

## ITk Pixel Multi Module Readout Tests

*Monday 7 April 2025 17:45 (15 minutes)*

As part of the upgrades to the ATLAS detector to be performed during Long Shutdown 3 (LS3), which is scheduled from 2026-2030, the current ATLAS Inner Detector (ID), is to be replaced with an all-silicon Inner Tracker (ITk). The ITk is comprised of an inner silicon pixel and outer silicon strip detector and will provide higher radiation tolerance, granularity, and readout rate, to cope with the requirements of the harsh radiation conditions of the high-luminosity Large Hadron Collider (HL-LHC). In Run 4, ATLAS will be entirely read out using the Front-End Link EXchange (FELIX) data acquisition system. In advance of larger-scale system tests for ITk Pixel, studies are ongoing using bench-top multi-module setups. These allow the testing of multiple ITkPix pixel modules using FELIX, before the arrival of final detector structures and large-scale system tests. These studies are essential for verification of readout structures in preparation for operation of the full ITk pixel detector. This talk will present an overview of the ITk Pixel readout chain and explore key results from these tests.

**Author:** MARTIN, Juliette (University College London (GB))

**Presenter:** MARTIN, Juliette (University College London (GB))

**Session Classification:** Detectors and Instrumentation

**Track Classification:** Detectors and Instrumentation