High-Power Targets for a Neutrino Factory

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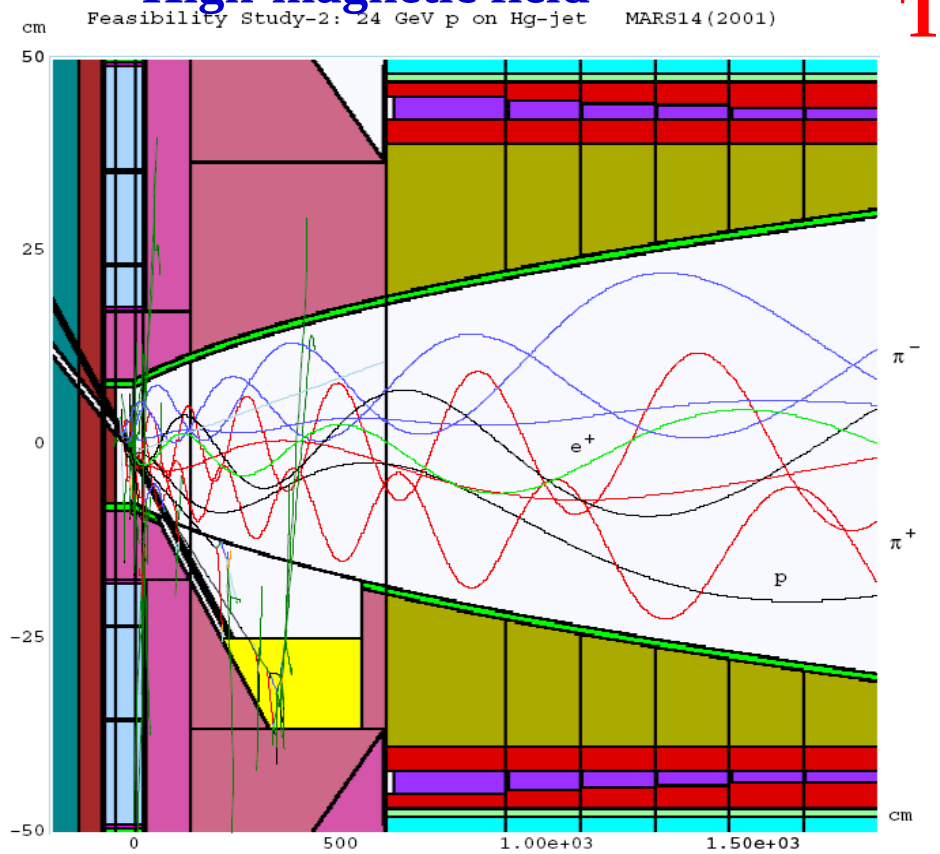
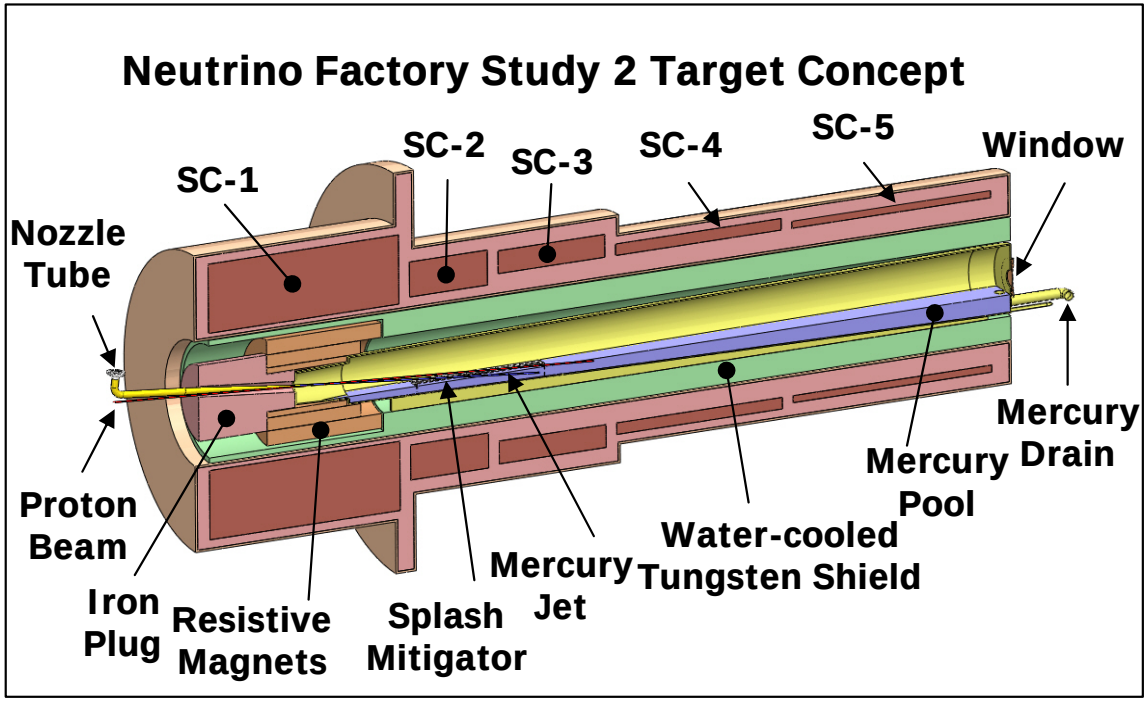
Maximize pion/muon production

