



Managed by Fermi Research Alliance, LLC for the U.S. Department of Energy Office of Science

Precision Science FY19 Kickoff Meeting

Chris Polly

April 3, 2019

Charge from Scientific Advisory Council

- Prepare for next all-scientist retreat → establishing inputs for the upcoming Snowmass and next P5 report for 2026 and beyond

Part I Charge for Frontier Groups (cosmic, energy, neutrinos, precision) :

Prioritization of Fermilab effort

Timescale: Deliver draft by May 1, 2019

Based on the list of post-2026 experiments as determined in the 2018 retreat, and including any new efforts that have developed since that time, assign a priority of high, medium or low (*priority levels are defined below*) for the following two cases:

1. Which experiments are most important for advancing your sub field?
2. Of these items, which efforts should Fermilab contribute to?

For each item, list the goal (i.e. discovery, limit, potential) that item enables and what factors made you rank it as you did.

In producing this list we expect you to facilitate discussions and seek input from working group participants, colleagues based both at and outside Fermilab, utilize input from the community white papers written for the European Strategy, and the written materials and discussion from the preceding retreats, etc.

Charge from Scientific Advisory Council

Part II Charge for All Working Groups: Resource Identification

Timescale: Present June 14, with continued efforts feeding into Part III

Working group leaders of the Frontier Physics and Technology groups will arrange discussion to identify required capabilities to enable the goal (i.e. discovery, limit, potential) of the high priority future efforts. In cases where the required capabilities are not yet clear, facilitate discussion on what is needed to identify or choose the critical capabilities. Describe how these capabilities enable specific scientific or technological goals and answer the following questions:

1. For high priority items identified from the Part I charge, what required capabilities should Fermilab bring to these efforts?
2. Does the expertise exist at the lab to deliver on these items?
3. What additional expertise would be needed at the lab, and what can be done to rectify the situation ?

Consider all needed resources, including facility construction/upgrade, R&D, computing new physics knowledge, etc.

Part III Charge for All Working Groups: Fermilab input to the Community

Timescale: Continuous efforts pre and post retreat with report in Fall

For high priority items identified in Parts I & II, discuss what is needed to engage the larger community. Consider what process or metrics will be used to determine whether these are the best projects for the future and/or to decide between different high priority options. How can we enable Fermilab to take part in these efforts?

As examples, consider setting up monthly meetings, organizing working groups, defining specific studies, writing a white paper, taking part in community planning efforts such as Snowmass, etc.

<https://docs.google.com/document/d/1tiY3XKHgYOfT-NUJO7zWuCVRrBQKq8BbkfixRmbggXo/edit?usp=sharing>

Timeline recap

- SAC
 - May 1: Part I of charge for prioritized list of experiments
 - June 14: Resource identification
 - June 14: Scheduled data for the next all-scientist retreat
 - Fall: Produce written report
- Snowmass
 - April 13 (5-7 PM): Town hall at DPF to discuss timeline scope format for next Snowmas
 - Series of town hall meetings
 - ~2020 for next Snowmass
- Our goal should be to participate in the local laboratory effort in the short-term, but more generally think about how we can help enable compelling experiments
 - Fermilab SAC process is somewhat focused on understanding what FNAL scientists want to work on in the coming year. Appropriate for any institution to understand the research interests of its PIs.
 - However, generally speaking, experiments get on the roadmap through a process of forming a collaboration that spans multiple institutions, building the science case, working out the details needed for a believable proposal, and communicating the opportunity to the broader community.