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## Design and first results of a cryogenic beam loss monitor installed at the LHC

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The Large Hadron Collider (LHC) is equipped with NiTb superconducting magnets operating at the cryogenic temperature of 2.9 K. A tiny fraction of proton beam at 7 TeV impacting the magnet coils has the potential to generate enough heat, leading to the loss of superconductivity in the magnets. Consequently, it is imperative for machine performance to detect such beam losses before the quench event occurs. To enhance the sensitivity of magnet quench detection through the measurement of beam losses, ongoing efforts focus on the development of cryogenic beam loss monitors. This contribution outlines the design improvements made to a semiconductor-based beam loss detector installed inside the magnet cryostat, positioned just outside the vacuum vessel of the superconductive LHC dispersion suppressor magnets.

### Footnotes

### Funding Agency

### I have read and accept the Privacy Policy Statement

Yes

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