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Adaptation of the Fermilab proton source to support new muon facilities

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The PIP-II proton accelerator will provide the intensity sufficient to power a new generation of high energy facilities at Fermilab. Extension of that linac to higher energy with following acceleration and bunching rings could provide the intensity needed to feed a muon production target for a high-energy $\mu^+\mu^-$ collider. Scenarios using a rapid-cycling synchrotron or an ~ 8 GeV Linac are presented and discussed. Use of the existing Fermilab accelerators is also discussed. Support for other high-intensity experiments such as muon-ion collisions, neutrino sources and lepton flavor conservation is also considered.

Footnotes

Funding Agency

Paper preparation format

Region represented

North America

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