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Engineering studies on collimators for CERN's experimental areas

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In the framework of consolidation of the North Experimental Area at CERN, the 4-block secondary beamline collimators have been assessed with engineering studies and optimized for present beamline operation and future performance with higher beam intensities. Insights gained from experience and through an analysis of fault registration during operation, lead to improvements in the collimator mechanical design. FLUKA Monte Carlo simulations and finite element (FE) thermo-mechanical simulations were used to assess the performance of the collimator for the present beam characteristics. The simulations were cross-checked using experimental data from temperature sensors during beam testing. Similar FE studies using the Ansys software were conducted to assess the collimator limits for a future higher intensity beam. The results of these analyses are presented in this contribution.

Footnotes

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Europe

Primary author: ROMAGNOLI, Giulia (European Organization for Nuclear Research)

Co-authors: SANCHEZ GALAN, Francisco (European Organization for Nuclear Research); BUESA ORGAZ, Jan (European Organization for Nuclear Research); LENDARO, Jerome (European Organization for Nuclear Research); NEVAY, Laurence (European Organization for Nuclear Research); WEHRLE, Maud (European Organization for Nuclear Research); CHARITONIDIS, Nikolaos (European Organization for Nuclear Research); FOLCH, Ramon (European Organization for Nuclear Research); GIROD, Sylvain (European Organization for Nuclear Research); STERGIOU, Vasiliki (European Organization for Nuclear Research); MARCHAND, Vincent (European Organization for Nuclear Research)

Presenter: NEVAY, Laurence (European Organization for Nuclear Research)

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