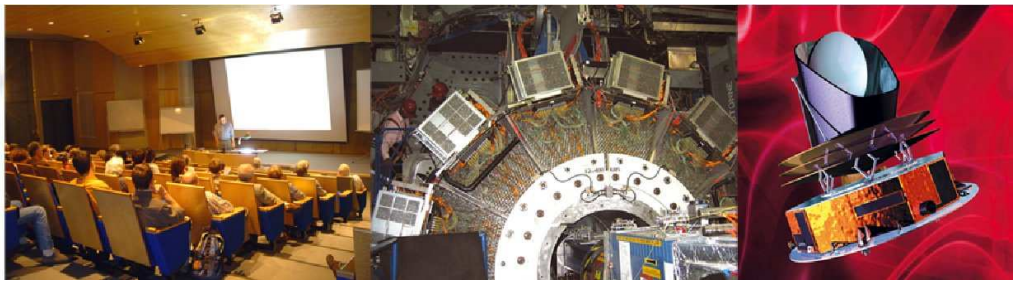
LABORATOIRE DE L'ACCÉLÉRATEUR LINÉAIRE



Séminaire du Laboratoire de l'Accélérateur Linéaire

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APC

Jeudi 22 Mai 2014 à 16 :00

Double Chooz III : First results

The Double Chooz (DC) experiment is a reactor neutrino experiment conceived for high precision measurement of the leptonic mixing matrix angle theta13. Neutrinos are detected via the robust Inverse Beta Decay (IBD) interaction providing remarkable control of systematics. Additionally, DC, like all the reactor-theta13 experiments following the same concept, consists of two detectors for major reduction of correlated systematics upon inter-detector comparison. The DC far detector (FD) started data taking back in spring 2011, while the near detector (ND) is finalising construction this summer (2014). Therefore, DC has been so far running with only the FD, thus its systematic budget is handicapped by the dominating flux systematic uncertainties. In this seminar, the new results from the new IBD analysis will be shown using data from our DC-III data release (up to spring 2013). The new analysis is based on an entirely revised IBD Gd-based selection, including new techniques for background active rejection as well as better techniques for background and detection systematics estimation. Thus, the systematics from background and detection have been suppressed by about ∼3x and ∼2x, respectively. Despite the major achievement, the overall sensitivity of the experiment is still limited by the 1.7 % flux uncertainty awaiting for the ND for major cancellation. The prospect sensitivity of DC, upon ND running, will be shown. This seminar is the first DC official presentation of these results, in preparation for the Neutrino 2014 conference in early June 2014.

Salle 101 du LAL - Bât. 200, Orsay

Thé et café seront servis 1/4h avant le séminaire