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Exploring Track Trigger Parameters for Exotic and Long-Lived Particle Searches

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CERN's ATLAS and CMS experiments were designed with prompt and standard model particles in mind. The track-trigger upgrades planned for the High Luminosity LHC open up the possibility to trigger on long-lived and unconventional signatures directly. To maximize sensitivity for these challenging signatures, we study the efficiency of hypothetical hardware level track triggering algorithms. We look to find the collection of track trigger parameters best suiting a wide range of signatures of LLP and exotic models. In this talk, we explore the results for models with displaced jets and leptons, heavy stable charged particles, and soft-unclustered energy patterns.

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