

Report of the Sixth Meeting of the Fermilab Testbeam Committee

November 30, 2018

1 Introduction

This is a report of the fifth Fermilab Testbeam Committee meeting held on November 12th, 2018, at Fermilab. The meeting confirms that the Fermilab Testbeam Facility (FTBF) is a valuable resource for the HEP community. It provides a US-based facility for developing new detectors, which is used by many in the HEP community, including parties not otherwise heavily represented at FNAL (e.g., ATLAS and PHENIX collaborations.) In FY18 the usage continues to be strong. Given the upcoming shutdown of the CERN test beam facility (LS2), we anticipate that there will be a spike in beam time requests for the FTBF, proving again how useful the facility is to the community. The goal of the committee is to give advice to the Fermilab Directorate on how to optimize the impact of the facility and its use. The charge for the meeting is presented in the Appendix.

The overall assessment of the committee is that the FTBF staff is doing a great job with limited resources to provide a key service to the particle physics community. Twenty experiments were performed this year, which is a significant increase compared to the number reported in last year's report (16), showing the enduring need for a facility like this in the United States. The site also hosted the EDIT school, providing useful training to 48 HEP students.

2 Summary of the meeting

The agenda of the meeting can be found in Appendix A.

The meeting started with a reading of the charge by Dr. Bhat, followed by presentations by Dr. Mandy Rominsky, the facility manager. The presentations covered progress on the recommendations from last year's meetings and a summary of the performance of the facility in FY18.

With respect to the recommendations, Dr. Rominsky showed progress on last year's recommendations. The facility is in touch with the large LHC experiments (CMS and ATLAS) to coordinate their requests in case a resource contention arises during the CERN shutdown. Some work has been done to get an accurate accounting of the usage of protons by the facility, but due to difficulties in getting an appropriate denominator, no accurate accounting for the number of protons used by the FTBF is currently available. For scheduling the staff has effectively increase the efficiency of usage of the site by requiring groups to demonstrate their ability to staff 24 hour shifts before allowing them to be scheduled for both shifts, and also by optimizing the time needed to turn on a new

experiment. In particular the second achievement is very impressive and we commend the staff for this. The staff is also collecting from users when they use FTBF data in their papers; this process is still in its infancy and a dedicated paragraph describing the facility for easy inclusion into papers is still being worked on.

For the DAQ, the FTBF group made progress in getting ostsDAQ working, but has moved away from this DAQ solution because it seems that SCD will not be able to provide support on the right timescale.

The FY2018 run of the FTBF was very successful. As previously mentioned, 20 different experiments visited the site, an increase of 25% compared to the previous two years. Every experiment was able to be accommodated in the available beam time. By coordinating the arrival of new users and making a staging area available, the turn-on time for new experiments was reduced, increasing the efficiency of the use of the facility. As in previous years, the collider experiment were the most frequent users by beam-week, with the LHC experiments the dominant users in this subcategory.

A new application physicist was hired (Evan Niner), a welcome addition to the FTBF staff.

3 Recommendations

Below please find a list of comments and recommendations generated by the annual report and the meeting.

3.1 Comments

- Congratulations on the improvement of the setup time for new experiments.
- We commend the staff for the smooth operation of the facility.
- We are pleased to see a new hire in the FTBF staff.
- The DAQ continues to be an area of concern.
- We watch with interest the development of the jolly green giant magnet.
- Continue to prepare and plan for a spike in requests at the FTBF during the next long CERN shutdown. The period during 2019/2020 will be crucial for the LHC HL-LHC upgrades, and a time where the CERN facility will be unavailable.
- In light of the shut-down, remember that the FTBF advisory committee is a resource that you can call on to prioritize, if there is oversubscription for beam time.
- Develop a clear accounting for the actual fraction of protons that are sent to the facility compared to the total available to the physics program. Ensure that this fraction is used to describe the impact of the FTBF on the physics program (the “proton tax”) rather than the maximum 10%.
- Work with ATLAS and CMS to ensure that the requests for beam from those experiments are prioritized by the experiments.

- Continue to track the number of papers, conference talk, conference proceedings and internal notes generated based on data taken at the FTBF, to accurately account for the impact of the FTBF.
- Write the standard paragraph to be included in papers and conference proceedings and hand it to the experiments when they arrive on site.

3.2 Recommendations

- The FNAL computing division should consider putting resources into the FTBF to get a working DAQ system.
- Work with CD to get ostsDAQ integrated into an overall system that is transparent to the users.
- Consider developing a unified slow control system. Consider ACNET, iFix or SYN-OPTIC before rolling your own.
- Dedicate resources to publishing the FTBF paper.

4 Summary

The Fermilab Testbeam Committee thanks the staff for putting together the annual report and the useful presentation, and commends them to continue to operate the FTBF successfully in light of tight budget and manpower constraints. Much progress has been made since the last meeting towards getting understanding of the facility and working towards its future. The test beam continues to be an important resource for HEP, and will be increasingly so during the upcoming CERN shutdown. Much credit must be given to Dr. Rominsky and her team for running the test beam.

A Agenda of the meeting

The agenda can be seen at this URL:

<https://indico.fnal.gov/event/18963/>,

and is copied below for the record. All times US/Central.

Time	Length	Title	Speaker
09:00 AM	15m	Executive Session	
09:15 AM	15m	Progress on recommendations	M. Rominsky
09:30 AM	10m	Discussion	All
09:40 AM	20m	Annual FTBF Report for FY18	M. Rominsky
10:00 AM	15m	FY19 Plans and Beam Requests	M. Rominsky
10:15 AM	15m	Discussion	All
10:30 AM	10m	Break	
10:40 AM	20m	ITA Proposal	Petra Merkel
11:00 AM	15m	Community Input and Discussion	
11:15 AM	15m	Discussion	
11:30 AM	60m	Executive Session	

B Committee Membership

- Carsten Hast, SLAC
- Ron Lipton, FNAL
- Jen Raaf, FNAL
- Mayly Sanchez, Iowa State
- Guy Savard, ANL
- Mandy Rominsky, FNAL (*ex-officio*)
- Henric Wilkens, CERN
- Peter Wittich, Cornell (outgoing chair)
- John Haggerty, BNL (incoming chair)

Additionally, the meeting was attended by the following Fermilab employees.

- JJ Schmidt
- Steve Brice
- Kevin Burkett
- James Admundson

C Charge for the meeting

The test beam facilities at Fermilab are a valuable resource for the HEP community. The committee is asked to give advice to the Fermilab Directorate on the operation and development of the Fermilab Test Beam Facility (FTBF), and on any programmatic choices needed to optimize its use and scientific impact.

In particular, at the present meeting the committee is asked to comment on:

1. The community usage and the scientific impact of the FY18 FTBF program, as documented in the annual FTBF report
2. Progress made by the test beam operations team and the Lab in the following-up on the committee's recommendations from the previous meeting held on November 3rd, 2017.
3. The plan for the FY19 FTBF program, facilities and resources, as presented at this meeting.

The Directorate will welcome any other comments from the committee about the utilization of the facility, the need for programmatic choices, and the need for facility enhancements. The committee will also hear at this meeting, a short presentation on the proposal for an Irradiation Test Area (ITA) downstream of the Fermilab Linac in the MTA enclosure. The TB Committee has already seen and endorsed this proposal. Additional comments and/or supporting statements by the committee are welcome.

The committee is requested to deliver a short written report to the Office of Program Planning by November 28, 2018.