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## **The Silicon Vertex Detector of the Belle II Experiment**

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The Belle experiment in Tsukuba (Japan) has been designed to measure rare decays in the B system with high statistics. Currently, both the KEK-B  $e^+/e^-$  collider and the Belle experiment are being upgraded to provide and cope with an ultimate luminosity of  $8 \times 10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ .

Since the previous Silicon Vertex Detector (SVD) cannot be operated with the 40-fold increased luminosity after the upgrade, it needs to be replaced. The future Belle II SVD will also consist of four layers of double-sided silicon strip sensors, but on larger radii and based on 6" silicon wafers, compared to its predecessor. Moreover, an inner double-layer with pixel detectors based on DEPFET technology will complement the SVD as innermost detector and the SVD itself will now contain a slanted forward part. Since the KEK B-factory operates at relatively low energy, material inside the active volume has to be minimized in order to reduce multiple scattering. This can be achieved by thin, double sided silicon sensors, which are arranged to ladders in the so-called "Origami chip-on-sensor concept", and a very light-weight mechanical support structure made from carbon fiber reinforced Airex foam. Moreover, CO<sub>2</sub> cooling of the front-end chips will ensure high efficiency at minimum material budget. Fast-shaping readout amplifiers will be used in conjunction with an online hit time reconstruction algorithm in order to reduce the occupancy to the level of a few percent at most.

In this talk, we will report the status of Belle II SVD, covering the silicon sensors, front-end detector ladders, readout electronics, mechanics and cooling.

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