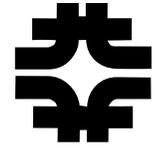


# Introductory Remarks

Steve Holmes

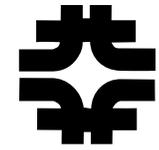
Project X Workshop  
Fermilab  
November 12-13, 2007

# Outline



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- Welcome to Fermilab
  - Context: Strategic Planning Steering Committee Report
  - Next Steps
  - Goals of the Workshop

# Welcome to Fermilab



# Context



## Fermilab Strategic Planning Steering Group

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- In February, following receipt of the ILC Reference Design Report, Ray Orbach requested a dialog with the HEP community:  
*“...I would like to re-engage HEPAP in discussion of the future of particle physics. If the ILC were not to turn on until the middle or end of the 2020s, what are the right investment choices to ensure the vitality and continuity of the field during the next two to three decades and to maximize the potential for major discovery during that period?”*
- In consultation with HEPAP, Pier Oddone established a strategic planning “Steering Group” in March.
  - Chaired by Young-Kee Kim
  - Membership drawn from both Fermilab and national communities
  - Focus on accelerator based elementary particle physics
  - Report issued early September

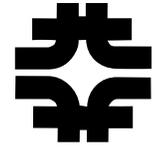
[http://www.fnal.gov/directorate/Longrange/Steering\\_Public/](http://www.fnal.gov/directorate/Longrange/Steering_Public/)

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# Fermilab Steering Group

## Guiding Principles

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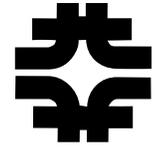


- LHC is the most important near term program element.
    - It is essential to support the accelerator and detector upgrades.
  - The particle physics community's highest priority for the future is ILC.
    - Fermilab will continue to participate vigorously and provide leadership within the international R&D effort;
    - We will strive to make the ILC at Fermilab a reality
  - There must be an intermediate science program in case ILC construction is delayed beyond the GDE timeline. The program needs to provide:
    - Great discovery potential;
    - Support for the timely realization of the ILC;
    - R&D on future accelerators beyond the ILC and LHC;
    - Strengthen Fermilab ties with the university community and with other laboratories; and
    - The plan must be robust and flexible.
-

