

# The ATLASPIX3 CMOS pixel sensor performance

*Saturday 20 July 2024 11:53 (17 minutes)*

High voltage CMOS pixel sensors are proposed to be used in future particle physics experiment. The ATLASPIX3 chip consists of 49000 pixels of dimension  $50\mu\text{m} \times 150\mu\text{m}$ , realized in in TSI 180nm HVCMOS technology. It was the first full reticle size monolithic HVCMOS sensor suitable for construction of multi-chip modules and supporting serial powering through shunt-LDO regulators. The readout architecture supports both triggered and triggerless readout with zero-suppression.

With the ability to be operated in a multi-chip setting, a 4-layer telescope made of ATLASPix 3.1 was developed, using the GECCO readout system as for the single chip setup. To demonstrate the multi-chip capability and for its characterisation, a beam test was conducted at DESY using 3–6 GeV positron beams with the chips operated in triggerless readout mode with zero-suppression. The detector performance have also been tested with hadron beams and operating both with and without the built-in power regulators.

## Alternate track

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Yes

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**Session Classification:** Detectors for Future Facilities, R&D, Novel Techniques

**Track Classification:** 13. Detectors for Future Facilities, R&D, Novel Techniques