



Contribution ID: 2112 Contribution code: WEPM062

Type: **Poster Presentation**

Magnets for a muon collider

Wednesday, 10 May 2023 16:30 (2 hours)

The new interest for a muon collider has motivated a renewed and thorough analysis of the accelerator technology required for this collider option at the energy frontier. Magnets, both normal- and super-conducting, are among the crucial technologies throughout the accelerator complex, from production, through acceleration and collision. In this paper we initiate a catalog of magnet specifications for a muon collider at 10 TeV center-of-mass. We take the wealth of work performed within the scope of the US-DOE Muon Accelerator Program as a starting point, update it with present demands for the increased energy reach, and focus on the magnet types and variants with most demanding performance. These represent well the envelope of issues and challenges to be addressed by future design and development. We finally give a first and indicative selection of suitable magnet technology, taking into account both established practices as well as the perspective evolution in the field of accelerator magnets.

Funding Agency

Footnotes

on behalf of the Muons Magnets Working Group

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Yes

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Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T10: Superconducting Magnets