- Soft-pion production
- High-Z materials
- High-magnetic field

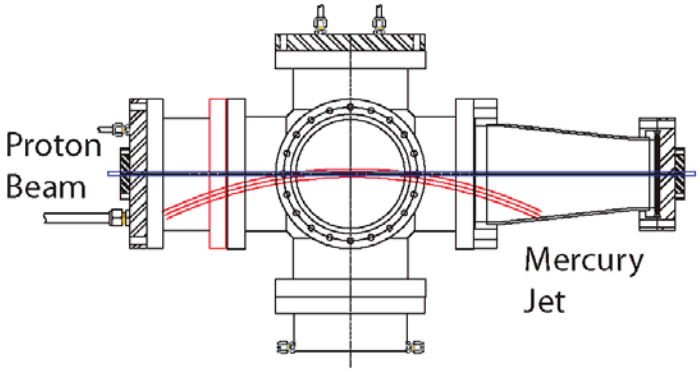


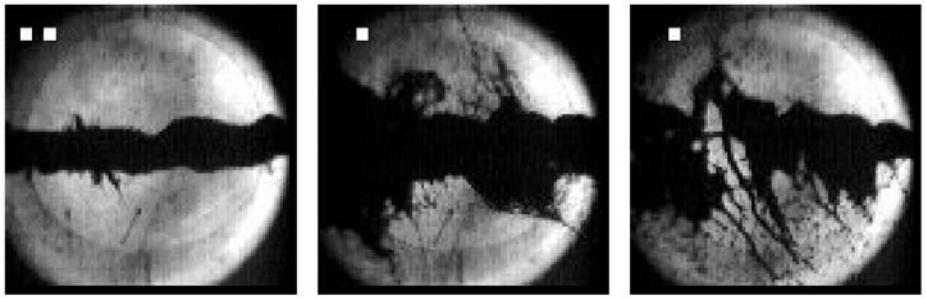
The Neutrino Factory Target Concept:



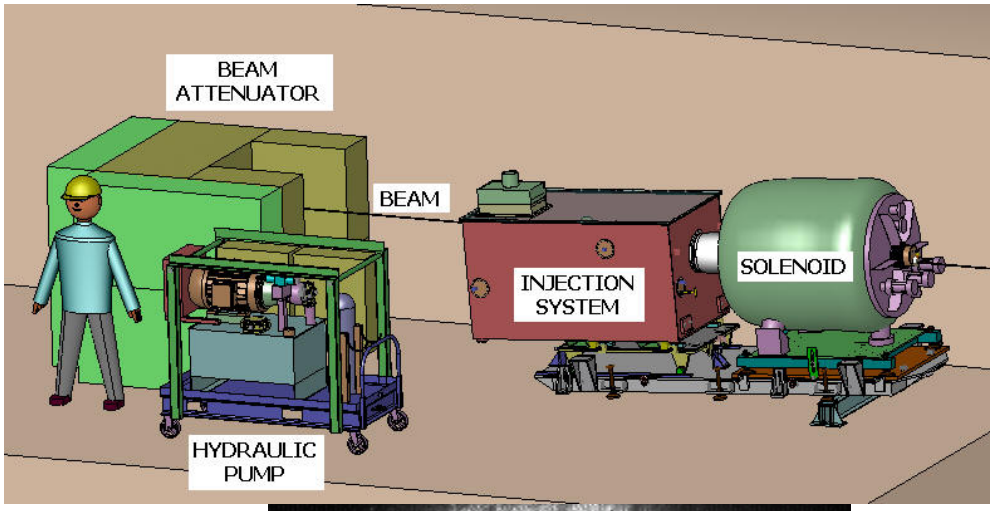
The Experimental Program

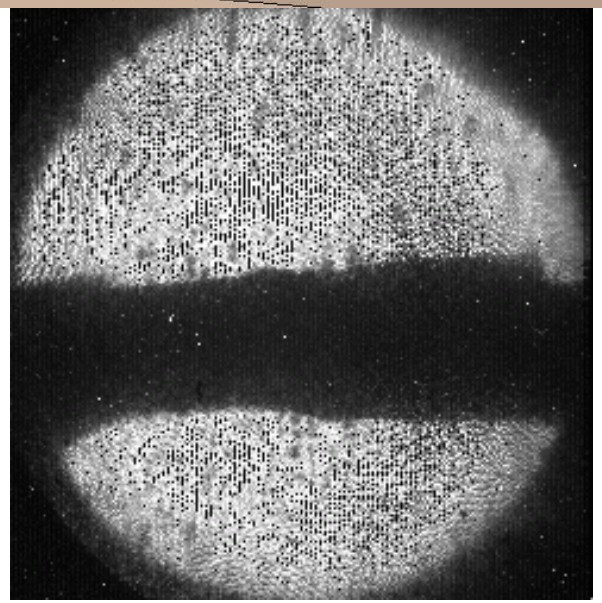
AGS E951 Experiment At BNL





MERIT Experiment at CERN





Key Result: The mercury jet target concept has been validated for beam powers up to 7 MW.

Toward a 4 MW Target System

Key Engineering Issues:

- **Shielding the Superconducting Coils.**
  - **½ to 2/3 of the 4 MW beam power deposited in the inner shielding protecting the SC coils.**
- **Designing the CW mercury-handling system, including the free jet and beam dump.**
- **Designing a mercury-jet nozzle capable of delivering a stable 20 m/s mercury jet.**