



北京大学
PEKING UNIVERSITY

高能物理研究中心

Designing a Near Detector for the Next Generation Accelerator-based Long- baseline Neutrino Oscillation Experiment

Speaker: Dr. Hongyue Duyang
University of South Carolina
Fermi National Accelerator Lab



Organizer: Xiaohu Sun
Peking University

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Abstract: while the Standard Model has been extremely successful in the previous decades, the observation of neutrino oscillations gives evidence of nonzero neutrino masses and neutrino mixing, indicating new physics beyond the Standard Model. Several new experiments has been proposed to precisely measure neutrino oscillations and to answer the remaining questions in neutrino physics, such as neutrino mixing angles, neutrino mass ordering, and leptonic CP violation. In this talk I will introduce the basic concept of one important category of such experiments: the accelerator-based neutrino oscillation experiments, especially the Deep-Underground Neutrino Experiment (DUNE) that has been proposed to be built in the US. In particular, I will focus on the challenges of DUNE from systematic uncertainties, and how the novel idea of the DUNE near detector design could help resolving them.

Brief bio: Dr. H. Duyang graduated from Shandong University in 2008 and got his Ph.D degree from University of South Carolina in 2014. He currently works as a Postdoc at University of South Carolina and the Intensity Frontier Fellow at Fermi National Accelerator Laboratory. Dr. Duyang's research interests focus on experimental neutrino physics, in particular the design and physics analysis of accelerator-based neutrino experiments, including the NOvA and DUNE experiments he is currently working on.