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Muon cooling progress and prospects for an S-channel muon collider Higgs factory

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Muon-based accelerators have the potential to enable facilities at both the Intensity and the Energy Frontiers. Muon storage rings can serve as high precision neutrino sources, and a muon collider is an ideal technology for a TeV or multi-TeV collider. Progress in muon accelerator designs has advanced steadily in recent years. In regard to 6D muon cooling, detailed and realistic designs now exist that provide more than 5 order-of-magnitude emittance reduction. Furthermore, detector performance studies indicate that with suitable pixelation and timing resolution, backgrounds in the collider detectors can be significantly reduced thus enabling high quality physics results. Thanks to these and other advances in design & simulation of muon systems, technology development, and systems demonstrations, muon storage-ring-based neutrino sources and a muon collider appear more feasible than ever before. A muon collider is now arguably among the most compelling approaches to a multi-TeV lepton collider and an S-Channel Higgs Channel.

Oral or Poster Presentation

Oral

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