

## 8th High Power Targetry Workshop (HPTW2023)



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# The Muon Collider Study: Challenges and perspectives

*Monday, 6 November 2023 10:45 (30 minutes)*

Following the 2020 update of the Strategy for Particle Physics, CERN initiated, under the auspices of the European Large National Laboratories Directors Group (LDG) a new International collaboration to progress on the feasibility studies of a Muon Collider at 10+ TeV with the goal of publishing a pre-CDR report in time for the next ESPPU at the end of the decade. The Collaboration elaborated a detailed resource loaded R&D roadmap necessary to prove the technologies involved, and is addressing the most urgent points on both the machine and detectors. The Collider aims at producing an integrated luminosity of 10 ab<sup>-1</sup> at 10 TeV, with an intermediate step at 3 TeV delivering 1 ab<sup>-1</sup>. The muon collider presents several challenges, starting from a production target that will have to sustain a deposited power of 2÷4 MW, Superconducting Solenoids with large field on axis (5÷40 T) and subject to heavy irradiation, RF acceleration in magnetic fields, fast acceleration to cope with the short lifetime of muons, and finally the need to keep under control the neutrino radiation on surface. In this talk I will give a brief overview of all those challenges with particular emphasis on beam intercepting devices.

Primary author

### Themes for the contribution

8 Multipurpose use of targets and beam dumps:

**Primary author:** LOSITO, Roberto (CERN)

**Presenter:** LOSITO, Roberto (CERN)

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