SEMPARIS – Séminaires en région parisienne

http ://string.lpthe.jussieu.fr/semparis/

Particle Theory Seminar of IJCLAB
Orsay

Jeudi 15 Mars 2018, 16 :00
LPT, 114
Domaines : hep-ph

Titre : *Proposal of new BSM searches at the LHC and at telescopes*

Orateur : **Filippo Sala (DESY)**

Résumé : *The LHC has pushed the scale of the needed new physics (NP) beyond the TeV range. How to experimentally test NP models at and beyond those scales ? A first possibility is to look for low energy remnants of such theories, like pseudo-Goldstone bosons (aka ALPs) from an approximate global symmetry. I will show how ALP masses between a few GeV and 60 GeV are poorly constrained, derive a new bound on diphoton resonances in that range, and propose new related searches at ATLAS, CMS and LHCb. A second possibility is to look for DM (much) heavier than a TeV in cosmic rays, that are observed up to 100 TeV and beyond by several ongoing and near-future telescopes (HESSII, HAWC, CTA, TAIGA, ANTARES, IceCube, KM3NeT, ...). I will discuss the theory and phenomenology of models that evade the so-called DM unitarity bound, and thus enrich the physics case of such telescopes.*