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TrickTrack: An experiment-independent, cellular-automaton based track seeding library

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The design of next-generation particle accelerators evolves to higher and higher luminosities, as seen in the HL-LHC upgrade and the plans for the Future Circular Collider (FCC). Writing track reconstruction software that can cope in these high-pileup scenarios is a big challenge, due to the inherent complexity of current algorithmic approaches. In this contribution we present TrickTrack, a track reconstruction toolkit based on the hit-chain maker used for track seeding in the CMS experiment. It aims at solving pattern recognition problems efficiently in a concurrency-friendly implementation, while remaining general enough to be of use in most track detectors. The performance of TrickTrack in the FCC-hh design study is being presented as the first usecase beyond CMS, which features pileup rates of 1000 interactions per bunch crossing and a high-occupancy environment for tracking.

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