

Status and prospects on light sterile neutrino searches ステライルニュートリノ探索の現状と展望

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There have been indications on existing sterile neutrinos since 1990's. Those indications are based on the accelerator neutrino ($\nu_{\mu} \rightarrow \nu_e$) experiments, reactor neutrino ($\bar{\nu}_{\mu} \rightarrow X$) experiments and calibrations of solar neutrino experiments ($\nu_e \rightarrow X$). The sterile neutrinos do not have weak interactions, therefore the measurements on the sterile neutrinos usually use the neutrino oscillations between usual active three neutrinos (e, μ, τ) and sterile neutrinos in the short distance. It is the hot topic for about 20 years. In this presentation, the status and prospects of the recent sterile neutrino searches in the world are shown. It includes the activities in J-PARC, especially for the JSNS² (J-PARC Sterile Neutrino Search at J-PARC Spallation Neutron Source). The JSNS² started data taking from Jan-2021.

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