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High Power Targetry R&D needed for Muon Collider

The Muon Collider (MuC) promises to be able to extend the lepton-collider energy reach to much higher energies. To produce an acceptable muon current, a 1- to 4-MW proton beam at 5 to 20 GeV is required, with an optimum at 2 MW. Development of a target system capable of reliably withstanding such an intense beam is a substantial challenge. The initial plan is to consider use of solid graphite instead of mercury as the target material. Other options, such as other liquid metals or fluidized targets, will be considered. A R&D Phase will be conducted during ~ 7 years to choose the most reliable and efficient concept for muon production and support R&D on target materials through the RaDIATE (Radiation Damage In Accelerator Target Environment) collaboration. This R&D phase will be extended during the ~10-years Demonstrator Phase to support any materials and performance studies on the MuC beam intercepting devices, including production target, beam dump, etc...

This talk will present the R&D needs for High Power Targetry related as well as the different synergies through the RaDIATE Collaboration to support the Muon Collider requirements.

Primary authors: PELLEMOINE, Frederique (Fermilab -AD - TSD - TRD); YONEHARA, Katsuya (Fermilab); AMMIGAN, Kavin (Fermi National Accelerator Laboratory); BIDHAR, Sujit (FNAL)

Presenter: PELLEMOINE, Frederique (Fermilab -AD - TSD - TRD)

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