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The Simulation Library of the Belle II Software System

SuperKEKB and Belle II, the next generation B factory and its detector counterpart, are being constructed in Japan, as an upgrade of KEKB and Belle, respectively. The commissioning of the new SuperKEKB collider will be started in 2015. The luminosity of this $e^+ e^-$ collider will be increased by a factor of 40, which will create a data sample 50 times larger than the previous Belle sample. Both the triggered and the background event rates will be increased by at least a factor of 10 compared to the previous rates, creating a very challenging data taking environment for the Belle II detector. The software system of the Belle II experiment is designed to execute this ambitious plan. A full detector simulation library, which is a part of the Belle II software system, is created based on Geant4. The construction of the library is progressing steadily and it is utilized actively in producing Monte Carlo data sets for pre-commission studies. In this talk, we will explain the detailed structure of the simulation library and the various interfaces to other packages including generators, geometry, and background simulation.

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