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## **【290】 Muon Collider Feasibility Studies: Collective effects and muon cooling**

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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 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. In this study we will present the challenges linked to the transverse collective effects in the muon collider cooling system.

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