UNIVERSITÉ
DE GENÈVE
FACULTÉ DES SCIENCES
Département de physique
nucléaire et corpusculaire

SÉMINAIRE DE PHYSIQUE CORPUSCULAIRE

SUJET: **Search for Heavy Neutral Leptons at the SPS**

PAR: **Hans Dijkstra**
CERN

DATE: Mercredi 17 Decembre, 2014, 11h15

LIEU: Science III, Auditoire 1S081
Boulevard d'Yvoy, 1211 Genève 4

RÉSUMÉ:

A new fixed-target experiment at the CERN SPS accelerator is proposed that will use decays of charm mesons to search for Heavy Neutral Leptons (HNLs), which are right-handedpartners of the Standard Model neutrinos. The existence of such particles is strongly motivated by theory, as they can simultaneously explain the baryon asymmetry of the Universe, account for the pattern of neutrino masses and oscillations and provide a Dark Matter candidate. The experiment will be motivated, and previous searches will be reviewed. The experiment requires a 400 GeV proton beam from the SPS with a total of 2x10^20 protons on target. The proposed detector will reconstruct exclusive HNL decays and measure the HNL mass. The discovery of a HNL would have a great impact on our understanding of nature and open a new area for future research. In addition the experiment could accomodate a nu-tau detector, which could increase the statistics of nu-tau interactions by more than two orders of magnitude.

INFORMATION : http://dpnc.unige.ch/seminaire/annonce.html
ORGANISATEURS: Dr. Caterina.Doglioni@unige.ch, Dr. Silvio.Orsi@unige.ch