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Latest results and perspectives for Super-Kamiokande

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Super-Kamiokande is a highly versatile multi-purpose experiment, with capability to explore variety of topics in the MeV - TeV energy range. This includes, among others, physics related to solar and atmospheric neutrinos, supernovae neutrinos, diffuse supernovae neutrino background (DSNB), neutrino astrophysics, and the study of dark matter as well as proton decay and other baryon number-violating processes. The SK detector also serves as far detector for T2K which is a long baseline neutrino oscillation experiment. The latest results regarding solar, atmospheric and beam neutrinos will be discussed in the talk. In August 2020 the SK collaboration finished adding Gadolinium (Gd) to the 50 ktons of water of its tank. The addition of Gd allows to unambiguously differentiate neutrinos from antineutrinos by discriminating neutrons from protons improving the already excellent sensitivity of the experiment. The perspectives of this new phase of SK will be discussed with a focuss on the search for the DSNB.

Auteur principal: MUELLER, Thomas (CNRS / IN2P3 / LLR)

Orateur: MUELLER, Thomas (CNRS / IN2P3 / LLR)

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