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Prospect of operating with limited skew quadrupole corrector availability in the LHC interaction regions

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In the Large Hadron Collider (LHC), corrections of local Interaction Region (IR) linear coupling are of importance to control beam sizes at Interaction Points (IPs) and hence the luminosity performance, as well as to prevent a significant impact on the beam dynamics. During the LHC Run 3, the skew quadrupole corrector magnets used on either side of IPs are expected to exceed their radiation dose limit. In this contribution, studies on the impact of operating with limited availability of these magnets are presented, should one or more become inoperable. Mitigation strategies for different scenarios are discussed.

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Footnotes

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