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Muon Production Challenges for High Energy Physics Applications

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Muon accelerators offer unique potential for high energy physics applications. Muon storage rings can provide pure, well-characterized and intense neutrino beams for short- and long baseline neutrino-oscillation studies, thus providing unmatched measurement precision for key parameters such as the CP-violating phase and a sensitive probe for new
physics. The large muon mass means that muon beams are not subject to the synchrotron radiation and beamstrahlung limits imposed on electron-positron colliders. Thus, muon beams can be efficiently accelerated to TeV-scale energies and stored in collider rings where the beams can interact for many revolutions. The crucial challenge, however, is producing sufficiently intense beams of muons with acceptable emittance to achieve these goals. This talk will provide an overview of the issues associated with the production of muon beams having the necessary emittance.

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