6MSD Weekly Scheduling Meeting

Wednesday @ 1:30, MCC Conference Room

October 19, 2011

1) Glance Back and 2-Week Look Ahead (F. Pilat) ..... 10 mins

2) PMI Report (P. Collins) ..... 5 mins

3) Critical Path Service Provider Reports ..... 25 mins
   (a) Alignment (Curtis)
   (b) SRF (M. Drury for J. Hogan)
   (c) EESIC (Garza)
   (d) Software (M. Bickley)

4) Hall Special Report: G14/HDIce Experiment (A. Deur) ..... 20 mins

5) Safety Report: M. Logue ..... 5 mins

6) Meeting Recap and Action Items (All) ..... 5 mins

6MSD:
Glance back & look ahead

Fulvia Pilat

6MSD Meeting

October 19, 2011

Progress Wed Oct 12 – Wed Oct 19

Weeks: **23** down, **4** to go **(or 23 days to Physics? → November 11)**

Highlights:

- **Start-up** to operation in full swing
- **Injector set-up** in progress (first "current plot" at the 8am today)
- Test of **C100** in the SL continues
- All essential **PSS** certifications done
- **Civil** work continue → Phase 3 construction complete 8 November?

Not-so-Highlights:

- **Fire** in the tunnel last Friday, damage to MYR7S03, MTR9S04 and nearby equipment recovery plan and investigation in progress
- **Hall A** delays
- Non reproducible measurements for **C100**'s

2 weeks look ahead

- **Civil construction** work continues:
  - NE Stub work
  - Ongoing Hall D Buildings (Counting House, Tagger Area & Service Bldg)
- East Arc alignment
- **RECO** process
- Various Systems **HCO**
- **C100-1 & 2** commissioning/testing in tunnel
- Restore **5.6 GeV** machine (no C100)
- **RF** installation continues in the Linacs
- **Hall-A:** G2P Beam-line work & Target Repair
- **Hall-B**: HD-Ice work
- **Hall-C**: Qweak preps, removal HKS, final survey

6MSD Organization

- ***NO CRs & NTFs have been submitted, reviewed, and approved this week***

- Transition 6MSD → operations
  - **PD rotation** started **Monday October 17**, 0745 and 0800 am meeting reverted to the operations format
  - **Wednesday Progress/Resource Meeting** and **Schedule progressing** will continue until we are **back to physics**...hopefully 3-4 weeks most.
    Hall Physicists telling us about preparation for beam (last week Hall C, today Hall B, next week Hall A)

    From next week we will include an operations report
  - Weekly Thursday **6MSD Planning Team Meetings** is being scheduled regularly for updates, coordination and discussion of lesson learned
  - **6MSD team and organization** in place until physics
  - Lessons learned and 6MSD post-mortem → input to 12MSD organization

PM&IP

6MSD 10/17/11 Weekly Progress Meeting

(10/14/11 Data)

Report #23

PM&IP

- Schedule Issues: Hall D Phase 3 Tunnel Extension is ~14 Days behind schedule. (Oct. 28th completion date)
- Hall A Septum and Target: 23 days behind scheduled completion of 01 Dec
- Hall C: Coliminator #1 is 5 days behind schedule
- Ops Start Up Schedule in flux.
- Resource issues: None !

PM&IP

- Other Schedule Information at https://www.jlab.org/6MSD_Integrated_Schedule/SCHEDULES/
  - **Two Week Look Ahead** - Shows all activities that have started that are not complete and any activities due to start in the next two weeks
  - **Critical Path –** Shows all MUST activities that have 2 days or less float.
  - **Schedule Variance -** Shows all MUST activities that are not 100% complete and that the Start/Finish dates have slipped by at least 5 days.

Shutdown Work Summary

Organization: Alignment

Name: Chris Curtis

Date: 19th Oct, 2011

Last Week

Work That Went Better Than / As Expected:

- Final alignment of east arc magnets completed.
- Cryomodule C100-3 fiducialization completed.
- Q-Weak target alignment underway.
- Control tie between north linac and Tagger area started.

