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TITLE: **Neutrino Oscillation Experiments with J-PARC: T2K, T2K-II and Hyper-Kamiokande**

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## ABSTRACT

J-PARC, Japan Proton Accelerator Research Complex, provides 30GeV proton beam to produce a very intense neutrino beam for the T2K experiment. In T2K, the Super-Kamiokande detector is used as a far detector to study neutrino oscillations with the baseline of 295 km.

The T2K experiment started the operation in 2010, and advances neutrino physics with the discovery of electron neutrino appearance in the muon neutrino beam and precision measurements of neutrino oscillation parameters. In 2016, the measurements of anti-neutrino oscillation directly constrain CP violation in neutrino oscillation. In this colloquium, we introduce many physics results from T2K including the most recent one of the CP violation.

By utilizing the J-PARC neutrino beam, the upgrade of the T2K experiment (naming T2K-II) is planned and Hyper-Kamiokande is proposed to explore neutrino physics further. In T2K-II, the beam power of J-PARC will be upgraded to 1.3 MW around 2020. Hyper-Kamiokande is the larger Water Cherenkov detector of 520 kton as an successor of Super-Kamiokande. In the colloquium, we present the physics potential of T2K-II and Hyper-Kamiokande. We also report interesting R&D subjects of T2K-II in the near future and the current status of Hyper-Kamiokande aiming the start of operation in 2026.