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Beam-induced heating mitigation of the SPS kickers: a crucial upgrade to move towards HL-LHC beam intensities

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Beam-induced heating of equipment can have several undesirable effects, including rendering the equipment temporarily inoperative, equipment degradation and/or damage. Hence, to avoid these problems, it can be necessary to limit beam intensity. Beam-coupling impedance mitigation of existing devices and/or design optimization of new accelerator elements are essentials to overcome these limitations. In this framework a very good example is the optimization of the SPS kickers beam-coupling impedance for beam-induced heating mitigation. This paper describes the beam-coupling impedance measurements and simulation studies performed to identify and potentially remove the intensity limitation arising from the excessive beam-induced heating of a SPS injection kicker.

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Footnotes

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Yes

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