

Introduction

Text taken from IBIC 2015 proceedings.

The Beam Loss Monitoring system of the Large Hadron Collider close to the interaction points contains mostly gas ionization chambers working at room temperature, located far from the superconducting coils of the magnets. The system records particles lost from circulating proton beams, but is also sensitive to particles coming from the experimental collisions, which do not contribute significantly to the heat deposition in the superconducting coils. In the future, with beams of higher brightness resulting in higher luminosity, distinguishing between these interaction products and dangerous quench-provoking beam losses from the circulating beams will be difficult. It is proposed to optimize by locating beam loss monitors inside the cold mass of the magnets, housing the superconducting coils, in a super-fluid helium environment, at 1.9 K. The dose then measured by such cryogenic beam loss monitors would more precisely correspond to the real dose deposited in the coil.

2012 Cryogenic Irradiation Test

C. Kurfürst, Cryogenic Beam Loss Monitoring for the LHC, PhD Dissertation, TU Vienna [[link](#)]

2014 Cryogenic Irradiation Test

A. Alexopoulos, Cryogenic Semiconductor Detectors: Simulation of Signal Formation & Irradiation Beam Test, Diploma Thesis, University of Thessaly, [[link](#)]

2015 Cryogenic Irradiation Test

Jupyter Notebook

Publications

- [[link](#)] : M. Bartosik et al, Beam Loss Monitors for the Cryogenic LHC Magnets, IBIC 2015
- More

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