

Contribution ID: 54

Type: Poster

## Low Energy Neutrino Studies and Backgrounds at Hyper-Kamiokande

Hyper-Kamiokande (Hyper-K) is a next generation underground water Cherenkov detector.
The baseline design is based on Super-Kamiokande (Super-K) detector and contains enlarged fiducial volume of 0.56 Mt, which is 25 times of Super-K.
Hyper-K will play a considerable role in the next neutrino physics frontier.
Here, the physics potential of Hyper-K in the neutrino astrophysics is studied.
The photo-coverage of Hyper-K will be 20%, a half of Super-K, and the cosmic background will be somewhat increased because of the location.
These conditions must be considered.
First, we investigated the cosmic muon flux and spallation background at Hyper-K candidate sites, which is a dominant background at the low energy analysis.
Then, the effect on the analysis is evaluated, applying the recent background reduction technique.
As the result, the Hyper-K's possibility for solar neutrino, supernova neutrino and supernova relic neutrino are obtained.
We will discuss about these results.
The Hyper-K's possibility with gadolinium doping will be also discussed.

Primary author: Dr YANO, Takatomi (Kobe Univ.)

**Co-authors:** Dr SHIMIZU, Itaru (Tohoku Univ.); Dr IKEDA, Motoyasu (Tokyo Univ.); Dr TAKEUCHI, Yasuo (Kobe Univ.); Dr KOSHIO, Yusuke (Okayama Univ.)

Presenter: Dr YANO, Takatomi (Kobe Univ.)

Track Classification: Long Baseline Oscillations