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Conceptual design of the magnetised iron block system for the SHADOWS experiment

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The SHADOWS experiment is a proposed beam dump experiment in the CERN North Area, aiming to search for feebly interacting particles (FIPs) created in 400 GeV/c proton interactions. Due to its intended off-axis location alongside the K12 beam line, the SHADOWS detector can be placed potentially very close to the dump, enabling it to look for FIPs in non-covered parts of the parameter space. To guarantee a good quality of a potential signal, it is crucial to reduce any backgrounds of Standard Model particles as much as possible. The dominant background downstream the beam dump is caused by muons. This gives rise to introducing a dedicated muon sweeping system consisting of magnetised iron blocks (MIBs) to actively mitigate this background component. We present the conceptual design studies in the framework of the Conventional Beams Working Group of the Physics Beyond Colliders Initiative at CERN.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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