

A 30 MHz software trigger for the LHCb upgrade

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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 will read out the entire detector into a software trigger running on commodity hardware at the LHC collision frequency of 30 MHz. 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.

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