CENTRE D'ETUDES NUCLÉAIRES DE
BORDEAUX-GRADIGNAN

Vendredi 5 Février 2016

à

11H

Un café sera servi à partir de 10h45

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Sterile neutrino search: the STEREO experiment

Search for a light sterile neutrino is currently a hot topic of neutrino physics, arising from the so-called Gallium and reactor anomalies, in which a deficit of neutrinos was observed with respect to expectations. Such anomalies could be explained by short distance oscillations towards a sterile state, assuming a $\Delta m^2 \approx 1\ eV^2$. The STEREO detector has been designed to track the electron anti-neutrino energy spectrum distortion from 3 to 8 MeV due to such a new *L/E* oscillation, and should therefore confirm or reject the light sterile neutrino hypothesis. Electron anti-neutrinos produced by the compact reactor core of the Institut Laue-Langevin (ILL) will be detected in a 6-cells segmented volume of Gd-loaded liquid scintillator through the inverse beta-decay process. The STEREO detector will be set-up and commissioned in summer 2016, and start data taking soon after.

In the following I will present the final design of the detector and its status, as well as its expected sensitivity.

Salle des Séminaires du CENBG

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