

Vertical integration technologies for tracking detectors

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In the past ten years, 3D vertical integration technologies have generated a wide interest in the silicon pixel sensors and front-end electronics communities. They have the potential to lead to the fabrication of multilayer high performance devices with no dead area, where each layer is optimized for its function (particle sensing, analog signal amplification and filtering, digital memory and readout, ...). This paper will review the results that the community got so far, and assess the current status of R&D work on 3D integration applied to particle detection systems. Finally, the prospects of 3D integration for the future generation of tracking detectors will be discussed.

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