Contribution ID: **313** Type: **Parallel session talk**

RD53 pixel chips for the ATLAS and CMS Phase-2 upgrades at HL-LHC

Tuesday, 25 May 2021 06:24 (18 minutes)

The Phase-2 upgrades of ATLAS and CMS will require a new tracker with readout electronics operating in extremely harsh radiation environment and high data rate readout.
The RD53 collaboration, a joint effort between the ATLAS and CMS experiments, developed in 2017 a large size demonstrator, called RD53A, to qualify the chosen 65nm CMOS technology and compare different analog front-ends and digital architectures for the development of the final production ASICs.
The final chips for the two experiments are being designed based on these results, having as a reference a common virtual baseline chip, called RD53B, which is adapted to the needs of each experiment. The RD53B-ATLAS version was submitted in March 2020 and it has been extensively tested, providing valuable results for the implementation of the RD53B-CMS version, which is planned to be submitted in March 2021.
A general overview of the chip architecture will be presented, as well as the first preliminary test results.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

Funding information

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Session Classification: Readout: Front-end electronics

Track Classification: Readout and Data Processing: Readout: Front-end electronics