Contribution ID: **56** Type: **WG2 - Hybrid silicon sensors**

Development of very small pitch, ultra rad- hard 3D sensors for tracking + timing applications at FBK

Wednesday 4 June 2025 09:05 (15 minutes)

This project aims at developing the next generation of 3D pixel sensors, further progressing in the trend of decreasing pixel size which started with the ATLAS IBL and continued with the ATLAS ITk and CMS Inner Tracker 3D pixels. Target applications are the possible Phase-3 upgrades of ATLAS and CMS and the upgrade of LHCb VELO (with timing). Inherent to the 3D pixel architecture is the improvement in the radiation hardness as the interelectrode distance is decreased, which promises to mantain the devices fully efficient up to irradiation fluences of 10 17 n eq cm -2 and beyond. Novel pixel layouts with multiple column configurations are also expected to offer excellent time resolution, comparable to the 3D-trench devices. Two production runs are foreseen at FBK with an optimized single-sided technology allowing for a good fabrication yield also in case of large size pixel arrays.

Type of presentation (in-person/online)

in-person presentation

Type of presentation (I. scientific results or II. project proposal)

II. Presentation on project proposal

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Session Classification: WG2/WP2 - Hybrid Silicon Technologies