

## **Status of the Belle Silicon Vertex Detector and its Development for Operation at a Super B-Factory**

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The Silicon Vertex Detector (SVD) of the Belle Experiment, operating at the KEK B-factory, is one of its main components for investigation of the time dependent CP-asymmetries. The current version of the four-layer SVD (SVD2), providing 17deg to 150deg polar angle acceptance and good vertexing resolution since 2003, is nevertheless close to its limits in terms of the occupancy in the innermost layer and the readout dead time.

Vertex detection in the future at an upgraded KEKB collider will require detectors capable of withstanding increased track densities radiation exposures. Starting with a crab cavity installation in KEKB collider in 2006 and the resulting expected luminosity increase, several hardware and software modifications will have to be implemented, starting from new trigger logic and hit clustering methods, faster read-out electronics, to altogether new types of silicon detectors as the final step.

Two designs are under study, one is based on an unconventional short-strip double sided strip detector, where the strips on both sides are rotated by 45 degrees, and the other on a monolithic active pixel sensor. As the vertexing precision is of utmost importance, and it is limited by multiple scattering of the low momenta B decay products, in both designs the active detector volume and the support structure must be minimized. The presentation will include the performance overview of the Belle SVD as well as the results of the upgrade endeavors towards a Super B-Factory detector.