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## Triggering on Long-Lived Particles decaying to Hadronic Showers in CMS Muon System

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Long-lived particles (LLPs) are predicted in many extensions beyond the standard model. They often have unique signatures in collider detectors. A particularly interesting model considers long-lived particles that decay hadronically in the CMS muon system. Such particles are capable of producing a shower of hits in the muon chambers. Because of design considerations and bandwidth limitations, the current CMS muon trigger is not equipped to detect hadronic showers. In this presentation we explore options to improve the trigger for Run-3 data taking. We show that a per-chamber hit counter is a powerful discriminator that increases the sensitivity to hadronically decaying LLPs by at least a factor ten. We discuss the baseline scenario and potential future improvements.

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