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Search for the 4th neutrino with CeLAND

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Neutrino oscillation with baseline shorter than 10 m is a 'terra incognita', although there have been various hints that a 4th, sterile neutrino may be lurking in this baseline range.

We plan to search for the signature of the sterile neutrino at the very short baseline by deploying a massive 76 kCi electron antineutrino source (cerium-144 and praseodymium-144) in the veto region of Kamioka Liquid Scintillator Antineutrino Detector (KamLAND). The project name is CeLAND. CeLAND will search for the sterile neutrino oscillation in 3-16 m range and probe the majority of the oscillation phase space suggested by the Reactor Antineutrino Anomaly with 95% confidence level. The status and prospects of the experiment will be presented.

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