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# Towards future long baseline neutrino experiments to study CP-violation

- Thèses, Stages, Formation et Enseignement - Propositions de thèses antérieures - Propositions de thèses 2017 -



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Equipe thématique «Asymétrie Matière Antimatière»; expériences: NA61/SHINE et WA105/ProtoDUNE

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Titre : Towards future long baseline neutrino experiments to study CP-violation

The LPNHE neutrino group is taking part to the NA61/SHINE hadroproduction experiment at CERN. This experiment continues taking data essential for precise neutrino flux predictions in future long baseline experiments. In 2016 and 2017 data will be taken for use in the on-going Fermilab-based experiments as well as the next generation DUNE project. The analysis of these data and their implication on the sensitivity of these neutrino oscillation experiments will be the focus of this thesis work.

The LPNHE group is also involved in software developments towards event reconstruction in large-volume liquid argon detectors (WA105: prototype for the DUNE project) and the PhD student will be able to contribute to these developments and to their comparison to the test data which will be taken at CERN from 2018 onwards.

Finally the LPNHE neutrino group being strongly involved in the T2K experiment and its probable upgrade, the PhD student will largely benefit from the accumulated experience on neutrino beam understanding and on the reduction of uncertainties in long baseline neutrinos experiments.

Lieu de travail : LPNHE - Paris

Déplacements éventuels: CERN

Documentation:

- <http://lpnhe.in2p3.fr/>
- <http://wa105.web.cern.ch/wa105/>
- <http://shine.web.cern.ch/>
- <http://t2k-experiment.org/>

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