

g2p/GEp Instrumentation Meeting Minutes

Attendees: K. Allada, D. Williams, T. Michalski, J.P. Chen, Y. Roblin, O. Garza, J. Musson, B. Bevins, K. Mahoney, A. Saha, A. Camsonne, P. Francis, A. Freyberger, S. Higgins, A. Dela Cruz

Minutes:

- We reviewed the fundamental needs for instrumentation required by Physics for the g2p experiment:
 - 50-130 nA beam current, 1.1, 1.6, 2.2, 3.3 GeV
 - Beam diameter rastered to Ø25 mm (.984")
 - 10 uA beam straight through at all energy levels.
- Tune Mode Beam – 10 uA
- Physics required instrumentation:
 - 2 BPMs before Moeller in Hall A (IPM1H01 in Region 2 and IPM????) – need “new” electronics
 - 2 BCMs in Hall A (IBC1H00 and IBC1H00A [?])
 - Tungsten Calorimeter in Region 1 (IFY1H00)
 - YAG Crystal Viewer in Region 3 (ITV1H05)
 - 2 BPMs on articulating arm in Region 3 (IPM1H05A and IPM1H05B) – need “new” electronics
 - 3 Standard Harps – 1 on upside down girder in Region 2 (IHA1H04) and 1-2 on articulating arm in Region 3 (IHA1H05A and IHA1H05B)
 - Ion chambers will be defined separately. Current monitors on FZ magnet PS and BLA will also be required.
- The harps are all the same. The one on the upside down girder will be rotated so as to keep height clearance in the pass-through area of the beamline in Hall A.
- Omar stated that 20 micron wire on the harps should be adequate due to experience in low current measurement in other halls.
- It will be necessary to cross calibrate the harps and BPMs (require aligning on a girder) in Region 3.
- There are currently 22 BPMs in the beamline from the BSY to Hall A. It was stated that all the BPMs need to have the Transport style electronics. Currently, only 8 are configured with the Transport style modules. Additionally, the last 2 BPMs in Hall A will be requiring “new” electronics. Therefore, 12 additional Transport style RF modules are required (plan to procure, build, and test 14 – to have spares).
- If the harps are to be run only in the CW Tune Mode, then we can use the standard style electronics. If they are to be used in low current, then PMTs are required and we would have to determine a location. Need an answer to Accelerator Ops within 1 week.
- Stated requirement – 100 um beam stability – integrated over all frequencies with the raster off.
- Calorimeter – controller being repaired and PC104 being upgraded to how it is used today with EPICS. Arne needs to resurrect and review SW, then turn over to Pam’s crew. Promised date by Arne is 2nd week of February.
- Provide beam with slow lock, no fast feedback. Slow lock runs at 1 Hz or below.

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- Concern of beam halo was raised. It was stated that it should not be an issue with the low current levels. Can raster down to 20mm diameter beam if need be.
- Since harps will be used to determine precise position, improved resolution is needed. This translates into an improved controller/motor and the wire must be surveyed.
- BPM measurement needs to be 1% at 1 kHz at low current. It was stated that this should not be an issue; however, we have the hardware in place to test this now. May require porting RF into a new receiver and tying into the helicity signal. Can this be done in January in Hall A? John Musson and Omar to discuss.
- YAG Viewer must be cross-surveyed to the FZ2 dipole position. Need position and profile. The viewer will only be used in low current CW (100 nA). The viewer must be locked out when running straight through mode with high current (10 uA) [special OSP].
- Accelerator Ops needs to see the last 2 BPMs (IPM1H05A and IPM1H05B) like standard 1 Hz BPMs. If possible, may want to see in fast SEE as well.
- Need to get cost estimates for material and labor for Transport modules (qty 14) and Harps w/ electronics.
- There will be no Hall A energy measurement for this experiment.

Action Items:

Action Item #	Date Added	Action Item	Responsible Individual	Due Date	Date Closed
1	1/4/11	Procure, build, and test 14 Transport style BPM RF Modules	D. Williams / O. Garza	5/14/11	
2	1/4/11	Decision on harp usage – Tune Mode or Low Current	JP Chen	1/11/11	
3	1/4/11	Cost estimates for BPM and harp materials and labor – to Tim	O. Garza	1/11/11	
4	1/4/11	Calorimeter SW from Arne.	A. Freyberger	2/14/11	
5	1/4/11	BPM testing at low current, w/ helicity, in January.	J. Musson / O. Garza	Answer by 1/11/11	