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Simulation model for the FCC-ee Positron Source

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The escalating interest of the future lepton colliders with high luminosity, draws the attention to the crucial role of the positron sources. One of these colliders is the FCC-ee. Two main positron production schemes (Conventional and Hybrid) are considered for the FCC-ee, will be discussed briefly here. The work is in progress for the development of positron generation and tracking model until the Damping Ring. The model starts with the production of positrons and target studies in GEANT4. After that, the generated positrons are tracked through the capture section composed of the matching device and several accelerating structures to accelerate the positrons until the energy of the Damping Ring. This part is implemented by using the code developed at CERN called RF-track. Eventually, the preliminary results for benchmarking of the FCC-ee positron source simulation model with the existed SuperKEKB positron source will be discussed.

Primary author: ALHARTHI, Fahad

Co-authors: CHAIKOVSKA, Iryna (CNRS/IJCLab); Mr MYTROCHENKO, Victor; Mr BULYAK, Eugene; MIYAHARA, Fusashi; Mr ENOMOTO, Yoshinori; Mr USHAKOV, Andriy; ZHAO, Yongke (CERN & Shandong University (CN)); CHEHAB, Robert (INSTITUT DE PHYSIQUE NUCLEAIRE DE LYON-IN2P3/CNRS (France))

Presenter: ALHARTHI, Fahad

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