



Contribution ID: 75

Type: **Poster and Flash talk**

## Real-time search for Dark Photons at the Upgraded LHCb experiment (Poster Upload)

*Monday 23 September 2024 17:00 (3 minutes)*

This work presents a new search for soft dark photons from charm decays, made possible by the novel real-time analysis (RTA) capabilities of the upgraded LHCb detector. The challenge consists in finding a peak on top of an irreducible non-resonant background of several kHz. In LHC Run 3, LHCb can read out the entire detector in real time (at 30 MHz) and filter interesting events through a two-stage software trigger using farms of GPUs (first stage) and CPUs (second stage). ML-based classification algorithms are employed at both stages to select charm decays, identify the extremely soft electrons that dark photons decay into, and reduce the overwhelming combinatorial background. The data throughput is further reduced by writing to disk only the interesting part of each event.

### What of the following keywords match your abstract best?

Real-time algorithms

### Please tick if you are a PhD student and wish to take part to the poster prize competition!

I am a PhD student

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**Session Classification:** Flash talks / poster session