

Update on beam test plans for Fermilab (FTBF)

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MOU/Status

- First draft Memorandum of Understanding (MOU) submitted
 - States what we propose (not terribly binding)
 - Documents requests to Fermilab/Fermilab Test Beam Facility (FTBF)
- There are 4 rounds to this process
 - I'm working with Aria Soha, who is the FTBF coordinator, to shepherd document through process
 - Currently we are in good shape for planned December run

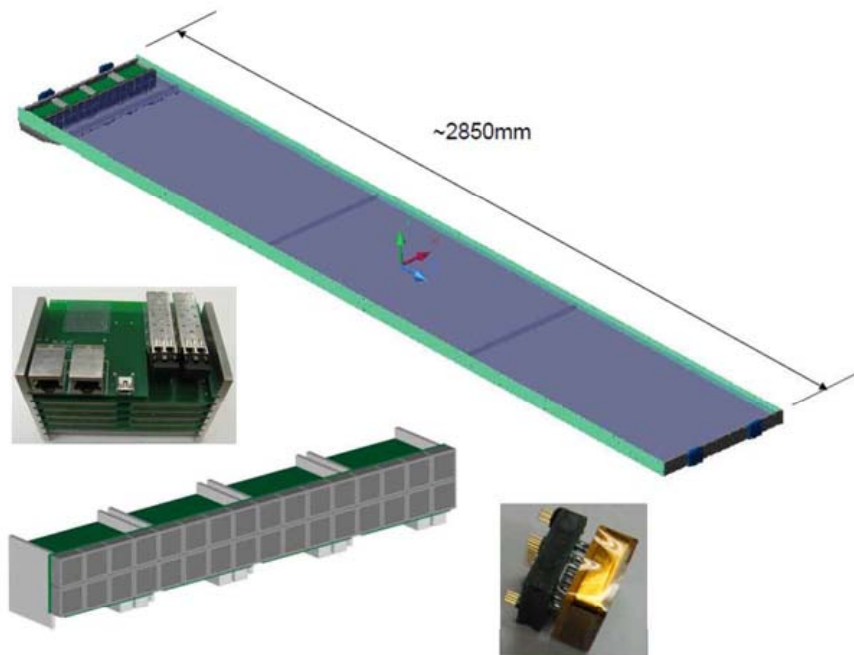
Assigned Exp # T-1019

MEMORANDUM OF UNDERSTANDING FOR THE 2011 – 2012 FERMILAB TEST BEAM FACILITY PROGRAM

T-1019

Performance confirmation of the Belle II
imaging Time Of Propagation (iTOP) prototype counter

August 24, 2011



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24 pages
(most only care about
PREP/PPD requests;
hazard issues)

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bPID Group Meeting

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Specific FNAL/FTBF requests

MOU for Belle II ~~iTOP~~ counter prototype evaluation

APPENDIX II: EQUIPMENT NEEDS

Provided by experimenters:

Delivered, tested cosmic ray prototype, including all detectors and electronics described in Figures 8 and 9 of Section II, except those specifically requested below.

Equipment Pool and PPD items needed for Fermilab test beam, on the first day of setup.

PREP EQUIPMENT POOL:

<u>Quantity</u>	<u>Description</u>
42	NIM bin with cooling fans
1	CAMAC crate, powered
1	6U VME crate, powered
1	9U Eurocard cage (backplane not used for signalingsignaling or power)

PPD FTBF:

<u>Quantity</u>	<u>Description</u>
N	random signal cables (e.g. RG-58) as needed

Changed to 2 NIM bin request

Have inquired about LV PS from PREP – suggested to contact them directly with request as to possibilities

Hazards

APPENDIX III: - HAZARD IDENTIFICATION CHECKLIST

Items for which there is anticipated need have been checked. See next page for detailed descriptions of categories.

