

**Summer 2021 PAC Meeting: draft charge**  
**May 12<sup>th</sup>, 2021**

**1. Report on EDI activities at the laboratory**

Charge: We ask the committee to review the EDI activities at the laboratory and the Fermilab's plans to lead the field in fostering equity, diversity, and inclusion.

**2. Status of the SQMS Center**

Charge: We ask the committee to review the status of the SQMS Center and of the recommendation made at the December 2020 PAC meeting:

- "Given the very ambitious goals, aggressive schedule, and strong competition in this area overall, the project poses some major challenges and connected risks. For example, the hiring plan to fill ~20 positions by September 2021 is very important and could cause delays if this goal is not reached. We therefore recommend that risks and risk mitigation are evaluated frequently in the early phases of the project in order to enable the development of timely possible alternatives (e.g. finding staff within Fermilab that can be reassigned if the hiring plan does not proceed in the timeframe proposed".

**3. Status of the Quantum Internet Initiative**

Charge: We ask the committee to review the status of the QIS program at the laboratory, the integrated plan with the SQMS Center, and the status of the recommendations made at the July 2020 PAC meeting:

- "Fermilab should investigate developing the high-school quantum computing module as a part of its strategy for engaging underrepresented communities, as well as for outreach in general."
- "The Committee also recommends that the Laboratory continue to develop international partners and collaborations for its quantum internet activities".

**4. Strategic Plan for Software and Computing at the Laboratory**

Charge: We ask the committee to review the strategic plan for software and computing at the laboratory and the status of the recommendations made at the July 2020 PAC meeting:

- "SCD should start thinking about the data lifecycle and its relation to long term data management and update the Committee at the next meeting. This report should include all relevant aspects, e.g. data storage, transfer, and compression".
- "The PAC continues to recommend [...] the development of a long-term computing transition plan" (to HPC)

**5. Status of the MicroBoone Experiment**

Charge: We ask the committee to review the status of the MicroBoone experiment and of the recommendation made at the July 2020 PAC meeting:

- "We encourage MicroBooNE and SCD to continue to collaborate on developing a multi-year detailed resource plan for completing high priority MicroBooNE analyses. Such a plan should include planning for the desired use of MicroBooNE data in the SBN multi-detector analyses."

**6. Status of the SBN Analysis Working Group**

Charge: We ask the committee to review the status of the SBN analysis group activity, the status of the recommendation from the December 2020 PAC meeting (see below) and the outcome of the studies of sensitivity for the SBND and ICARUS detector with the two possible overburden configurations

- "The PAC recommends the SBN analysis working group support the ICARUS collaboration in using the common tools developed in SBN to quantify the sensitivity of running ICARUS in the single-detector mode, as is planned in the current timeline, and to assess computing needs."

## **7. Status of the ICARUS detector**

Charge: We ask the committee to review the status of the ICARUS detector and the status of the recommendation from the December 2020 PAC meeting:

- “The PAC recommends the collaboration to further develop the ICARUS-only physics goals using the common SBN simulation and analysis tools and present more details, including the computing needs, in the next PAC meeting.”

## **8. Update on the SBN Organization**

Charge: We ask the committee to review the status of the SBN organization.

## **9. Status and plans of the Argon Cube 2x2 demonstrator**

Charge: We ask the committee to review the status and plans of the Argon Cube 2x2 demonstrator. In addition, the PAC is asked to evaluate the readiness of the demonstrator for a Stage 1 approval as a test technology experiment.

## **10. Fermilab’s plans for contributing to the near and far detector prototypes, and the upgrade of ProtoDUNE experiment**

Charge: We ask the committee to review Fermilab’s plans for participation in the construction of the near (ArgonCube 2x2 demonstrator) and far (cold electronics test stand, HV test stand) detector prototypes. The PAC is also charged with reviewing the laboratory’s involvement with the past and future phases of the ProtoDUNE experiment at CERN.

## **11. Strategic plan of the Future Colliders Organization**

Charge: We ask the committee to review Fermilab’s strategic plan for future colliders studies (accelerator, detector, physics) and allocated resources.

## **12. Report on the Booster Replacement**

Charge: We ask the committee to review the status of the Booster Replacement program and of the recommendation made at the December 2020 PAC meeting:

- “The PAC recommends that the current task force complete this exploratory phase by Spring 2021 in order to give the necessary input for the second phase”.

## **13. Overview of Dark Sector Searches at the Laboratory [for information only]**

## **14. The latest results from the DES Experiment [for information only]**

## **15. Status of the LHC Physics Center [offline review only]**

Charge: We ask the committee to review the status of the LHC Physics Center and the status of the recommendation from the December 2020 PAC meeting:

- “The PAC reiterates, yet again, its strong support for increased LPC funding, and also for dedicated resources to support an ML/AI researcher at the LPC. Not only is funding for junior DRs needed, but funding for senior DRs is also essential. These positions are crucial to foster new activities and collaborations which are especially important now in preparation for Snowmass.”

## **16. Status of the CLAS12 Membership [offline review only]**

Charge: We ask the committee to review the Fermilab scope for the CLAS12 Membership.

## **17. Status of the ProtoDUNE Experiment [offline review only]**

Charge: We ask the committee to review the status of the ProtoDUNE experiment and the status of the following recommendation (July 2020 PAC meeting):

- “The DUNE collaboration should continuously ensure that sufficient resources are in place to realize the publication of the physics analyses concerning energy reconstruction performance and cross section measurements”.