



Contribution ID: 19

Type: **Poster on collider physics**

NA64 searching for hidden sectors at the CERN SPS

Thursday 23 August 2018 15:25 (5 minutes)

NA64 is a fixed target experiment at the CERN SPS to search for hidden sectors. In this poster, we will present our latest results on the search for a new sub-GeV vector gauge boson (A') mediated dark matter (χ) production. The A' , called dark photon, could be generated in the reaction $e-Z \rightarrow e-ZA'$ of 100 GeV electrons dumped against an active target which is followed by the prompt invisible decay $A' \rightarrow \chi\chi$. The experimental signature of this process would be a clean event with an isolated electron and large missing energy in the detector. This allows us to set new limits on the $\gamma-A'$ mixing strength and constrain models with light thermal dark matter or light scalar, Majorana or pseudo-Dirac thermal dark matter. Preliminary results on the search for the $X \rightarrow e+e-$ decay of a new light X boson which could explain a recently observed anomaly in the 8Be transitions will be also discussed.

Affiliation

Eidgenössische Technische Hochschule Zürich

Email address

emilio.depero@cern.ch

Academic position

PhD student

Authors: DEPERO, Emilio (ETH Zurich (CH)); CRIVELLI, Paolo (ETH Zurich (CH)); Mr MOLINATTI, Umberto (Eidgenössische Technische Hochschule Zürich); RUBBIA, Andre (ETH Zurich (CH)); MOLINA BUENO, Laura (ETH Zurich (CH)); RADICS, Balint (ETH Zurich (CH)); COLLABORATION, On behalf of NA64 (NA64 Collaboration)

Presenter: DEPERO, Emilio (ETH Zurich (CH))

Session Classification: Short presentations & Poster session