



Séminaire du Laboratoire de l'Accélérateur Linéaire

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Mardi 7 Avril 2015 à 11 :00

Cheap as CHIPS - large water Cherenkov detectors : faster and cheaper

CHIPS is an R&D program focused on designing and fabricating a cost-effective large water Cherenkov detector (WCD) to study neutrino oscillations. Traditional WCD's with a low energy threshold have been built in special large underground caverns. Civil construction of such facilities is costly and the excavation phase significantly delays the detector installation although, in the end, it offers a well-shielded apparatus with versatile physics program. Following concepts developed for the LBNE WCD (arXiv :1204.2295), we propose to submerge a detector in a deep water reservoir, which avoids the excavation and exploits the directionality of an accelerator neutrino beam for optimizing the detector. Following the LOI (arXiv :1307.5918), we have submerged a small test detector in a mine pit in Minnesota, 7 mrad off NuMI axis. Borrowing technical ideas and solutions from IceCube and KM3Net, we are now focusing on designing a large (10-20kt) isolated water container to house photodetectors with underwater readout and triggering. We will describe the CHIPS concept and its physics potential in more detail, and will present the ongoing R&D activities.

Salle 101 du LAL - Bât. 200, Orsay

Thé et café seront servis 5 mn avant le séminaire



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