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Development of Thin, Narrow-Pitch 3D Pixel Sensors for HL-LHC

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We report on the development of new 3D pixel sensors oriented to the Phase 2 Upgrades at the High-Luminosity LHC (HL-LHC), carried out within the framework of the INFN-FBK “Phase 2”R&D program.
These sensors have increased pixel granularity (e.g., 50×50 or 25×100 μm2 pixel size), thinner active layer (˜100 μm) with columnar electrodes having narrower size (˜ 5 μm) and reduced spacing (˜ 30 μm), as required for high radiation hardness (up to a fluence of 2×1016 neq cm-2).
The talk will cover experimental results and simulations relevant to the sensors and test structures from the first batch fabricated at FBK on 6”SiSi DWB wafers, and technological and design aspects relevant to the fabrication of the second batch, funded by the AIDA2020 project, that is being launched.

TRACK

3D Sensors

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