

Overview of the latest results on the development of silicon cryogenic Beam Loss Monitors

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The increased LHC luminosity as well as maximal particle energy require more precise data on the intensity of radiation field at the magnet coils of collider. For that the radiation sensors must be placed in the proximity of the coils, which minimizes the fraction of debris in beam loss monitoring. Silicon sensors were chosen as one of the candidates and the related R&D was started six years ago jointly by CERN BE-BI-BL group and RD39 collaboration.

The sensors developed at the Ioffe Institute and in situ tested at temperatures 1.9 and 4.3 K showed reproducible characteristics and gave new findings in the detector physics. Selected data will be presented to illustrate the differences of silicon detector radiation degradation at RT and the temperature of liquid He.

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