Monday, October 1 at 1:00 p.m. in WL-216

Wei Wang, Sun Yat-sen University

*From Daya Bay to JUNO: Solving the remaining neutrino unknowns*

In the first part of this talk, we will start with a brief introduction to neutrino physics then present the Daya Bay reactor neutrino experiment and its latest results. In the second part of this talk, we will present the design of the JUNO experiment and its detector system, its physics potential, and the current R&D activities to fulfill its ambitious physics goals.

Tuesday, October 2 at 12:00 p.m. in WL-216

Stephen Parke, Fermilab

*What we can further learn from electron neutrino disappearance*

The electron neutrino disappearance channel has contributed a great deal to our knowledge of the neutrino sector. I will review what we have learnt from this channel and what we can further learn from this channel.

Wednesday, October 3 at 1:00 p.m. in WL-216

Stefan Söldner-Rembold, University of Manchester

*DUNE, an international neutrino laboratory*

The Deep Underground Neutrino Experiment (DUNE) will be an international observatory for neutrino science, designed, constructed and operated by a global collaboration of scientists. Primary science drivers are the discovery of CP violation in the neutrino sector, the detection of neutrinos from supernovae, and the search for baryon number violation. Several liquid-argon detectors at Fermilab and CERN are being constructed to demonstrate the potential of the cutting-edge liquid-argon technology employed for DUNE. I will introduce the technology and give an overview of the current status and future discovery potential of the DUNE programme.

Thursday, October 4 at 1:00 p.m. in WL-216

Baha Balantekin, University of Wisconsin-Madison

*Neutrino Electromagnetic Interactions*

Recent experimental developments established that at least two neutrinos have masses, hence they can have electromagnetic interactions through loop diagrams. I first illustrate the prediction of the Standard Model for the electron neutrino magnetic moment measured at the reactors. I will then elaborate on the effects of light sterile neutrinos on the measured effective electron neutrino magnetic moment and the physics of the Early Universe when Majorana neutrinos possess transition magnetic moments. Since Majorana neutrinos can behave quite differently from Dirac ones when they are non-relativistic, I will discuss results showing the angular distribution of the daughters in the decay of a heavy neutrino into a lighter one and a self-conjugate boson is isotropic in the parent’s rest frame if the neutrinos are Majorana, independent of the parent’s polarization. I will show that this result follows from CPT invariance and is independent of the details of the physics responsible for the decay.

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