

The 6th Open Meeting of the Hyper-Kamiokande Project

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The discovery of muon neutrino to electron neutrino oscillations by T2K in 2013 has focused the attention of the experimental neutrino community on next generation neutrino experiments that will make precision searches for CP violation in the lepton sector. Hyper-Kamiokande (Hyper-K) is a proposed 1 megaton water Cherenkov detector in Japan that will have the world's best sensitivity to detect CP violation by neutrinos. Hyper-K will also make the world's best searches for nucleon decay and world leading measurements with accelerator, atmospheric, supernova, and solar neutrinos. The 6th Open Meeting of the Hyper-Kamiokande Project was held at the Kavli IPMU on January 28-31. The meeting was attended by 123 scientists from 12 countries who are collaborating to realize the successful design, construction, and operation of Hyper-K.

The meeting included sessions covering the design of the Hyper-K cavity and tank, water system, photo-detectors, electronics, calibration system, and near detectors. Sessions

also covered the J-PARC accelerator status, analysis software development, and Hyper-K physics potential studies. Among the highlights was the photo-detector session, where test results from new photo-detector technologies including high quantum efficiency photocathodes, hybrid photo-detectors, and new dynode designs were presented. The goal of these studies is to identify technological solutions that can be used to maximize the physics potential of Hyper-K in a cost effective manner. The meeting included a tour of the photo-detector testing facility located in the Institute for Cosmic Ray Research (ICRR) building on the Kashiwa campus.

In addition to Hyper-K design reports, the J-PARC beam facilities that will provide the accelerator neutrinos to Hyper-K and designs for near detectors that will characterize the accelerator neutrino beam at its source were presented. The beam reports focused on the potential for delivery of a megawatt power beam to Hyper-K. The near detector reports

presented novel detector designs that will make measurements to address one of the dominant sources of uncertainty for Hyper-K, the modeling of neutrino interactions with nuclei. These sessions emphasized the synergy between the neutrino beam facilities of J-PARC and the Hyper-K detector to achieve world leading measurements.

Perhaps the most exciting development from the meeting was the launch of the Hyper-K proto-collaboration. The new proto-collaboration structure will enable the Hyper-K project to successfully move from the conceptual design stage to a funded, built, and operating experiment. The proto-collaboration formation culminated with the signing of a memorandum of understanding (MOU) between the KEK Institute of Particle and Nuclear Studies (IPNS) and the University of Tokyo Institute for Cosmic Ray Research (ICRR) by IPNS director Masanori Yamauchi and ICRR director Takaaki Kajita. The signing ceremony included talks highlighting the achievements of the Japanese experimental neutrino program and emphasizing the importance of international collaboration to realize the Hyper-K experiment.

