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ITk Strips Endcap module loading process: from modules to petals.

The High Luminosity-Large Hadron Collider (HL-LHC) will reach an approximate pile-up of 200 collisions per bunch crossing, ten times more than the current Large Hadron Collider. Beginning operation in 2030, it will accumulate 3000 fb-1, increasing the chances of observing new processes and allowing measurement of rare processes with higher precision. Moreover, the pile-up increase means more particle production, causing higher radiation damage and detector occupancy conditions. Therefore, the current tracking system in the ATLAS detector will be replaced by the new Inner Tracker system (ITk). ITk is based on silicon detectors, composed of individual sensors and readout electronics called modules. In particular, the ITk Strips subdetector is composed of two different regions, the Barrel and the Endcap. The modules need services to work under the collaboration requirements. To guarantee these services, the modules are glued into a local support structure, in the Endcap's case, the structures are called petals. In each petal, 12 modules are glued, 6 per petal's side. The sensors are individually attached to the petal; this process, known as loading, is composed of several steps. The first one is to prepare the petal components. Then, the components are attached to form a petal. Finally, the petal goes through a quality control process. This poster aims to show the loading process starting from the individual components until a petal passes the quality control and is delivered to the integration site.

Abstract

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