Contribution ID: **135** Type: **Parallel session talk**

Dark Sector searches with electron and positron beams at NA64@CERN

Thursday 18 July 2024 11:02 (17 minutes)

Several astrophysical observations indicate that the majority of the mass of the Universe is made of a new type of matter, called Dark Matter (DM), not interacting with light. DM may be composed of a dark sector (DS) of new particles, charged under a new U(1) gauge boson kinetically mixed with the ordinary photon, called dark photon (A'). The NA64 experiment at CERN aims to produce and detect DS particles using the 100 GeV SPS electron beam impinging on a thick active target (electromagnetic calorimeter). In accordance with the ERC funded project POKER, from 2022 NA64 started collecting data also with positron beams, in order to exploit the DS production yield enhancement due to the positron resonant annihilation process. This talk will present latest NA64 results and its future outlook, with a special focus on the progress and perspectives of the positron beam measurement, reporting the sensitivity of the experiment to several beyond SM scenarios.

Alternate track

1. Dark Matter Detection

I read the instructions above

Yes

Primary author: MARINI, Anna (INFN-Genova)

Co-author: MARINI, Anna

Presenter: MARINI, Anna (INFN-Genova)

Session Classification: Beyond the Standard Model

Track Classification: 03. Beyond the Standard Model