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Active Muon Shield for the SHiP Experiment at CERN

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The SHiP experiment is designed to search for very weakly interacting particles beyond the Standard Model which are produced in a 400 GeV/c proton beam dump at the CERN SPS. An essential task for the experiment is to keep the Standard Model background level low. In the beam dump, around 10ˆ11 muons will be produced per second. The muon rate in the spectrometer has to be reduced by at least four orders of magnitude to avoid muon-induced combinatorial background. It is proved that novel active muon shield may be used to magnetically deflect the muons out of the acceptance of the spectrometer.

The presentation will describe the idea of active shield, and recent results for its optimization using modern computing science approaches.

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