

The Belle-II Pixel Vertex Tracker at the SuperKEKB Flavor Factory

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The planned luminosity upgrade of the KEKB flavor factory requires extensive detector upgrades to cope with the design luminosity of $8 \times 10^{35} / \text{cm}^2\text{s}$. Of critical importance here is a new silicon pixel vertex tracker, which will significantly improve the decay vertex resolution, crucial for time dependent CP violation measurements. This new detector will consist of two layers of DEPFET pixel sensors close to the interaction point. These sensors combine particle detection and amplification of the signal by embedding a field effect transistor into fully depleted silicon, providing very high signal to noise ratios and excellent spatial resolution with 50 μm thick silicon. This technology satisfies the requirements of extremely low material in the active region and high radiation tolerance at Belle-II. The requirement for a very low material budget in the detector acceptance, the power dissipation due to continuous high-rate readout and spatial constraints impose strict requirements on the mechanical support structures and on the detector cooling. In the talk we will discuss the overall concept of the pixel vertex tracker, its expected performance and the mechanical integration.

Summary (Additional text describing your work. Can be pasted here or give an URL to a PDF document):

Link to the summary: <http://ific.uv.es/~lacasta/depfet/vci-pxd-summary.pdf>

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