

# g2p/GEp Beam Transport Meeting Minutes

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**Attendees:** T. Michalski, P. Kjeldsen, R. Lauzé, A. Camsonne, D. Williams, JP Chen, Z. (Vick) Chen, L. Dillon-Townes, P. Degtiarenko, K. Allada, C. Curtis, A. Saha, T. Delacruz, E. Folts, J. Heckman, A. Gavalya

The following is a summary of issues discussed during the g2p/GEp Beam Transport Meeting:

- PAC was a good experience and Ron has a new grandson, 7+ lbs.
- We continue to sort out the details regarding the FZ magnet PSs
  - Vick has the action to see if the AI magnet will fit in the proposed, existing stand. It was reviewed after the meeting by Ron, Vick, and Butch. The AI is quite a bit wider and they are evaluating how to make it fit. It is a better solution than laying it on the floor.
  - We will not be getting the PSs out of Hall C before the 6MSD. The potential risk has been reviewed and the EESDCP group does not feel that further contingency plans need to be acted upon. However, the question of spare parts and their availability was raised. Vick will pursue this.
  - Polarity switch identified. Collaborator will not purchase. Vick will get order placed.
- Brief review of the schedule. Too small to read so Tim will get it posted along with the meeting minutes. Everyone should validate sections which pertain to them. Let Tim know of changes or differences in expectations as soon as possible. This will be the foundation for tracking progress during the 6MSD.
- The first of two function generators has been received. Need to get it to Bill Gunning for his test setup.
- BCM testing – still need one cavity.
- BPM testing – scheduled as part of Tuesday's (today's) Beam Studies. Keith Cole is on point for this test.
- The discussion at the last target meeting stated that there are 2 TCs being added to the LC dump and a thermal analysis was completed. The action item is closed. Need to determine the EES person responsible for capturing these signals. Ron to verify.
- The collaborators have ordered the air filter/fan, lifting mechanism for FZ2, function generators, and some machined parts.
- Discussed the 1.1 GeV potential run with the target at the pivot. The purpose of this run is to determine the transformation matrix for the spectrometer/detector optics. UPDATE AFTER THE MEETING – Physics believes that they can perform their “optics run” with 1.1 GeV while the chicane is in its 2.2 GeV position. This would require different fields on the FZ1/FZ2 magnets. ***Need to confirm with Yves before finalizing as he is responsible for the beamline optics.***

## **STATUS:**

### **OPTICS:**

- Yves is updating orbits for different energy and target positions (location and angles).

### **MAGNETS:**

- Nothing new to report

### **BEAM TRANSPORT:**

- Region 1 – nothing new to report
- Region 2 – nothing new to report

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- Region 3 – FZ2 stand – final review. Still finalizing the support arms and positioning mechanism.
- Material: first large bellows tested and it leaks – sorting this out with the supplier. Expect bellows to be returned this week and will be re-leak tested in house.
- Harps – drawings sent out for review – preliminary bids in process. Fork is out for prototyping, need to order the right wire.
- BPMs – need a progress update – once complete, will get to vacuum group for testing.

## **RAD CON:**

- Determining the fields around the dump. Initial indications are that it will be fairly hot in the vicinity of the dump. Something to keep an eye on.

## **SOFTWARE:**

- Schedule verified with Omar.

## **VACUUM:**

- Nothing new to report

## **INSTALLATION:**

- No status update

## **ALIGNMENT:**

- Nothing new to report

## **EES – I&C:**

- Working details on calorimeter controller and PC104.
- Harp and receiver electronics in design and fab and test.

## **EES – DCP:**

- See PS discussion above.

## **EES – SSG:**

- No status update

## **TARGET/DUMP DESIGN ACTIVITIES:**

- Leak testing the cone – expect magnet to ship by mid April.

## **PHYSICS**

- Readiness review set for May 6. Bob Michaels has established a team and charge.
- Collaboration meeting on April 18.

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## Action Items:

Action Item #	Date Added	Action Item	Responsible Individual	Due Date	Date Closed
11	9/28/10	Define the settings for chicane magnet current monitoring.	Y. Roblin	By 3/11	
16	10/5/10	Understand why there is a hole in the center of the rastered beam that comes from the faster raster/slow raster combination. Stated to be a waveform generator issue. Clarify this. If not HW, then probably SW?	C. Cuevas B. Gunning	TBD	
35	1/4/11	BCM testing at low current, w/ helicity, in <del>January</del> April.	J. Musson / A. Camsonne	4/?/11	
36	1/11/11	BPM testing with new electronics in North Linac	J. Musson / D. Willaims	4/5/11	
37	2/1/11	Resolve open question on FZ magnet power supplies.	V. Chen	Ongoing	
41	3/14/11	Verify jacket for upside down girder BCM fits.	B. Dillon-Townes	3/22/11	
42	3/14/11	Need a decision on low current dump – thermal threshold interlock? How warm will the LC dump get? – Decision to add thermocouples – Alan G will add. Will have signal for MPS/FSD.	TBD	TBD	4/5/11
43	3/14/11	What is the required hysteresis required for the FZ1 and FZ2 magnets? What is the range of required current?	Y. Roblin	5/15/11	
44	3/22/11	Verify that the AI magnet can fit in the proposed magnet stand.	V. Chen	4/5/11	
45	3/22/11	Get the recommended polarity switch ordered via a collaborator.	JP Chen	4/5/11	
46	4/5/11	Determine the owner of the TC signals coming from LC dump. I&C, SSG	R. Lauzé	4/12/11	
47	4/5/11	Verify ability to run 1.1 GeV through 2.2 GeV setup, while target is at the pivot.	Y. Roblin / T. Michalski / JP Chen	5/1/11	

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## Design Decisions:

Date	Decision Item
8/31/10	The transport line exiting the FZ2 will have no vacuum connection to the target chamber. A beryllium window will terminate that line.
8/31/10	<del>M20 BPM's were decided to be used on the transport line exiting the FZ2.</del>
9/14/10	The Target will only be set at 80° and 90°, not 70°, per Al Gavalya.
9/14/10	The gap between the beam tube end and the target window was discussed. It should be minimized – consider 1 cm as a maximum gap. Re-opened during 9/21/10 meeting – look at using helium bag. Will use helium bag – issue closed.
9/30/10	The requirement for BPM accuracy is 0.1mm – per discussion at BPM requirements meeting and subsequent analysis/e-mail from K. Allada.
12/6/10	Use 5.5" M15 antenna style BPMs in articulating arm!
12/6/10	JP committed to a 2 cm raster, if need be, to accommodate threading the beam through the articulating arm.
1/11/11	Decision to use harps in tune mode rather than low current.
4/5/11	We will not accommodate a special 1.1 GeV run with the target at the pivot. There will be no change to the FZ2 stand design and no need to reposition the chicane. Evaluation of 1.1 GeV beam through 2.2 GeV chicane position to be performed.