Contribution ID: **29** Type: **Plenary**

Progress towards a 4D fast tracking pixel detector

Tuesday, April 21, 2020 2:35 PM (25 minutes)

We present recent results of the R&D for a novel 4D fast tracking system based on rad-hard pixel sensors and front-end electronics capable of reconstructing four dimensional particle trajectories in real time. Particularly relevant results are: i) timing resolution of 30 ps for 55 micron pitch 3D silicon pixel sensors measured in a recent beam test, ii) design and production of front-end electronics prototype chip, iii) a stub-based fast tracking algorithm implemented and tested in commercial FPGA using a pipelined architecture. Tracking performance for a 4D pixel detector for a future upgrade of the LHCb experiment will be also discussed.

Consider for young scientist forum (Student or postdoc speaker)

Yes

Second most appropriate track (if necessary)

Novel approaches and algorithms, and theoretical analysis

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Session Classification: Recording sessions