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Magnetic horn optimization

The magnetic horn, invented by Simon van der Meer over 50 years ago, has been used in essentially every neutrino beam line since its invention. Analytical calculation and some simulation work has been applied to horn design over the years. In this paper we show how, for the first time, computer-automated horn design optimization can be studied for implementation in a pion beam line like that in nuSTORM. The simulation uses new coding concepts and a massively-parallel computing environment.

Primary author: Prof. BROSS, Alan (Fermilab)

Co-authors: Dr ADEY, David (Fermilab);   Dr NEUFFER, David (Fermilab);   Dr STRIGANOV, Sergei (Fermilab)

Presenter: Prof. BROSS, Alan (Fermilab)

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