

Prospects for neutrino astrophysics with Hyper-Kamiokande

Tuesday 20 July 2021 13:00 (12 minutes)

Hyper-Kamiokande is a multi-purpose next generation neutrino experiment.

The detector is a two-layered cylindrical shape ultra-pure water tank, with its height of 64 m and diameter of 71 m.

The inner detector will be surrounded by 40,000 twenty-inch photosensors to detect water Cherenkov radiation due to the charged particles and provide our fiducial volume of 187 kt.

This detection technique is established by Kamiokande and Super-Kamiokande. As the successor of these experiments, Hyper-K will be located deep underground, 650 m below Mt. Tochibora at Kamioka in Japan to reduce cosmic-ray backgrounds.

Besides our physics program with accelerator neutrino, atmospheric neutrino and proton decay, neutrino astrophysics is an important research topic for Hyper-K.

With its fruitful physics research programs, Hyper-K will play a critical role in the next neutrino physics frontier.

It will also provide important information via astrophysical neutrino measurements, i.e., solar neutrino, supernova burst neutrinos and supernova relic neutrino.

Here, we will discuss the physics potential of Hyper-K neutrino astrophysics.

Keywords

Collaboration

Hyper-K

other Collaboration

Subcategory

Future projects

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Session Classification: Discussion

Track Classification: Scientific Field: NU | Neutrinos & Muons