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Modelling optics and beam-beam effects of SuperKEKB with Xsuite

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SuperKEKB, located at KEK, is a second generation B-factory, providing beam to the Belle-II experiment. Optics design and simulation of SuperKEKB were previously performed using the optics code SAD, developed at KEK. In this paper, we present a new model of SuperKEKB using the tracking code Xsuite, developed at CERN. An alternative strategy for modelling the interaction region, with controllable final focus quadrupoles, has been adopted. Optics comparisons between the new Xsuite model and existing SAD model, as well as tracking simulations including beam-beam modelling are presented.

Footnotes

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Author: SALVESEN, John (European Organization for Nuclear Research)

Co-authors: IADAROLA, Giovanni (European Organization for Nuclear Research); BROGGI, Giacomo (European Organization for Nuclear Research); SUGIMOTO, Hiroshi (High Energy Accelerator Research Organization); OIDE, Katsunobu (European Organization for Nuclear Research); ZIMMERMANN, Frank (European Organization for Nuclear Research); BURROWS, Philip (John Adams Institute)

Presenter: SALVESEN, John (European Organization for Nuclear Research)

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