

This thesis focuses on the neutrino physics. The main theme of the thesis was the next generation water Cherenkov experiment Hyper-Kamiokande, which will play key role in the δ_{CP} measurement through the accelerator neutrinos. However, the atmospheric neutrinos can significantly boost its sensitivity. In this thesis, we have develop a simplified model for atmospheric neutrino flux prediction and estimated the number of events the Hyper-Kamiokande experiment will detect. We have compared this result with the measurement of ts predecessor Super-Kamiokande.