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Potential and constraints of a beam-beam wire compensator in the HL-LHC era

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The compensation of the long-range beam-beam interactions by DC wires is currently being investigated as an option for enhancing machine performance in the framework of the High-Luminosity LHC Project. In this paper, we report and comment on the potential of wire compensation during the first HL-LHC run. The results are based on numerical simulations and optimisations of the machine dynamic aperture varying the wire position and current, taking into account the latest optics and beam scenarios and the constraints imposed by the corresponding settings of the HL-LHC collimation system.

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Footnotes

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