# Fermilab Steering Group

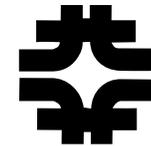
## The Roadmap

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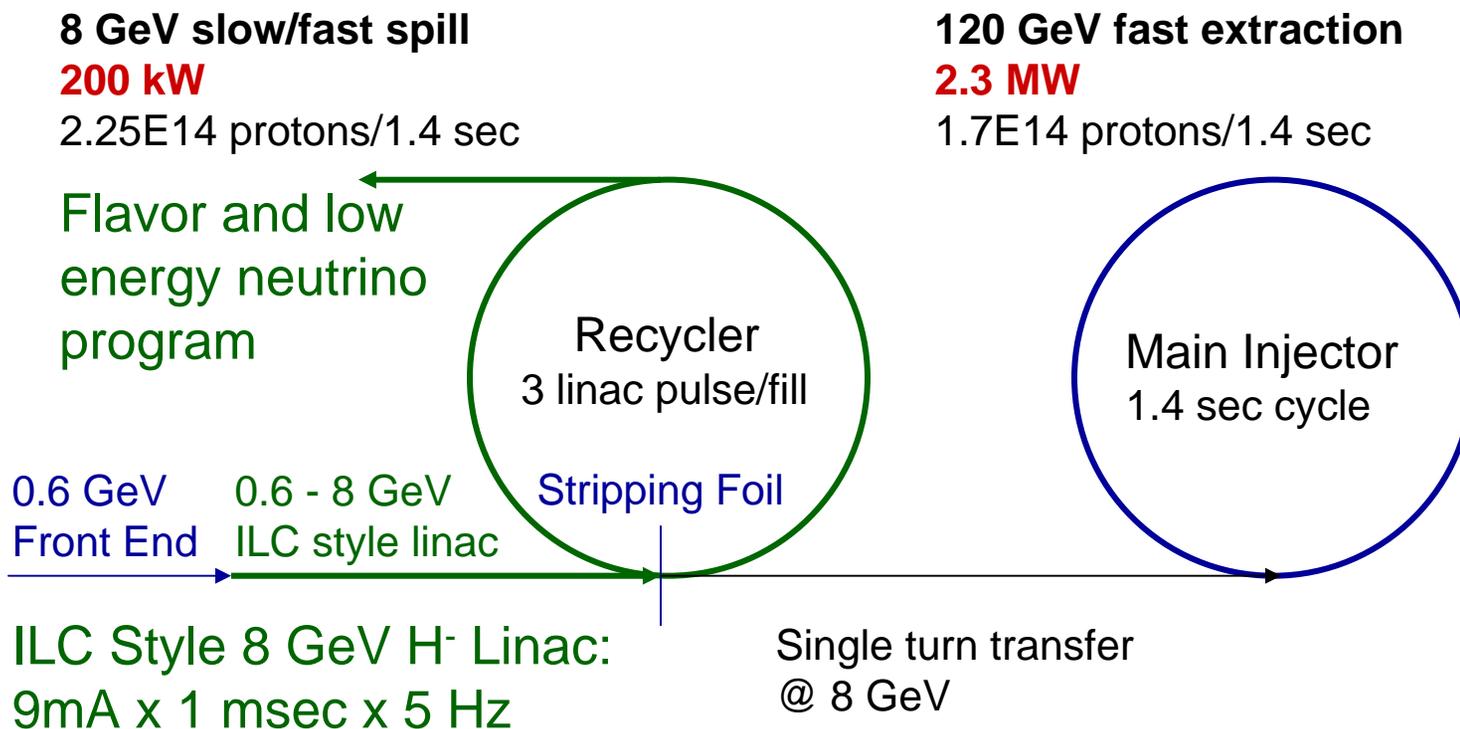
- Fermilab's highest priority is discovering the physics of the Terascale by participating in LHC, being one of the leaders in the global ILC effort, and striving to make the ILC at Fermilab a reality.
- Fermilab will continue its neutrino program with NO $\nu$ A as the flagship experiment through the middle of the next decade.
- Scenario 1 (ILC construction near the GDE proposed timeline)
  - Fermilab will focus on the above programs
- Scenarios 2 & 3 (ILC delayed)
  - Fermilab should extend our neutrino and flavor physics opportunities by upgrading the proton accelerator complex.
  - Modest delay  $\Rightarrow$  SNuMI
  - If ILC delay would accommodate an interim major project  $\Rightarrow$  Project X

# What is Project X?



Project X is a proton facility that could provide world leading reach in neutrinos and rare decays.

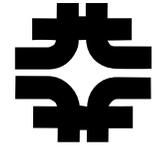
NO<sub>v</sub>A initially,  
DUSEL later?



# Fermilab Steering Group

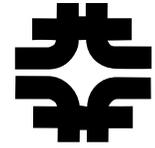
## The Roadmap

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- Scenario 4 (ILC constructed off-shore or energy deemed insufficient)
  - Do SNuMI at a minimum.
  - Do Project X if resources are available and ILC timing permits.
- **In all scenarios,**
  - **Provide support of Project X R&D starting now with emphasis on:**
    - expediting R&D and industrialization of ILC cavities and cryomodules
    - overall design of Project X (by 2010)
  - increase R&D for future accelerator options concentrating on neutrino factory and muon collider.
  - support detector R&D for effective use of future facilities

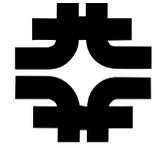
# Roadmap Next Steps



- Reviewed by Fermilab advisory committees:
  - AAC in August, PAC in November (last week)
- Fermilab request to DOE for R&D funds (starting FY09)
- HEPAP/P5 will be asked to review and make recommendation on R&D funding
  - Initial presentation to P5 in September
- Project X physics case is extremely important => companion workshop(s) November 15-16 (@Fermilab)
- We (Fermilab) do not have resources (people) to undertake the Project X R&D and design on our own, and fulfill our other commitments.

⇒ **We need collaborators on R&D, design(, and construction if this were to go ahead)**

# Goals of this Workshop



- Introduce the accelerator community to the current concept for Project X and our preliminary identification of issues.
  - Develop a common understanding of performance issues and systems requirements.
- Identify capabilities/interests outside Fermilab that could be brought to bear on the design/R&D phase.
  - **Primary deliverable of each working group.**
  - Fermilab's intention is that Project X design and R&D programs utilize significant participation from outside the laboratory.
  - Ultimate goal is to assign complete/self-contained sub-systems to collaborators.
- The purpose is not to divide up the work (yet), nor to solve technical problems (although not forbidden)

**Welcome and we look forward to working together!**