



## **Neutrino Astrophysics in Hyper-Kamiokande**

*Saturday 6 August 2016 18:00 (2 hours)*

Hyper-Kamiokande (Hyper-K) is a next generation large water Cherenkov detector. It is planned to be an order of magnitude larger than predecessor experiments, and high performance with improved PMTs. The major physics targets in Hyper-K are elucidation of the GUT and the evolution of the universe through an investigation of proton decay and CP violation, together with astronomical investigation with neutrinos. Recently, we optimized the detector design considering physics sensitivities, cost, construction period, and maintenance. The sensitivities in neutrino astrophysics are important inputs in the optimization process for the new detector design.

In Hyper-K, the statistics of observed neutrino events will be significantly enhanced. Astrophysical neutrinos, such as the supernova burst neutrinos, supernova relic neutrinos, and solar neutrinos, will be studied much more precisely, and they will provide us new knowledge on astrophysics and particle physics. In this talk, we will demonstrate the expected detector performance in the new detector design using MC simulations and dedicated event-reconstruction tools. Based on the estimated performance, we will discuss the potential for developing neutrino astrophysics in Hyper-K.

**Presenter:** LABARGA, Luis (Departam.de Fisica Teorica)

**Session Classification:** Poster Session

**Track Classification:** Astro-particle Physics and Cosmology