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SuperKEKB transport beam line in-depth characterization of multi bunch high energy electron and positron beams

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After the great success of KEKB asymmetric-energy collider achieving the world highest luminosity, the ambitious upgrade SuperKEKB collider aims to take the positron-electron colliders to the next level by achieving 40 times higher luminosities. However, this represents a huge challenge, requiring of a highly precise way to control the beams to suppress emittance growth and to assure their correct injection. In order to be able to do it, first, the beams should be well characterized and understood after their passage through the LINAC. In this work, the characterization of the currently obtained beams at Super-KEKB is shown for both, the 7 GeV electron beam and the 4 GeV energy positron beam in the 1-bunch and 2-bunch configurations, from the LINAC to the entrance of the Main Ring.

Footnotes

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Author: Dr OUMBAREK ESPINOS, Driss (High Energy Accelerator Research Organization)

Co-authors: KODAMA, Kota (High Energy Accelerator Research Organization); TAWADA, Masafumi (High Energy Accelerator Research Organization); KIKUCHI, Mitsuo (High Energy Accelerator Research Organization); IIDA, Naoko (High Energy Accelerator Research Organization); MORI, Takashi (High Energy Accelerator Research Organization); NAITO, Takashi (High Energy Accelerator Research Organization); YOSHIMOTO, Takashi (High Energy Accelerator Research Organization); UEDA, Takeshi (High Energy Accelerator Research Organization); MIMASHI, Toshihiro (High Energy Accelerator Research Organization); SEIMIYA, Yuji (High Energy Accelerator Research Organization)

Presenter: Dr OUMBAREK ESPINOS, Driss (High Energy Accelerator Research Organization)

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