Flammable Gases or Liquids		Other Gas Emissions		Hazardous Chemicals		Other Hazardous /Toxic Materials	
Type:		Type:		Cyanide plating materials		List hazardous/toxic materials planned for use in a beam line or an experimental enclosure:	
Flow rate:		Flow rate:		Hydrofluoric Acid			
Capacity:		Capacity:		Methane			
Radioactive Sources		Target Materials		photographic developers			
	Permanent Installation	Beryllium (Be)		PolyChlorinatedBiphenyls			
	Temporary Use	Lithium (Li)		Scintillation Oil			
Type:		Mercury (Hg)		TEA			
Strength:		Lead (Pb)		TMAE			
Lasers		Tungsten (W)		Other: Activated Water?			
	Permanent installation	Uranium (U)					
X	Temporary installation	Other:		Nuclear Materials			
X	Calibration	Electrical Equipment		Name:			
	Alignment	Cryogenic/Electrical devices		Weight:			
Type:	Solid state	Capacitor Banks		Mechanical Structures			
Wattage:	400mW peak pulsed	X	High Voltage (50V)	Lifting Devices			
Class:	1 (408nm)	X	Exposed Equipment over 50 V	Motion Controllers			
		X	Non-commercial/Non-PREP	Scaffolding/ Elevated Platforms			
			Modified Commercial/PREP	Other:			
Vacuum Vessels		Pressure Vessels		Cryogenics			
Inside Diameter:		Inside Diameter:		Beam line magnets			
Operating Pressure:		Operating Pressure:		Analysis magnets			
Window Material:		Window Material:		Target			
Window Thickness:		Window Thickness:		Bubble chamber			

Laser isn't a big deal

HV and Non-commercial, non-PREP require inspection/paperwork (have had to do before...)

Item	Start - End	Project Name	Priority	Room	Lead
3.	Oct 12 - Oct 18 18	T992 Radiation-hard Sensors for the SLHC	Primary	1-B	Kwan
4.	Oct 19 - Oct 25	★ T1015 Dual Readout Calorimetry	Primary	2-B	Gatto
5.	Oct 26 - Nov 1	T1015 Dual Readout Calorimetry	Primary	2-B	Pauletta
6.	Nov 2 - Nov 8	★ T978 CALICE	Primary	2-T	Repond
7.	Nov 9 - Nov 15	T978 CALICE	Primary	2-T	Repond
8.	Nov 16 - Nov 22	T978 CALICE	Primary	2-T	Repond
9.	Nov 23 - Nov 29	T978 CALICE	Primary	2-T	Repond
10.	Nov 30 - Dec 6	T978 CALICE	Primary	2-T	Repond
11.	Dec 7 - Dec 13	★ T1015 Dual Readout Calorimetry	Primary	2-B	Gatto
12.	Dec 14 - Dec 20	T1015 Dual Readout Calorimetry	Primary	2-B	Gatto
		Belle II ITOP	Primary		Varner
13.	Dec 21 - Dec 27	- Belle II ITOP	Primary		Varner
14.	Dec 28 - Jan 3	- Belle II ITOP	Primary		Varner
2012					
15.	Jan 4 - Jan 10	★ T958 FP420 Fast Timing Group	Primary	2-B	Brandt
16.	Jan 11 - Jan 17	★ T979 Fast Timing Counters for PSEC	Primary	2-B	Albrow
17.	Jan 18 - Jan 24	★ - UCLA's Tungsten Fiber Calorimeter	Primary		Trentalange
18.	Jan 25 - Jan 31	- UCLA's Tungsten Fiber Calorimeter	Primary		Trentalange
19.	Feb 1 - Feb 7	★ T1017 CIRTE	Primary	1-B	Cooper

Tentative Run Schedule

First week we are overlapped with T-1015. Use time to:

1. Get badged/safety training
2. Unpack, confirm cosmic running (staging)
3. Can start running parasitically, if/when ready

