

## Downstream track reconstruction algorithms for GPU-based High level trigger at LHCb

*Wednesday, 22 March 2023 09:30 (20)*

The LHCb Upgrade in Run 3 has changed its trigger scheme for a full software selection in two steps. The first step, HLT1, is entirely implemented on GPUs and is running on real time a fast selection to reduce the collision rate from 30 MHz to 1 MHz.

In this talk we will discuss the design and implementation of several algorithms which are focused on the reconstructions of tracks downstream the magnet, using the new Scintillating-Fiber tracker (Scifi) and the silicon strip Upstream Tracker (UT) detectors. Those algorithms are crucial for detecting long-lived particles of SM and BSM.

### Which session do you think it fits best?

Trigger Algorithms, ML / AI applications

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**Session Classification :** Trigger Algorithms, ML / AI applications running on both non-CPU HW and CPUs (HLT)