Fermilab's Proton Driver Plan

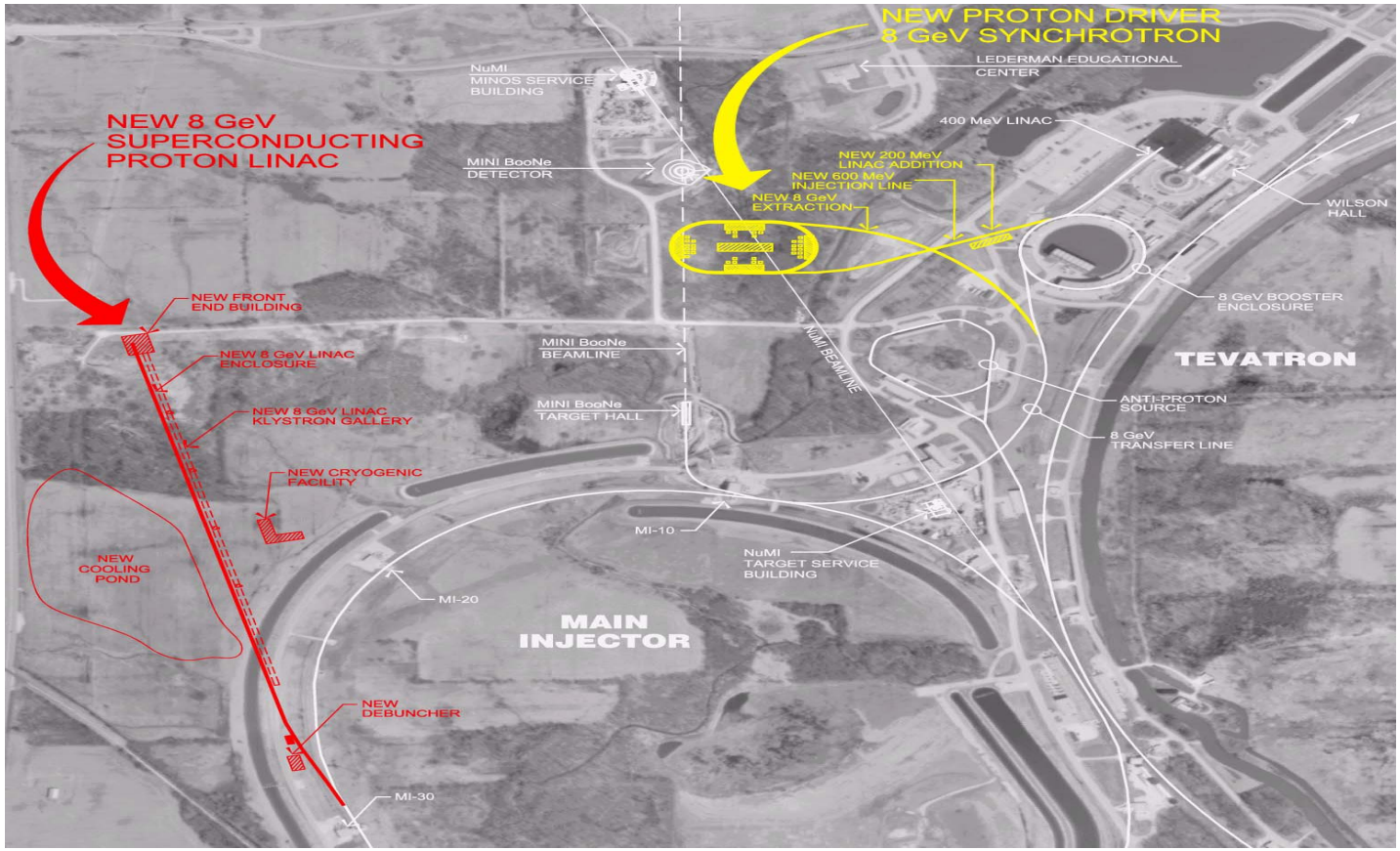
- Fermilab Long Range Planning Committee has recommended the Proton Driver as a future construction project at Fermilab.
- The Proton Driver project is defined as:

  "a complete replacement of our current 400 MeV linac and 8 GeV Booster, accompanied by Main Injector upgrades."

