Draft Report of the MC Collaboration Meeting

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Abstract

The Collaboration meeting was held on June 11-12, 2003 at Columbia University, NY. The agenda of the meeting as well links to the presentations are at

`http://www.cap.bnl.gov/mumu/collab/collab-meet-030611.html.`

30 members were present. This report summarize the beginning discussion of a possible Study 3 within the context of an International Collaboration.

1 Introduction

B. Palmer focused the discussion on possible scenarios for study3. All these scenarios include the so-called *Neuffer Phase Rotation*[1] with a $180\,\pi$ mm acceptance, followed by a *pre-cooler*, a *sign-divider*, and either, cooling rings[2],[3],[4] or non-cooling at all. The next section is acceleration on FFAG[5] rings with $15\,\pi$ mm acceptance in the first case and $30\,\pi$ mm acceptance in the case of non-cooling.

Schematics representations are shown in the following three figures.

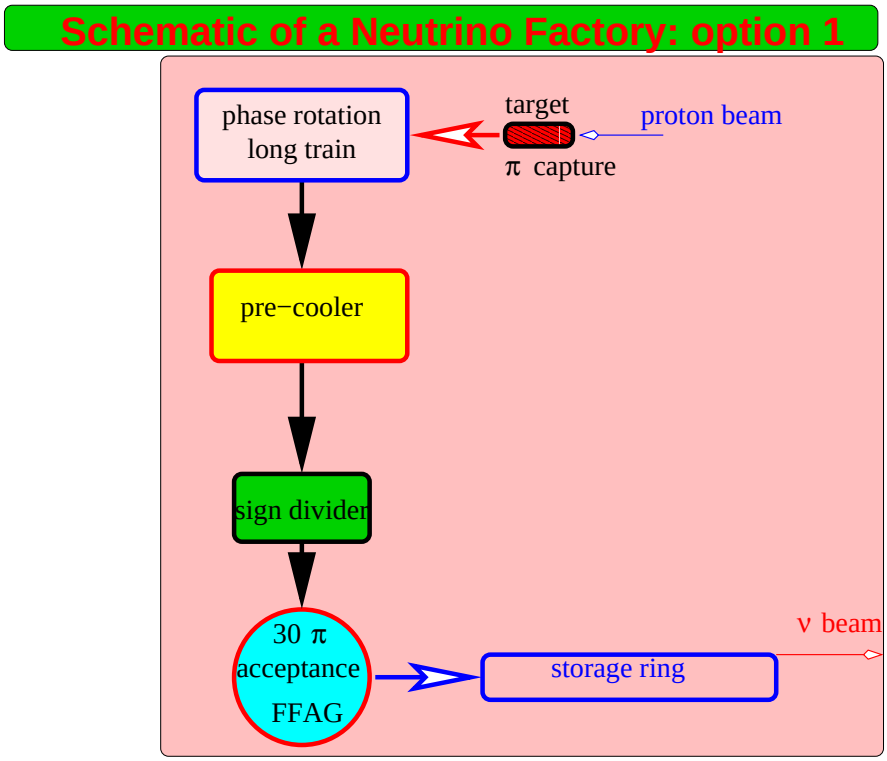

Figure 1: Option-1: Long train pulse with no-cooling needed. The FFAG accelerator has a large acceptance.

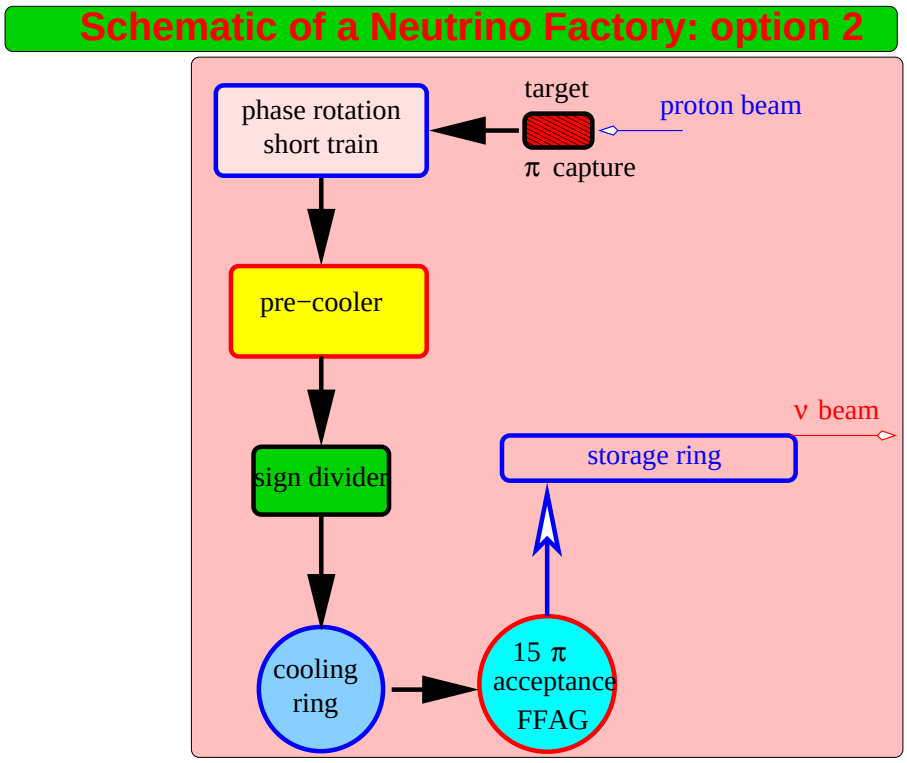

Figure 2: Option-2: Short train pulse, cooling ring and a low acceptance FFAG accelerator.

