SEMPARIS – Séminaires en région parisienne

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Particle Physics at LPTHE

Vendredi 30 Juin 2023, 14 :00
LPTHE, Library(https ://cern.zoom.us/j/64201774164?pwd=ZUtveDk5ZXdhbzZCUXNYRjMrWk1QQT09)
Domaines : hep-ph

Titre : *The interactions and the possible probes of a light scalar dark matter*

Orateur : **Sreemanti Chakraborti (IPPP Durham)**

Résumé : *We study a minimal model for a light scalar dark matter (DM) with a mass of a few GeV, requiring a light dark photon mediator to interact with the Standard Model (SM) particles. We analyse the model by focusing on the p-wave Breit-Wigner resonance for DM annihilation channels, considering the thermal relic abundance condition that includes the early kinetic decoupling effect. The interactions of the mediator can be constrained by various low-energy terrestrial probes such as proton beam-dumps measuring rare meson decays or electron beam-dump experiments measuring mediator decay into leptons. On the other hand, the interactions of the DM are tested by indirect searches, which include the cosmic ray and gamma-ray observations, and also by the low-mass direct detection experiments. We do a systematic analysis involving the latest and future limits in each category of the experiments/observations.*
