

Abstract Submitted  
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**Muon Bunching and Phase-Energy Rotation for a Neutrino Factory and Muon Collider**<sup>1</sup> DAVID NEUFFER, CARY YOSHIKAWA, Fermilab — We have developed scenarios for capture, bunching and phase-energy rotation of muons from a proton source, using high-frequency rf systems. The method captures a maximal number of muons into a string of rf bunches with initial application in the neutrino factory design studies. For a muon collider, these bunches must be recombined for maximal luminosity, and our initial design produced a relatively long bunch train. In this paper we present more compact scenarios that obtain a smaller number of bunches, and, after some optimization, obtain cases that are better for both neutrino-factory and collider scenarios. We also consider further modification by incorporating hydrogen gas-filled rf cavities for bunching and cooling. We describe these examples and consider variations toward an optimal factory + collider scenario.

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