Laboratoire LEPRINCE-RINGUET
Ecole polytechnique IN2P3/CNRS

Séminaire

Search for sterile neutrinos with the STEREO experiment

In the past decades, short baseline neutrino oscillation studies around experimental or industrial reactor cores have revealed two anomalies. The first one is linked to the absolute flux and the second one to the spectral shape. The first anomaly, called Reactor Antineutrino Anomaly (RAA), could be explained by the introduction of a new oscillation of antineutrinos towards a sterile state of the eV mass. The STEREO experiment has been designed to test the hypothesis of such a light sterile neutrino. The detector has been taking data since the end of 2016 at 10 m from the core of the Institut Laue-Langevin research reactor, Grenoble, France. The separation of its target volume along the neutrino propagation axis allows for measurements of the neutrino spectrum at multiple baselines, providing a clear test of an oscillation at short baseline. In this presentation, I will put a special focus on the treatment of the backgrounds and on the neutrino spectra extraction using the Pulse Shape Discrimination observable. The results from 179 days of reactor turned on and 235 days of reactor turned off are then reported.

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Salle conférence du LLR

Lundi 02 mars
14h00

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Responsables séminaires

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