LHC Machine Protection Review



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Machine protection and closed orbit

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Good orbit control is very critical for the LHC due to the tight aperture at injection and the stringent orbit stability constraints from collimators and absorbers. A real-time orbit feedback system will be used to ensure adequate orbit stability during all operational phases. While the orbit feedback is important for operational efficiency, it cannot be used for machine protection directly. An interlock system based on redundant beam position monitors located around the beam dump extraction elements will be used to protect the beam dump channel from damage to due excessive orbit offsets. The same system will also provide an interlock signal for fast orbit drifts. The position interlock system will be discussed, in particular the complementary protection they provide to the beam loss monitoring system.

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