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Muon Colliders

Muon colliders have a great potential for high-energy physics. They can offer collisions of point-like particles at very high energies, since muons can be accelerated in a ring without limitation from synchrotron radiation. However, the need for high luminosity faces technical challenges which arise from the short muon lifetime at rest and the difficulty of producing large numbers of muons in bunches with small emittance. Addressing these challenges requires the development of innovative concepts and demanding technologies.

The document summarizes the work done, the progress achieved and new recent ideas on muon colliders. A set of further studies and actions is also identified to advance in the field. Finally, a set of recommendations is listed in order to make the muon technology mature enough to be favourably considered as a candidate for high-energy facilities in the future.

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Track Classification: Large experiments and projects