



U.S. DEPARTMENT OF
ENERGY

Office of
Science

National Academy of Sciences Decadal Survey HEP Remarks

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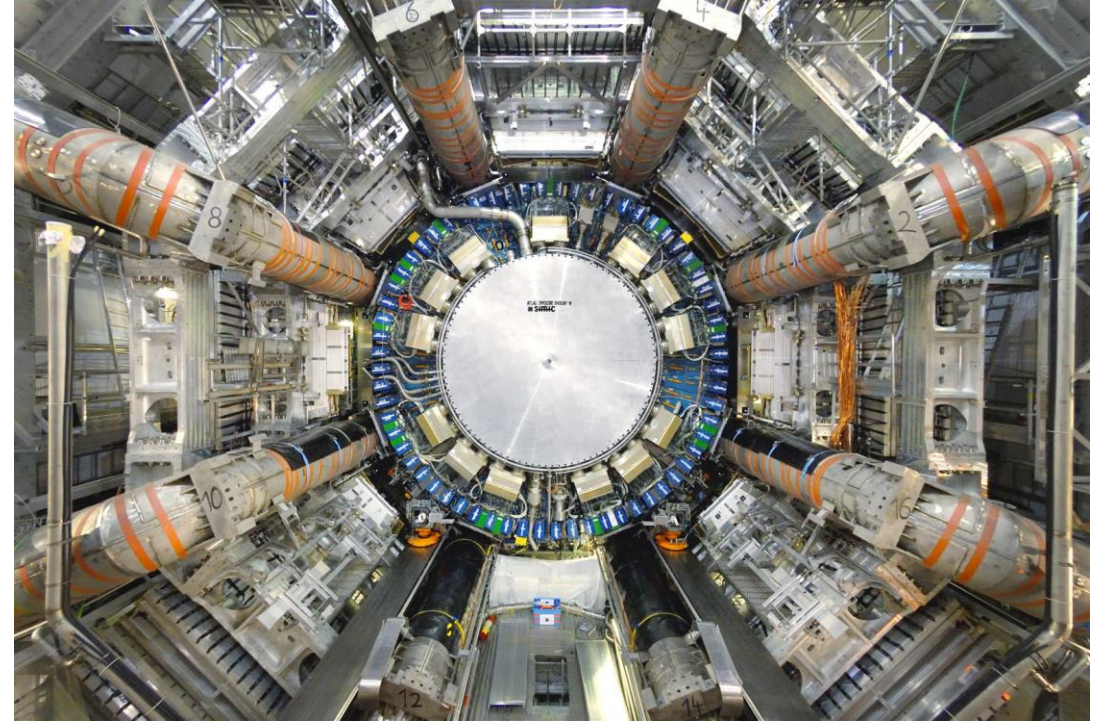
Director, Research and Technology R&D

DOE HEP

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Strategic Planning Roles and Responsibilities

- Overall goal is a community-led and externally vetted strategic plan for HEP science for next 2-3 decades
- Snowmass and NAS to address science opportunities in HEP
- Snowmass/NAS study are inputs to P5
- Snowmass will be largely HEP community view, we look to NAS to bring in other viewpoints, other fields of science, “outside the box” thinking
 - i. Past successful example of this would include *Quantum Universe* and *Quarks to Cosmos* studies
- P5 will look at specific projects within specific budget guidance, and related topics



Overview of the Charge Elements

1. Identify the fundamental questions in particle physics that could motivate research in the next decade and beyond, irrespective of the tools and techniques to address them.
2. Distinguish which of these questions could be addressed with available experimental and theoretical tools in the coming decade and which could require new techniques or approaches.
3. Suggest technical research areas that could provide particle physics with new tools needed to enable new techniques and approaches.
4. Suggest different ways of thinking and alternative approaches from other areas of science that could be incorporated into and benefit the overall particle physics enterprise.

Fundamental Questions

1. Fundamental Questions

- Can include topics beyond the current P5 drivers if the science motivates it
- Discussion of how these topics relate to, or complement the P5 drivers, is welcome



Technical Readiness

2. Technically Achievable vs. Needs More Work

- This is about technology and capabilities, not cost, siting, etc.
- State assumptions as appropriate, especially if capability does not currently exist



R&D Directions

3. Suggest R&D to get to the next stage

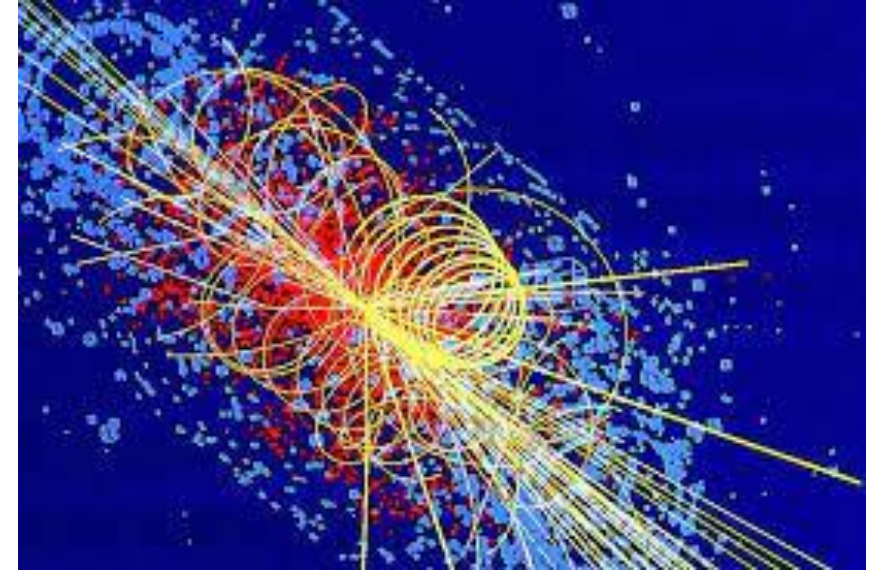
- This should be involved by other relevant studies (in DOE, this includes e.g. HEP Detector Basic Research Needs study, Accelerator R&D technology roadmaps, etc.). If further studies are needed please identify gaps.
- Having an established technology roadmap is a plus
- Having an established, technically-limited timetable to get to demonstrators (if needed) is a plus



Alternative Approaches

4. Alternative Approaches

- This one is pretty open-ended
- The point is not to re-invent HEP for the 21st century but to open up the window to new possibilities





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