SEMPARIS – Séminaires en région parisienne

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

Particle Physics at LPTHE

Mardi 16 Janvier 2024, 14 :00
LPTHE, Library and Zoom (link in the comments)
Domaines : hep-ph

Titre : *Cornering axion(s) with direct detection and stellar probes*

Orateur : **Edoardo Vitagliano (Hebrew University of Jerusalem)**

Résumé : *Feebly interacting particles (FIPs), such as axions, scalars, dark photons, and majorons, are often theoretically well motivated, and a dark sector including one or more of them can both have the aesthetic draw of solving several problems simultaneously (like the QCD axion, an excellent DM candidate and a consequence of the Peccei-Quinn solution to the strong CP problem), and be a valid alternative to the weakly interacting massive particle paradigm. In this talk, I will discuss some fresh developments in direct detection and astrophysical probes for axions and other FIPs. In the first half of the talk, I will present the plasma haloscope, a detection scheme that enables resonant conversion by matching the QCD axion mass to a plasma frequency, therefore converting axions to plasmons. The second part of the talk is dedicated to complementary searches for axions and other FIPs through astrophysical observables. I will show that recent ideas probe uncharted parts of the FIP parameter space, sometimes largely surpassing previous arguments.*