Irfu
Institut de recherche
sur les lois fondamentales
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Séminaire SPP

Lundi 10/02/2014, 11h00-12h00

CEA-Saclay Bat 141, salle André Berthelot

The Search for Heavy Photon with HPS

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IPNO

The Heavy Photon Search (HPS) is an experiment proposed for Jefferson Laboratory to search for new heavy vector boson(s), aka heavy photons or dark photons or hidden sector photons, in the mass range of 20 MeV/c2 to 1000 MeV/c2. Such particles will arise if there are additional U(1) gauge bosons in nature, and they will couple, albeit weakly, to electric charge through kinetic mixing. Many BSM theories predict the existence of additional U(1)s, and recent observations of high energy electrons and positrons in the cosmic rays may be the result of primordial dark matter annihilating into heavy photons. HPS searches for electro-produced heavy photons using both invariant mass and separated decay vertex signatures using a compact, large acceptance forward spectrometer. The first stage of HPS, the HPS Test Run, ran at JLAB in Spring, 2012. This talk describes the second stage of our program, which is capable of searching for heavy photons over a wide and unchartered region in parameter space and discovering true muonium, the QED mu+mu- atom.

Le café sera servi 10 minutes avant.

NB : La présentation d'une pièce d'identité est exigée à l'entrée du centre. Tous les auditeurs extérieurs sont priés de prévenir à l'avance Martine Oger, tél. 01 69 08 23 50, e-mail : `martine.oger@cea.fr`. (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).