshments will be served at 10h30