



Contribution ID: 76

Type: flash talk

## First results on Timing Performance of Monolithic sensors with additional gain for the future ALICE 3 experiment

*Tuesday, 27 February 2024 10:10 (5 minutes)*

The ALICE Collaboration has submitted a proposal for a next-generation heavy-ion experiment, named ALICE 3, to be installed during the LHC Long Shutdown 4. The key features of this new experimental apparatus will be an exceptional pointing resolution and an excellent Particle IDentification (PID) capability. A Time-Of-Flight system, made of silicon sensors, with an outstanding time resolution of 20 ps will, hence, play a crucial role.

To achieve this goal fully depleted CMOS sensors with an additional gain are under investigation. A vigorous R&D is needed as the time resolution of CMOS sensors needs to be pushed significantly beyond present state of-art to meet the demanding requirements of future-generation experiments. The results of the simulations performed to design the CMOS sensors with an additional gain will be presented. In addition, the experimental results obtained with the test of the first prototypes produced with a 110 nm technology will be shown.

**Primary author:** GIOACHIN, Giulia (Istituto Nazionale di Fisica Nucleare)

**Presenter:** GIOACHIN, Giulia (Istituto Nazionale di Fisica Nucleare)

**Session Classification:** Quark Gluon Plasma I