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Type: Talk

## Searches of exotic decays with NA62 in beam-dump mode

Tuesday 3 September 2024 11:40 (20 minutes)

The NA62 experiment at CERN took data in 2016–2018 with the main goal of measuring the  $K^+ \rightarrow \pi^+ \nu \bar{\nu}$  decay. In this talk we report on the search for visible decays of exotic mediators from data taken in “beam-dump” mode with the NA62 experiment. NA62 can be run as a “beam-dump” experiment by removing the kaon production target and moving the upstream collimators into a “closed” position. In this configuration 400 GeV protons are dumped on an absorber and New Physics (NP) particles, including dark photons, dark scalars and axion-like particles, may be produced and reach a decay volume beginning 80 m downstream of the absorber. More than  $10^{17}$  protons on target have been collected in “beam-dump” mode by NA62 in 2021. Recent results from analysis of this data, with a particular emphasis on Dark Photon and Axion-like particle Models, are presented. We also report new results on the first NA62 search for long-lived NP particles decaying in flight to hadronic final states based on a blind analysis of a sample of  $1.4 \times 10^{17}$  protons on dump collected in 2021.

### Internet talk

Maybe

### Is this an abstract from experimental collaboration?

Yes

### Name of experiment and experimental site

The NA62 experiment at CERN SPS

### Is the speaker for that presentation defined?

Yes

### Details

Stefan Ghinescu

The abstract is submitted on behalf of the NA62 Collaboration by A. Romano, chair of the NA62 Conference Committee. If it will be accepted as a talk, a speaker will be appointed as soon as possible.

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