



Contribution ID: 133

Type: Oral Presentations

## Loading of ATLAS ITk pixel module on multi flavour local supports

*Wednesday, 6 September 2023 17:40 (20 minutes)*

For the HL-LHC upgrade the current ATLAS Inner Detector is replaced by an all-silicon system. The pixel detector will consist of three different subsystems with different mechanical support structures, resulting in an actively instrumented area of about  $13\text{m}^2$ . The Outer Barrel is made of longerons and inclined half-rings, the Outer Endcaps is made of half-rings and the Inner System consists of staves and rings. Prototypes of all flavours of support structures were loaded with pixel modules based on the RD53A readout chip. The different loading techniques, used in the different loading sites for the different support structures, are illustrated and discussed. The techniques range from being based on high precision positioned jig tools to multi-functional pick-and-place head on a robotic gantry.

After the successful loading, the performance of these first large scale detector prototype structure have been carefully evaluated ensuring also the electrical functionality of the modules after the loading process in a larger system.

The overview gives emphasis on the loading techniques of the pixel modules on the local support as well as their subsequent performance qualification.

**Primary author:** VORMWALD, Benedikt (CERN)

**Presenter:** Dr CHIODINI, Gabriele (CERN)

**Session Classification:** E1