



Contribution ID: 1347 Contribution code: MOPC10

Type: **Poster Presentation**

Dust-induced beam losses in the Large Hadron Collider

Monday, 20 May 2024 16:00 (2 hours)

Since the start of the Large Hadron Collider (LHC), dust-induced beam loss events resulted in more than hundred premature beam aborts and more than ten dipole quenches during proton physics operation. The events are presumably caused by micrometer-sized dust grains, which are attracted by the proton beams and consequently give rise to beam losses due to inelastic proton-nucleus collisions. Besides the events which trigger dumps or quenches, a large number of smaller dust events has been detected by the beam loss monitors every year. Although these events are not detrimental for physics operation, they are still carefully scrutinized as they give a better understanding about the correlation with beam parameters, about the long-term evolution of event rates, and about possible correlations with shutdown activities and the installation of new equipment. In this contribution, we present a summary of observations from the first three runs of the LHC.

Footnotes

Funding Agency

Paper preparation format

LaTeX

Region represented

Europe

Primary author: LECHNER, Anton (European Organization for Nuclear Research)

Co-authors: LINDSTROM, Bjorn (European Organization for Nuclear Research); Dr WIESNER, Christoph (European Organization for Nuclear Research); Dr WOLLMANN, Daniel (European Organization for Nuclear Research); IADAROLA, Giovanni (European Organization for Nuclear Research); BARNES, Michael (European Organization for Nuclear Research); BELANGER, Philippe (University of British Columbia & TRIUMF); Prof. SCHMIDT, Ruediger (Technische Universitaet Darmstadt); RODIN, Volodymyr (European Organization for Nuclear Research)

Presenter: RODIN, Volodymyr (European Organization for Nuclear Research)

Session Classification: Monday Poster Session

Track Classification: MC1: Colliders and other Particle and Nuclear and Physics Accelerators:
MC1.A01 Hadron Colliders