

ACCELERATOR R&D

P5 @ BNL

3/6/08

INTRODUCTION - AARD

[AARD = Advanced Accelerator R&D]

- 2005 - 2006 a HEPAP Sub-Panel chaired by JAY MARX examined this subject in depth and reported in a very accessible manner:
 - <http://accelerator-rd.org/>
- We adopt their definitions of the 3 categories of AARD
 - *short term*: for planned or approved new facilities or upgrades of operating facilities
 - *medium term*: to bring new concepts to practice so that they can be considered for the design of a new facility
 - *longer term*: exploratory research aimed at developing new concepts for acceleration, new magnet and rf technologies, new materials and scientific understanding of core materials and advanced simulation techniques.
Training of new researchers is important part of all

- We address only *MEDIUM & LONGER* term R&D
- In our new environment, means for addressing each of these adequately need to be developed
- We hope that P5 will make a start on the solution
- Remembering that the frontiers of accelerator based particle science are paced by our accelerator capabilities, we present examples of *longer term* and *medium term* AARD, their prospects and potential timelines and then a broad *overview* of AARD + the current support situation and needs *in this challenging period of transition*
- 1. *New acceleration methods*: **Wim Leemans** LBNL
 2. *Muon Collider*: **Bob Palmer** BNL
 3. Summary Overview **Maury Tigner** Cornell