

Neutrino Frontier working group of the Scientific Advisory Committee

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Wednesday April 5th

Goals of the scientist retreat

- To get people to talk about their views on the long-term plans for the laboratory's research program:
- To collect input on the
 - Fermilab 10-year plan (pre-2026),
 - The longer range outlook (post-2026)
- To facilitate communication between different groups at the lab related to long-term goals (e.g. for accelerator physicists to learn what HEP physicists are wanting to do and visa versa)

Output of the scientist retreat

- A schedule of events or work that needs to take place in order for Fermilab to give input to the next P5 process (~2021), including how to organize ourselves
- In addition, even if early we would like to start on the following:
 - A start on a list of possible long-term lab goals
 - A start on an estimate of what new work or input is needed to decide how to prioritize those goals (e.g. results from a currently running experiment, new R&D, etc)

Neutrino Working Group

- The All scientist retreat will be May 4th and we aim will have two Neutrino working sessions before that
- Second NWG session scheduled for April 17th, which we will confirm with details closer to the time
- Durning this second session we will encourage people to give 2-3 slide presentations about other research/projects they want to pitch
- A summary of the Neutrino Science Plan that we develop based on these sessions will be shown at the retreat
- We have setup a listserv (SAC_NEUTRINOS@fnal.gov) for the Neutrino Science Working Group. You can sign up on the URL: <https://tinyurl.com/lazz49v> spreadsheet or directly at listserv.fnal.gov

Goals for today

- We have DUNE as the future flagship experiment for the lab and have neutrino research a dominant part of the lab's long-term future, they have requested that lab scientists help develop a coherent narrative for that program.
- First three short presentations on the current and planned program
 - Alex Himmel: Long baseline experiments
 - Michael Kirby: Short baseline experiments
 - Tingjun Yang: ProtoDUNE and DUNE
- The remaining meeting time will be reserved for discussion and additional ideas/proposals people might have.

P5-Particle physics project prioritization panel

https://science.energy.gov/~media/hep/hepap/pdf/May-2014/FINAL_P5_Report_053014.pdf

- Community wide effort to produce a develop a clear vision for the future
- Report was released in 2014 but it was multi year effort to produce it.
 - P5 take 2 process to start around 2021
- Laid out the communities priorities for the next 10 years
- The P5 plan balanced investments between research at leading universities and laboratories throughout the country and overseas, and the construction of new U.S. facilities.
- The P5 report worked with two constrained budget Scenarios, and a third, unconstrained Scenario.
 - This effort is focusing on the science not on the budget



U.S. Particle Physics: Building for Discovery

U.S. Particle Physics Strategy

Education and Outreach Site



[http://
www.usparticlephysics
.org/](http://www.usparticlephysics.org/)

P5-Particle physics project prioritization panel

The report was received very well by all parties not only the DOE but also within congress

- FY 2014 House Energy and Water Development Appropriations Report: – “the **Committee supports** the Office of Science’s challenge to the High Energy Physics community to identify an LBNE construction approach that avoids large out-year funding spikes or to identify viable alternatives with similar scientific benefits at significantly lower cost.”
- FY 2015 House Energy and Water Development Appropriations Report: – “The Committee notes that the high energy physics research community is currently engaged in developing a ten-year plan for U.S. particle physics, which will include a ten-year report by the Particle Physics Project Prioritization Panel under various budget scenarios. **The Committee applauds the Department for this undertaking . . .**”
- FY 2016 House Energy and Water Development Appropriations Report: – “The Committee **strongly supports** the Department’s efforts to advance the recommendations of the Particle Physics Prioritization Panel and urges the Department to maintain a careful balance among competing priorities and among small, medium, and large scale projects.⁷

P5-Particle physics project prioritization panel

P5 in fact is so popular it is now being written into law ‘**Department of Energy Research and Innovation Act**’ passed House under unanimous consent January 2017

The bill would formalize the inclusion of P5 report into the office of science planning and direct the office of science to ensure international collaboration, neutrino research, dark energy and dark matter research.

Text from FY 2017 House Bill: SEC. 305. HIGH-ENERGY PHYSICS.

- (a)
 - (1) It is the sense of Congress that the Director should incorporate the findings and recommendations of the report of the Particle Physics Project Prioritization Panel entitled “Building for Discovery: Strategic Plan for U.S. Particle Physics in the Global Context” into the planning process of the Department;
 - (2) the nations that lead in particle physics by hosting international teams dedicated to a common scientific goal attract the world’s best talent and inspire future generations of physicists and technologists.
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- (c) Neutrino Research. The Director shall carry out research activities on rare decay processes and the nature of the neutrino, which may include collaborations with the National Science Foundation or international collaborations.