

A POSSIBLE MUON CHANNEL AT THE AGS AND
ITS RELEVANCE TO A PHASE III MUON CHANNEL AT NAL

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A Phase III* muon channel at NAL would be a more-or-less permanent muon facility at the 200-400 GeV machine. This facility would basically consist of a long quadrupole decay channel coupled at the front end to a production target. At the downstream end it would be coupled through a filter for strongly interacting particles to a muon experimental facility. The characteristics of such decay channels are well known and have been considered at some length both in their own right and with reference to neutrino beams in the 200 and 300 GeV machine studies.¹

Whether such a channel will be built depends on coupling to neutrino facilities and on the inherent interest in muon physics generated by Phase I and II experiments.

*Phase I = "simple, cheap" μ facility at NAL.

Phase II = second-generation μ facility at NAL.

Phase III = advanced, "expensive" μ facility at NAL.

A more fruitful direction of development than consideration of such a facility is suggested by current development plans for the slow extracted beam (SEB) at the AGS. From a systems viewpoint the SEB transport is identical to a muon facility. A long transport channel defined by switching magnets at either end is coupled to a target at the upstream end and to an experimental facility at the downstream end. By foresight in the choice of magnet apertures and spacings in the proton transport it may be possible to obtain a muon capability in the same channel. In this way a Phase III muon facility could be obtained as early as Phase I at little extra cost above that of the straightforward proton transport. This muon/proton channel compatibility is being pursued with respect to the extension of the SEB at the AGS.

REFERENCES

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