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HE-LHC nonlinear correctors & dynamic aperture

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In the framework of the Future Circular Collider study, the option for an energy upgrade of the LHC is explored, the so called High Energy LHC (HE-LHC). To achieve the targeted 27 TeV, it relies on the use of 16 T dipoles, based on Nb_3Sn and which are currently under development for the FCC-hh. At injection energy, the field quality of these dipoles is of major concern due to its large impact on the dynamic aperture. Here we present the results of the dynamic aperture calculations using the latest field quality estimates for different injection energies together with the employed nonlinear corrections schemes.

Author: HOFER, Michael (Vienna University of Technology (AT))

Co-authors: ZIMMERMANN, Frank (CERN); KEINTZEL, Jacqueline (Vienna University of Technology (AT)); VAN RIESEN-HAUPT, Leon; GIOVANNOZZI, Massimo (CERN); TOMAS GARCIA, Rogelio (CERN); IZQUIERDO BERMUDEZ, Susana (CERN); NOSOCHKOV, Yuri (SLAC National Accelerator Laboratory (US))

Presenter: HOFER, Michael (Vienna University of Technology (AT))

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