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Lower Energy Extension in Anti-Electron Neutrino Measurement for DSNB Search

We have upgraded the Super-Kamiokande in 2020 with Gd to enhance neutron tagging for anti- or normal-neutrino distinction. This neutron tagging method requires a special trigger and is limited to the higher energy of neutrino than around 8 MeV due to the energy of a 2.2 MeV gamma ray via hydrogen capture in the pure water phase. After the upgrade of doping Gd, this requirement is relaxed in principle because the neutron tagging uses several gamma rays from Gd capture whose summed energy is 8 MeV. We are developing a new anti-electron neutrino selection algorithm using lower energy triggers. This scheme will have a capability above 3 MeV. I will present the current status and prospects of the near future DSNB analysis.

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