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Crystal assisted steering of muon collider beam

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The Muon Collider is an ambitious proposal to push the boundaries of high-energy physics beyond current limitations. By exploiting for the first time unstable fundamental particles such as muons, this collider combines the precision of electron/positron collider and the higher energy reach of hadron colliders.

Bent crystal had proven great utility for manipulation of ultrarelativistic beams in accelerators, such as beam extraction in U70, spin precession in Tevatron and beam collimation in LHC. In this contribution we investigate the potential of silicon and germanium bent crystals for steering 1.5 - 5 TeV muons, as first step for their potential integration in the future design of the muon collider. This study involves comparing the efficiency of various mechanisms for deflecting muons using bent crystals of both planar and axial orientation.

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