

Long Range Planning
Proton Driver Open Session
Introduction

Bob Kephart

Oct 9, 2003

Outline

- **Long Range Planning Process**
- **Charge and Working Groups**
- **Proton Driver Subcommittee Membership**
- **Technical Advisors and Participants**
- **Proton Driver Meetings and Topics**
- **Purpose of the open session & Agenda**

Fermilab: Long Range Planning

- **In April of 2003 the Fermilab Director formed a committee to provide advice on the long range scientific program of the laboratory**
- **The membership of the LRP committee and its charge can be found at this web site:**
http://www.fnal.gov/directorate/Longrange/Long_rang_planning.html
- **Excerpt from the charge to the LRP committee...**

LRP Committee Charge

“I would like the Long-range Planning Committee to develop in detail a few realistically achievable options for the Fermilab program in the next decade under each possible outcome for the linear collider. The goal in developing each option should be to optimize the opportunities available at Fermilab in this period for high energy physicists to answer the most important questions in our field. The options should be guided by the priorities for the field as laid out in the HEPAP Subpanel and in the HEPAP response to the Office of Science on the facilities plan.”

Working groups

- To address this broad charge the LRP committee formed working groups
- Input from the community in the LRP process is crucial, hence these open sessions
- Today you will hear about the activities of the Proton Driver Working Group



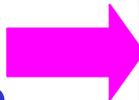
Fermi National Accelerator Laboratory

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Fermilab Long Range Planning Committee Working Groups

| | |
|---|---|
| Physics Working Group Convenor: Chris Hill Documents | Neutrinos Working Group Convenor: Gary Feldman Documents |
| Linear Collider Working Group Convenor: Steve Holmes Documents | Large Hadron Collider Working Group Convenor: John Womersley Documents |
| Proton Driver Working Group Convenor: Bob Kephart Documents | Accelerator R&D Working Group Convenor: Steve Geer Documents |
| Particle Astrophysics Working Group Convenor: Josh Frieman Documents (when available) | Non-(Particle Physics) Working Group Convenor: Joel Butler Documents |
| Resources Working Group Convenor: Hugh Montgomery Documents (when available) | International Lab Issues Working Group Convenor: Documents (when available) |



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LRP:PD Subcommittee Membership

Bob Kephart, chair

Steve Geer

Chris Hill

Peter Meyers

Sergei Nagaitsev

It rapidly became clear to the subcommittee that to explore the various technical issues and make sensible recommendations the subcommittee needed:

- 1) Expert Technical Advisors**
- 2) Presentations from technical experts and proponents**
- 3) Expert participants at the working group meetings**

LRP:PD subcom Technical Advisors

Dave Finley

Past BD Head (proton economics)

John Marriner

Past BD Head

Shekar Mishra

Past deputy head MI project

Victor Yarba

SCRF R&D (started TD RF group)

Proponents

Weiren Chou

Synchrotron based Proton Driver

Bill Foster

SCRF Linac based Proton Driver

LRP:PD participants/meetings

- **Expert Participants**
 - There are 27 additional people on the PD meeting distribution list.
 - Many made presentations or important contributions to the meetings
- **Have had a series of 12 meetings**
 - Well attended
 - 3 joint meetings with other LRP sub committees
- **One of our first tasks was to make a work plan (posted on the web)**

Work Plan: Meeting Topics

- **Organization meetings, Work Plan**
- **Physics arguments for a new proton source**
- **Proton needs of various future experiments**
- **Proton Driver Technology choices**
 - Synchrotron version of PD
 - SC Linac version of PD (relevance to LC R&D)
- **Required R&D for each technology choice**
- **Changes required to the Main Injector for MW beams**
- **Technology for Targeting MW beams**
- **Existing SCRF R&D program at FNAL**
- **Discussed relationship of a Proton Driver to:**
 - Accelerator R&D at FNAL
 - Linear Collider R&D
- **Discussion of Proton Driver subcommittee contribution to LRP committee final report**
- **Discussion of “Prototype Recommendations”**

Today's Open Session

- **We have arranged a series of talks today to summarize the information in these presentations and discussions**
 - Necessarily compressed (>18 hrs → 3 hrs)
- **At the end of these presentations I will show a set of “prototype-recommendations” from the Proton Driver working group**
- **You should consider these recommendations as a “work in progress” report from the subcommittee, and not yet the recommendation of the full LRP committee.**
- **The goal of this open session is to involve the larger FNAL community in this discussion, listen to your comments or concerns, and hopefully benefit from your wisdom in forming the final LRP committee recommendations.**

Agenda

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|--|-------------------|----------------|
| Introduction | R Kephart | 10 min. |
| Physics opportunities | P. Meyer | 30 min. |
| Proton needs vs limitations of existing Proton source | D. Finley | 20 min. |
| Synchrotron based PD | W. Chou | 30 min. |
| Coffee Break | | 10 min. |
| SCRF LINAC based PD | B. Foster | 40 min. |
| Changes required in MI | S. Mishra | 20 min. |
| Prototype recommendations & Discussion | R. Kephart | 20 min. |
| Reception at 5 PM | | |