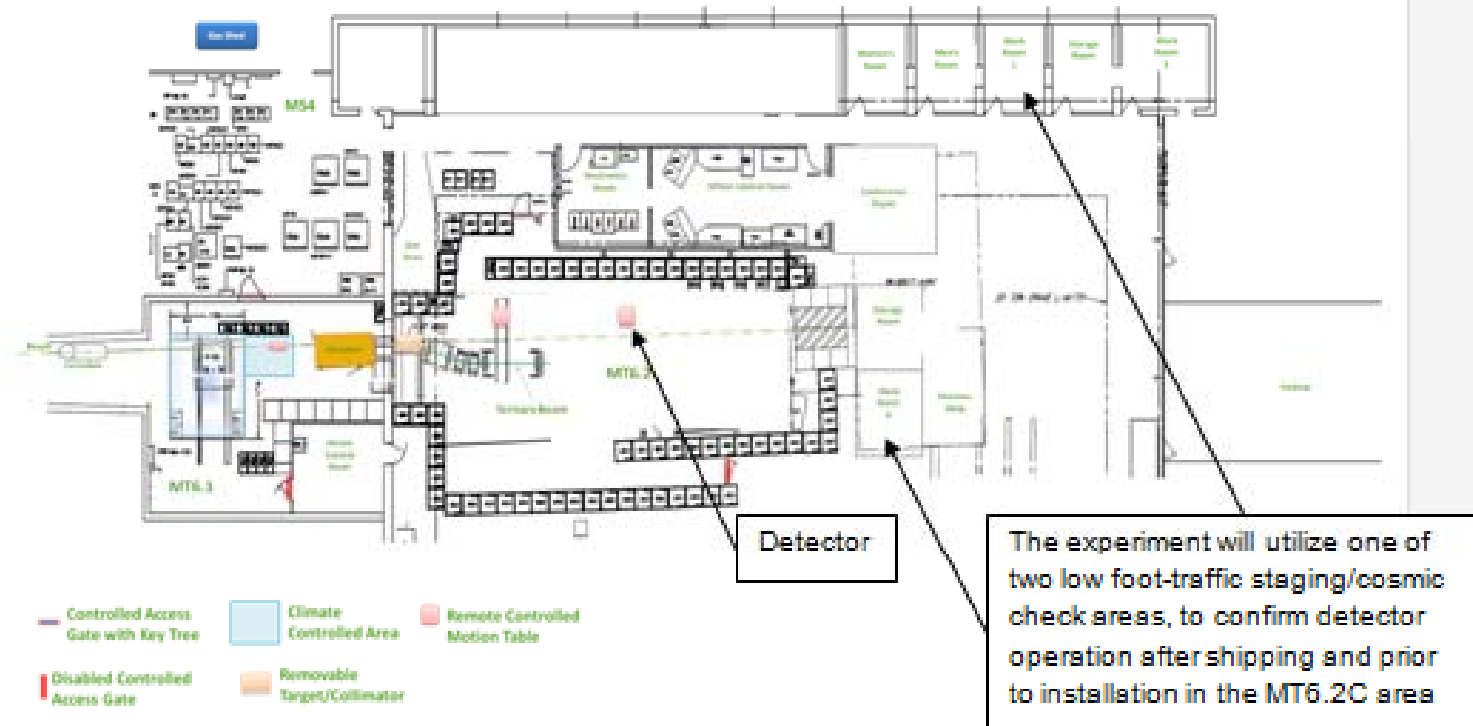
2 dedicated weeks running
(estimate 10 full days below)

Staging Area

APPENDIX I: MT6 AREA LAYOUT

Given the girth of the iTOP module, and the desire to study different emulated Belle II polar angle -impact positions on the detector, ~~we propose to~~ the experiment will set up and operate from movable stage denoted Table #2 and located in MT6.2C.

MTEST AREAS



MT6.2C Area



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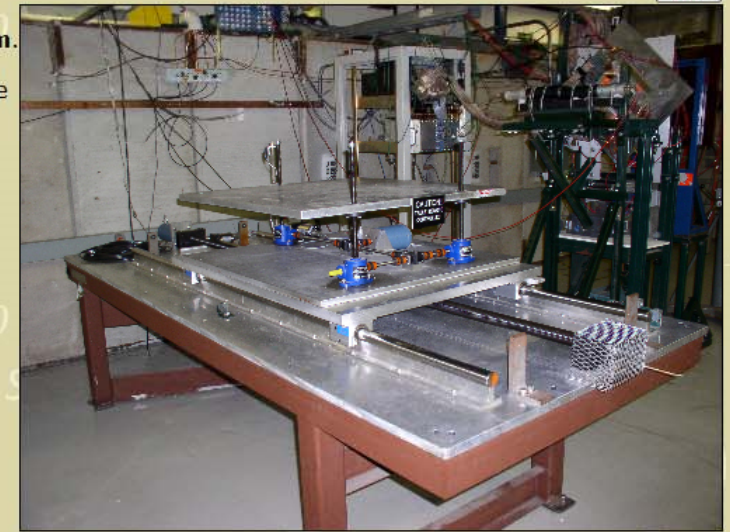
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Movable Table 2 – rotary stage atop?

Table 2

Table 2 is the downstream table in Section 2 with a small platform measuring **3sqft or 92cm x 92cm**. for both horizontal and vertical motion. It is rated for approximately **500 lbs**. It currently sits at MT6-2C, but it can be moved as desired. The control boxes are mounted on the table, which is where the crash button is. This table has continuous variability in speed.

