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Evaluation of neutron tagging efficiency for SK-Gd experiment

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In July 2020, Super-Kamiokande has been upgraded by loading 13 tons of gadolinium(Gd) sulfate octa-hydrate as a new experimental phase “SK-Gd”. Thermal neutron capture on Gd emits gamma-rays with a total energy of about 8 MeV so that we obtain higher neutron tagging efficiency in SK-Gd than in the pure-water phase. Therefore, an increase in the sensitivity of the search for the Supernova Relic Neutrino will be expected in the SK-Gd.

Accurate evaluation of neutron identification efficiency is essential for SK-Gd. In this presentation. For the estimation of efficiency, calibration using Am/Be neutron source was carried out. In this presentation, I report on the result of the estimation of the neutron detection efficiency and comparison with simulation.

In-person participation

Yes

Presenter: HARADA, Masayuki**Session Classification:** Poster Session**Track Classification:** Neutrino Physics