

PHOTON 2019 - International Conference on the Structure and the Interactions of the Photon. Satellite Workshop: Photon Physics and Simulation at Hadron Colliders.



Contribution ID: 29

Type: **Talk**

Search for an invisible vector boson from π^0 decays at NA62

Thursday, 6 June 2019 09:55 (20 minutes)

The high-intensity setup, trigger system flexibility and detector performance make the NA62 experiment at CERN particularly suitable to perform direct searches for long-lived hidden-sector particles, such as dark photons, dark scalars, axion-like particles, and heavy neutral leptons, using kaon and pion decays as well as operating the experiment in dump mode.

Results from NA62 will be presented on a search for π^0 decays to one photon and an invisible massive dark photon. From about 400 million π^0 decays, no signal is observed beyond the expected fluctuation of the background and limits are set in the plane of the dark photon coupling to ordinary photon vs the dark photon mass. The analysis has been also interpreted in terms of the branching ratio BR for the electroweak decay π^0 to $\gamma \nu \bar{\nu}$: the null result implies a limit on the BR at the level of 2×10^{-7} .

Summary

Primary author: CENCI, Patrizia (PG)

Presenter: PERUZZO, Letizia (JGU Mainz)

Session Classification: Gamma Final States

Track Classification: Gamma Final States