The control panel for automated motion is in the rack next to the FTBF DAQ computer in the control room. (Used for **both** motion tables) If it needs to be reset for any reason, just push in the crash button and pull it out again. The position of the tables is determined absolutely, so there will be memory of their current location after power out.



The display will come up with an option for horizontal or vertical motion of either of the tables. It is a touch sensitive screen, so just press the motion you want to control. The next screen will show the current position, and will have jog buttons, limit switch displays, and a 'GO TO' entry point. If you just want to jog the table and watch the motion, then turn the video display above the control panel to view the table you are interested in, push the jog button in the direction you want to move, and let go when you are satisfied to the position. The limit switch buttons will light up when you have reached a limit.

If you find the readback seems to get confused and reports impossible numbers, reset the system by hitting the crash button and pull it out again.

If you want to go to a set position, then press the number value below the 'GO TO' button (don't press the Go TO button yet!). That will bring up a key pad where you can enter the desired position to within tenths of a millimeter. Then hit the RETURN button to bring you back to the main page. Hit the GO TO button if you are satisfied and the table should go to the desired location. For this, downstream table, you can also change the velocity in a similar fashion.

If there is ever any question of safety, please crash the power button on the control panel (if you are in the control room) or on the control box (if you are in the enclosure).

Next Steps...

The MOU Approval Process

Although approximate times are given, this process is largely dependant upon the response of the experimenters.

1. The Spokesperson or Physicist In Charge of Beam Tests fills in the template and submits this first draft MOU to the [FTBF Coordinator](#).
2. **Round 1: Typically takes 1 week**
 - The FTBF Coordinator checks over the MOU for format, wording, spelling, grammar, etc. and does the first pass for issues which may be incorrectly worded, need clarification, or cannot be fulfilled. The coordinator also checks for missing information.
 - At this time, the coordinator will request a number for the experiment from the Directorate's Office of Program Planning.
 - Then resubmits it to the experiment for confirmation.
3. **Round 2: Typically takes 1 - 1.5 weeks**

Upon receiving the draft back from the experiment, the FTBF Coordinator will again check for formatting and other errors, and forward the draft to the rest of the FTBF managers, the Directorate Office of Program Planning, and the head of Detector R&D.
4. The FTBF Coordinator will combine responses from the above parties into another draft and (if significant) re-submit to the experimenters for confirmation. If changes are insignificant, the coordinator may choose to proceed directly to round three, without waiting for a response from the experiment.
5. **Round 3: Typically takes 2 - 4 weeks**

The FTBF Coordinator forwards the draft to the following people. These people forward the draft to their own relevant reviewers for feedback, all of which is collected by the [FTBF Coordinator](#). This process often takes several rounds, with many drafts being re-submitted.

 - FTBF Deputy Coordinator
 - Directorate Office of Program Planning Head
 - Directorate Office of Program Planning Administrator
 - Particle Physics Division Head
 - Particle Physics Division Office of Detector R&D
 - Particle Physics Division Senior Safety Officer
 - ES&H Section Head
 - ES&H Section Representative
 - Accelerator Division Head
 - Beamline Expert
 - Accelerator Division Operations Department Head
 - Computing Division Representative
 - Business Services Section Emergency Response Representative
6. **Round '4': Typically takes 2 weeks**

Once all the above parties are in agreement, the FTBF Coordinator will print out a hard copy and escort it to the following people to be signed. (As this is a rather important document, and these are extremely busy people, it can often take days before the document is read, signed and returned to the coordinator.)

 - Experiment Spokesperson
 - Particle Physics Division Head
 - Accelerator Division Head
 - Computing Division Representative
 - ES&H Section Head
 - Associate Director for Research
 - Associate Director for Accelerators
7. Once signed, the Directorate Office of Program Planning Administrator, scans the document, files it, and distributes it to all relevant parties.

Summary

- As soon as know travel dates, please let me know so that I can arrange badging/safety courses
- I'm a little concerned about manpower profile (too many during certain times and too few at others)
- Current running is 12 of 14 hours/day (“1 or 2 shifts”)
- If go to 24/7, more shifters, otherwise...
- 100-500k evts/shift. 10 scan points in 10 days
 - Conservatively. Will add more points/more statistics if time/beam permits, but I propose this as our minimal mission success criteria