



Contribution ID: 25

Type: **Talk**

【337】 The monolithic ASIC for the high precision preshower detector of the FASER experiment at the LHC

Wednesday 6 September 2023 18:30 (15 minutes)

The FASER experiment at the LHC will be instrumented with a high precision W-Si preshower to identify and reconstruct electromagnetic showers produced by two O(TeV) photons at distances down to 200 μm . The new detector features a monolithic silicon ASIC with hexagonal pixels of 100 μm pitch, extended dynamic range for the charge measurement, and capability to store charge information for thousands of pixels per event. Analog memories inside the pixel area allow for a frame-based event readout with minimum dead area. A description of the pre-shower and its expected performance will be presented, together with the design rationale of the monolithic ASIC and the results of the pre-production ASIC characterisation.

Theoretical Work

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Session Classification: Nuclear, Particle- & Astrophysics (TASK - FAKT)

Track Classification: Nuclear, Particle- and Astrophysics (TASK)