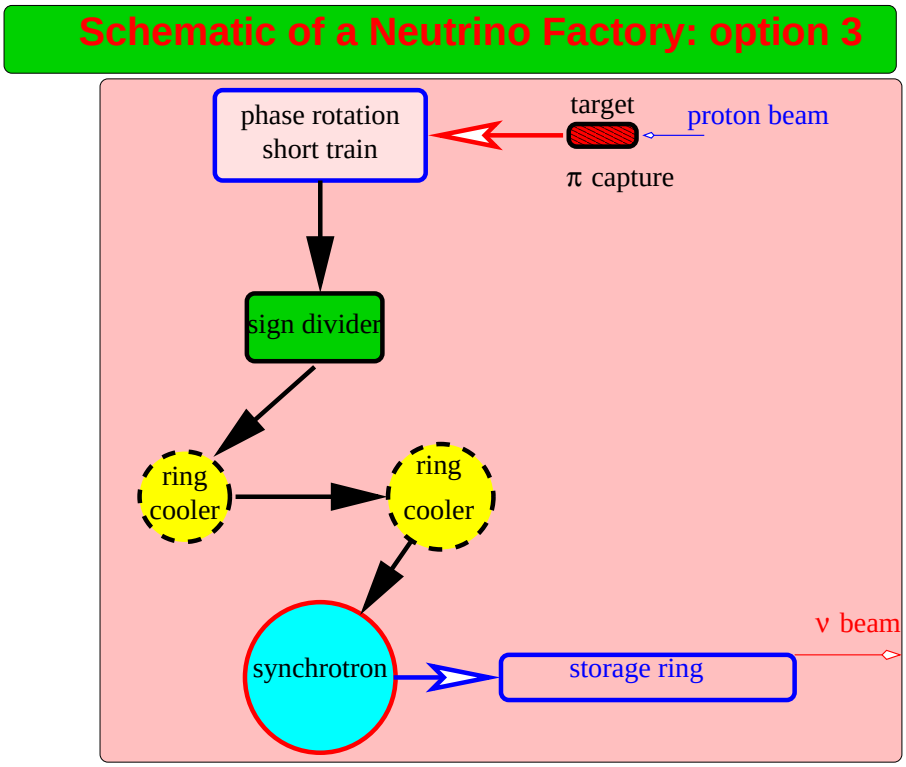

Figure 3: Option 3: This option requires two cooling rings as the acceptance of the fast ramping synchrotron[6] is $4\,\pi$ mm.

Bibliography

References

[1] D. Neuffer, *Exploration of the High-Frequency Buncher Concept* MUC-NOTE-COOL_THEORY-269, 2003; *Beam Dynamics Problems of the Muon Collaboration: ν-Factory and $\mu^+ - \mu^-$ Colliders* MUC-NOTE-COOL_THEORY-266, 2003; *High-Frequency Buncher and Phase Rotation for the Muon Source* MUC-NOTE-COOL_THEORY-181, 2000. All these papers and subsequent ones are available from

`http://www-mucool.fnal.gov/notes/noteSelMin.html`

[2] R.B. Palmer, et al., *An Induction Kicker for Muon Cooling Rings* MUC-NOTE-COOL_THEORY-256, 2002; R.B. Palmer, *Cooling Efficiency Factor* MUC-NOTE-COOL_THEORY-250, 2002; J.S. Berg, et al., *An alternating solenoid focused ionization cooling ring* MUC-NOTE-COOL_THEORY-239, 2002.

[3] V. Balbekov, *Cooling Channel with Lithium Lenses for a Muon Collider* MUC-NOTE-COOL_THEORY-277, 2003; *Cooling of a Compressed Bunch in the RFOFO Ring* MUC-NOTE-COOL_THEORY-276, 2003; *Bunch Compressor for a Muon Collider* MUC-NOTE-COOL_THEORY-272, 2003; *Simulation of RFOFO Ring Cooler with Tilted Solenoids* MUC-NOTE-COOL_THEORY-264, 2002; *Investigation of RFOFO Like Cooling Rings* MUC-NOTE-COOL_THEORY-263, 2002; *Ring Cooler Progress* MUC-NOTE-COOL_THEORY-246, 2002;

[4] R. Fernow, et.al, *Muon Cooling in the RFOFO ring* MUC-NOTE-COOL_THEORY-273, 2003; *Calculation of RFOFO fields using the off-axis expansion in ICOOL* MUC-NOTE-COOL_THEORY-268, 2003; *Realistic on-axis fields for the RFOFO cooling ring* MUC-NOTE-COOL_THEORY-265, 2002; *Hard-edge ICOOL model of the Balbekov square cooling ring* MUC-NOTE-COOL_THEORY-258, 2002.

[5] J.S. Berg, see publications at http://pubweb.bnl.gov/people/jsberg/.

[6] J.S. Berg , et al., *A Pulsed Muon Synchrotron for a Neutrino Factory* MUC-NOTE-COOL_THEORY-259, 2002