

Flexible physics selections at 30 MHz

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The first LHCb upgrade will take data at an instantaneous luminosity of $2 \times 10^{33} \text{cm}^{-2} \text{s}^{-1}$ starting in 2021. Due to the high rate of beauty and charm signals LHCb has chosen as its baseline to read out the entire detector into a software trigger running at the LHC collision frequency of 30MHz. This High Level Trigger will enable unprecedented flexibility for trigger selections. In this talk we present the challenges of triggering in the MHz signal era. We pay particular attention to the need for flexibility in the selection and reconstruction of events without sacrificing performance. We also discuss the most important benchmarks for the selection at Run 3.

I read the instructions

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