Contribution ID: **72** Type: **Poster presentation**

Emulation of a prototype FPGA track finder for the CMS Phase-2 upgrade with the CIDAF emulation framework

Tuesday, June 7, 2016 3:00 PM (1h 30m)

The CMS collaboration is preparing a major upgrade of its detector, so it can operate during the high luminosity run of the LHC (HL-LHC) from 2025. The upgraded tracker electronics will reconstruct the trajectories of charged particles within a latency of a few microseconds, so that they can be used by the level-1 trigger. An emulation framework, CIDAF, has been developed to provide a reference to a proposed FPGA-based implementation of this track finder, which employs a Time-Multiplexed (TM) technique for data processing.

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Session Classification: Poster session 1

Track Classification: Upgrades