

# FCC-hh: collimation system design

With the goal of colliding proton beams at an energy of 50 TeV, the total stored energy per beam at the FCC-hh will be of about 8 GJ, more than an order of magnitude larger than at the LHC. The handling of high intensity beams and the associated high loss rates of protons require a powerful collimation system to prevent quenches of the superconducting magnets in regular operations and material damage in case of irregular beam losses. We present studies aimed at defining a first conceptual solution for a collimation system fulfilling the global requirements of the FCC-hh. Given the very successful LHC collimation system that sets the state-of-the-art for particle accelerators, the first conceptual design is based on the scaling of the present LHC optics and layout solutions to the FCC-hh energy. A first collimation layout for a betatron cleaning insertion is presented and the performance of the scaled-up system is assessed with particle tracking simulation tools. Paths for improving and extending the initially designed system are also established.