ID de Contribution: **74** Type: **YSF (Young Scientists Forum)**

Status of the STEREO experiment, a search for sterile neutrino at ILL

vendredi 24 mars 2017 19:51 (5 minutes)

Although our current understanding of neutrino physics succeeds to compile most of the data into a three neutrino mixing framework, there are still experimental anomalies that need to be explained. The Reactor Antineutrino Anomaly (RAA) was highlighted in 2011, when a new spectral prediction of reactor antineutrinos showed a 6% deficit in the counts of previous experiments. A possible explanation for this phenomenon consists in introducing a sterile neutrino at the ev^2 mass scale into which antineutrino would oscillate.

The STEREO experiment is designed to probe the oscillation phase-space region indicated by the RAA, by placing a gadolinium-doped liquid scintillator neutrino target at a 9 meters distance from the core of the ILL research reactor facility, in Grenoble (France). An oscillation pattern –if any –will be measured both in energy and in distance thanks to a segmented detector consisting of six identical cells. The main challenge of such measurement arises from the experimental location (ground level and close to the reactor). Background measurements and shielding designs were performed consequently. The building of the detector was completed last year, and data from a full reactor cycle was already collected. In this talk, I will summarise the principle of the STEREO experiment, as well as the status of the ongoing analysis of first collected data.

Author: BONHOMME, Aurélie (SPhN/IRFU/CEA-Saclay)

Orateur: BONHOMME, Aurélie (SPhN/IRFU/CEA-Saclay)

Classification de Session: YSF4

Classification de thématique: Experiment