- Major parameters:
  - New Proton Driver: 8 GeV, $\geq$ 0.5 MW
  - Upgraded Main Injector: 8 - 120 GeV, 2 MW
  - Total beam power: $\geq$ 2.5 MW

Proton Driver Study II

(Fermilab-TM-2169)



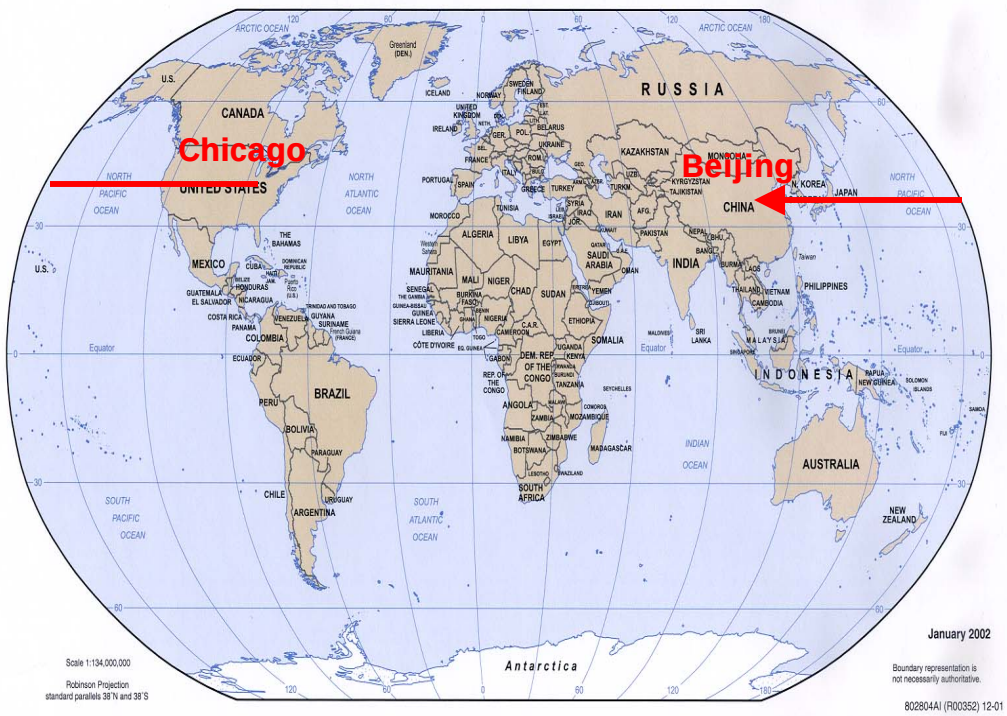
Fermilab-Beijing
Long Baseline Neutrino Experiment

- An appealing scenario:
  - A large underground detector in Beijing
  - A neutrino beam from Fermilab to Beijing (~9400 km)
  - A neutrino beam from JPARC to Beijing (~2100 km)
- This would be the first truly international HEP experiment.
- Physics cases are strong and even unique in this "9400 km + 2100 km" 2-baseline experiment, for example:
  - The longer baseline good for $\sin^2(2\theta_{13})$ and ΔM^2
  - The shorter baseline good for CP violation

JPARC/Tokai–Beijing Long Baseline

Fermilab–Beijing Long Baseline

Fermilab Proton Driver: 120 GeV protons (2 MW) → ν to Beijing



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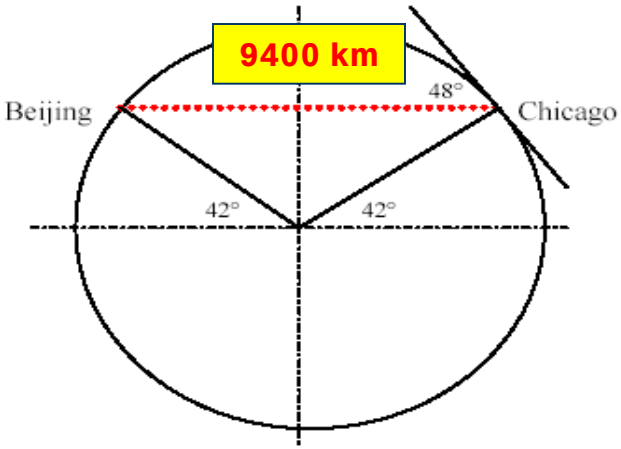
Beijing	39:55:00 N	116:23:00 E
Tokyo	35:41:00 N	139:44:00 E



This Meeting

- An opportunity for the IHEP group and Fermilab group to know each other.
- Fermilab presentations:
  - Physics cases: Adam Para and Fritz DeJongh
  - Beamline: Dixon Bogert
  - Tunneling: Chris Laughton
- We will also discuss: what's next?