Contribution ID: **114** Type: **talk**

ALICE ITS3: the first truly cylindrical inner tracker

Wednesday 15 September 2021 09:40 (15 minutes)

The high integration density of Monolithic Active Pixel Sensors (MAPS), with silicon sensor and readout electronics implemented in the same device, allows very thin structures with strongly reduced material budget. Thicknesses of O(50um), values at which silicon chips become flexible, are readily used in many applications. In addition, MAPS can be produced in sensors of wafer size by a process known as stitching. This in turn allows to build detector elements that are large enough to cover full tracker half-layers with single bent sensors.

The ALICE ITS3 project is planning to build a new vertex tracker based on truly cylindrical wafer-scale sensors, with <0.05% X0 per layer and as close as 18 mm to the interaction point. R&D on all project aspects (incl. mechanics for bent wafer-scale devices, test beams of bent MAPS, design of stitched sensors) is rapidly progressing with the aim for installation during LHC LS3.

This contribution will summarise the project motivation, its R&D schedule, and will show selected highlights of recently accomplished project milestones, including full-scale engineering prototypes with dummy chips and small-scale, fully functional assemblies of functional, bent MAPS.

Your name

email

Magnus.Mager@cern.ch

Title

Nationality

Institute

Presenters: MAGER, Magnus (CERN); COLELLA, Domenico (Politecnico and INFN Bari, Italy)

Session Classification: Advances in Pixel Detectors and Integration Technologies I

Track Classification: Advances in Pixel Detectors and Integration Technologies