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The Belle-II Pixel Detector

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The construction of the new e+e- super flavor factory SuperKEKB in Tsukuba, Japan has been finalized and the machine is designed to deliver an instantaneous luminosity 40 times higher than its predecessor KEKB. For high-performance vertex reconstruction, the Belle II experiment will be equipped with a highly granular, ultra-transparent active pixel detector (PXD) very close to the interaction point. This new pixel detector consists of two layers of active pixel sensors based on the DEPFET technology, which combines charged-particle detection with in-pixel amplification by integration of a field effect transistor in a fully depleted silicon bulk for each pixel. A complete detector system including solutions for the ultra-thin sensors,
their mechanical support and cooling, the front-end electronics, services and a DAQ system able to handle the expected large data rate from the PXD is being constructed. Recent milestones are a full system test of the vertex detector in a test beam
and the commissioning of the BEAST II pre-experiment which is planned to start in early 2018.
In this presentation, an overview of the Belle II PXD system, its construction status, detailed module characterizations
and final system tests will be given.

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Session Classification: Detectors in design and construction