SEMPARIS – Séminaires en région parisienne

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Seminaire exceptionnel

Jeudi 21 Mars 2019, 15 :30
LPTENS, Bibliotheque Joel Scherk
Domaines : hep-ph

Titre : *New tests of heavy and light Dark Matter*

Orateur : **Filippo Sala (DESY)**

Résumé : *I will discuss two novel proposals to probe Dark Matter (DM) with existing and upcoming data. 1. Cosmic rays constitute our arguably unique direct access to energy domains of 10 TeV and above, and a wealth of data is delivered/expected from current/near-future telescopes (ANTARES, IceCube, KM3NeT, HESSII, CTA, LHAASO, CALET,...). Heavy DM constitutes therefore an ideal BSM target for these experiments : I will discuss the theory and phenomenology of DM models that evade challenges like the so-called unitarity bound, and propose related searches at such telescopes. 2. DM lighter than a GeV is notoriously a challenge for direct detection experiments. I will propose to rely on the DM component that is unavoidably accelerated by scatterings of cosmic- rays, that make it possible to detect DM at experiments with large energy thresholds and volumes, like SuperKamiokande and DUNE. I will derive a new strong limit from public data and discuss search strategies at current and future neutrino experiments.*