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Collimation performance of the 400MJ LHC beam at 6.8 TeV

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During the third operational run of the Large Hadron Collider at CERN, starting in 2022, the beam energy was increased to 6.8 TeV and the bunch population is planned to be pushed to unprecedented levels. Already in the first year of operation, beam stored energies up to 400 MJ were achieved. An improvement in cleaning performance of the LHC collimation system is hence required. In this paper we review the collimation system performance during 2022, and compare it to previous years. Particular attention is put on the performance during β^* -levelling, which is part of the nominal cycle in Run 3. The performance of the automatic alignment tools is also discussed. Finally, we review the stability of the collimation system, which was monitored regularly during the run for all machine configurations to ensure the continued adequate functionality of the system.

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Footnotes

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Primary author: VAN DER VEKEN, Frederik (European Organization for Nuclear Research)

Co-authors: ABRAMOV, Andrey (European Organization for Nuclear Research); AZZOPARDI, Gabriella (European Organization for Nuclear Research); BROGGI, Giacomo (La Sapienza University of Rome); BRUCE, Roderik (European Organization for Nuclear Research); CAI, Rongrong (Ecole Polytechnique Fédérale de Lausanne); D'ANDREA, Marco (European Organization for Nuclear Research); DEWHURST, Kay (European Organization for Nuclear Research); FRASCA, Alessandro (European Organization for Nuclear Research); HERMES, Pascal (European Organization for Nuclear Research); LINDSTROM, Bjorn (European Organization for Nuclear Research); MIRARCHI, Daniele (European Organization for Nuclear Research); REDAELLI, Stefano (European Organization for Nuclear Research); ZILIOTTO, Filippo (European Organization for Nuclear Research); DEMETRIADOU, Despina (European Organization for Nuclear Research)

Presenter: LINDSTROM, Bjorn (European Organization for Nuclear Research)

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