

## Séminaire LAL

***Prof. Torsten Akesson***  
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**Mardi 3 juillet 2018 à 11h00**

### *Search for Light Dark Matter and a Primary Electron Beam Facility at CERN*

The origin and observed abundance of Dark Matter can be explained elegantly by the thermal freeze-out mechanism, leading to a preferred mass range for Dark Matter particles in the MeV-TeV region. The GeV-TeV mass range is being explored intensively by a variety of experiments searching for Weakly Interacting Massive Particles. The sub-GeV region, however, in which the masses of most of the building blocks of stable matter lie, is experimentally open territory. This mass range for particles and force carriers occurs naturally in Hidden Sector Dark Matter models. The Light Dark Matter eXperiment (LDMX) is a planned electron-beam fixed-target missing-momentum experiment that has unique potential to conclusively test models of such light Dark Matter in the MeV to GeV range. The experiment requires a primary 4-15 GeV electron beam capable of delivering  $10^{14}$  –  $10^{16}$  electrons on target with a low current. The CERN SPS which once accelerated electrons up to 22 GeV for injection into LEP, together with the R&D invested into a possible future CLIC, offer CERN a unique opportunity to create an optimal primary electron beam facility for LDMX. In addition such a facility could serve a beam dump experiment searching dark sector mediators decaying to Standard Model particles, Nuclear Physics, and R&D on acceleration technology.

***Salle 101*** - Bât. 200, Orsay

*Thé et café seront servis 15 mn avant le séminaire*  
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