

The Belle II SVD detector

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The Silicon Vertex Detector (SVD) is one of the main detectors in the Belle II experiment (KEK, Japan). The SVD takes essential roles of precise decay-vertex determination and low-energy-track reconstruction in combination with the PiXel Detector (PXD). SVD consists of four-layers Double-sided Silicon Strip Detectors (DSSD) located in a cylindrical shape around the Belle II interaction point. Each layer is composed of several DSSD ladders. Considering high beam-background circumstance in Belle II, we employ the APV25 readout ASIC chip with performances of small shaping time (~50nsec) and high irradiation tolerance (over 1MGy). The most notable feature of the SVD DSSD is a “chip-on-sensor” concept, which minimizes lengths of the signal propagation from DSSD strips to APV25 and reduces noises from strip capacitance into an acceptable level.

Under the international cooperation among several institutes, the SVD is being developed toward the installation in 2018. Currently, the mass production of the SVD ladders has been started. Also we have performed an electron-beam test combined with the PXD in order to develop tracking algorithm and estimate the performance. This talk will give an overview of the SVD development status, the performance, and the prospect of the SVD assembly and commissioning until the installation.

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