Work That Went Slower Than Expected, Delays, and Issues:

Ongoing Shutdown Work

Table 1: Next Week's Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status	Completion	Tasks	Comments/Concerns
PEPPo	X	Oct 21	Alignment of PEPPo components	Remainder of this week
12GeV arcs	X	October	Check on stack 15 dipoles	Possibly this week
6 Gev machine	X	Oct 28?	YR septa & region alignment	Schedule evolving. Next week
Hall D	X	October	Solenoid alignment	Second phase of solenoid alignment
G2p	X	TBD	Harp & Dump fiducialization	Harp now available
Hall C – Q-Weak	X	Nov	HKS monitoring; final alignment of detectors etc.	Start next week

Table 2: Other Upcoming Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status			Completion	Tasks	Comments/Concerns
Hall D	X			Oct / Nov	Berm elevation / photon pipe check	Survey checks for contract completion
Hall A - G2p		X		TBD	Alignment of all downstream components and target	Additional alignment for target repair
Hall B		X		TBD	Complete target /beamline alignment	October?
Hall C - Q-Weak		X		TBD	Final alignment of detectors etc.	Continuing into November

New Work Requests Requiring Schedule Changes:

- YR area re-alignment

Permits Not Already in Hand (hot work, lifting, blind penetrations):

- None

Significant Problems Pending (delays, technical issues, resource issues, scheduling):

- Still tight for next couple of weeks

Staffing Outlook:

- OK

Shutdown Work Summary

Organization: SRF

Name: John Hogan

Date: 19-OCT-2011

Last Week

Work That Went Better Than Expected:

- N/A

Work That Went Slower Than Expected, Delays, and Issues:

- N/A

Ongoing Shutdown Work

Table 1: Next Week's Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status	Completion	Tasks	Comments/Concerns
C100-01 Checkout	X		SRF needs to verify performance post LLrf control activities.	Microphonics studies continue.
C100-02 Checkout	X		SRF commissioning nearing completion.	Schedule still looks like it will be complete 'just in time'.

Table 2: Other Upcoming Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status	Completion	Tasks	Comments/Concerns
TBD				

New Work Requests Requiring Schedule Changes:

- N/A

Permits Not Already in Hand (hot work, lifting, blind penetrations):

- N/A

Significant Problems Pending (delays, technical issues, resource issues, scheduling):

- The time to install and checkout C100-02 is very tight; there is no float for 'unknown' problems.

Staffing Outlook:

- Ok.

Shutdown Work Summary

Organization: EESIC

Name: Omar Garza

Date: 10-19-11

Last Week

Work That Went Better Than Expected:

Work That Went Slower Than Expected, Delays, and Issues:

Ongoing Shutdown Work

Table 1: Next Week's Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status	Completion	Tasks	Comments/Concerns
Hall C Qweak Cavity Electronics	X	Ongoing	Building Chassis Parts Order Complete	Near Completion DAC Brds. Ordered
Hall A G2P Low Current BPM Electronics	X	Ongoing	Complete PC Brds. <2wks	PC Brds. Completed Expedite order In-House assembly
Hall A G2P Diagnostics	X	Ongoing	Cables completed Harp 1 installed, Harp 2 assembled, YAG assembled & tested	Awaiting Driver Chassis
Hall A G2P Motor Driver Chassis	X	Ongoing	Testing	Unit delivered to Software
12Gev SRF Vacuum Instrumentation	X	Ongoing	SL23, 24, 25	Going Well

Table 2: Other Upcoming Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status			Completion	Tasks	Comments/Concerns
Injector PePPo	X			Ongoing	Beam Scrappers wiring Faraday Cup wiring Viewer wiring completed BPMs	Waiting for beamline component installation
Ops AIPBSY (I to V) Module		X		On-hold	Assembly, Testing Software	Parts Complete Brd. Procurement In-Progress
Accelerator Network Firewall Configuration	X			Ongoing	Phase I – Segment config. Phase II – Failover config. Phase III – Rules configuration Phase IV – Network Implementation	Phase I completed Going Well
Accelerator Maintenance	X			Ongoing	Diagnostics – SL, BSY Vacuum – ACC. Repairs, Hall PM	Controls complete BPMs complete Diagnostics – NL, EA, WA complete

New Work Requests Requiring Schedule Changes:

Permits Not Already in Hand (hot work, lifting, blind penetrations):

Significant Problems Pending (delays, technical issues, resource issues, scheduling):

Staffing Outlook:

Shutdown Work Summary

Organization: Controls Software

Name: Matt Bickley

Date: October 19, 2011

Last Week

Work That Went Better Than/As Expected:

-

Work That Went Slower Than Expected, Delays, and Issues:

-

Ongoing Shutdown Work

Table 1: Next Week's Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status	Completion	Tasks	Comments/Concerns
PEPPo	X	?	Viewers	Ready to test with hardware
PEPPo	X	24-Oct-11	Dipole power supply controls	Software development underway (5% complete)
PEPPo	X	24-Oct-11	Discriminator/scaler for data acquisition	Development done; testing under way
12 GeV	X	24-Oct-11	Low-level RF	"RF on" sequence remains
12 GeV	X	24-Oct-11	RF screens	Ops fault screen remains
G2P	X	14-Nov-11	New harp controls	Chassis in hand; software development under way
G2P	X	15-Nov-11	New BPM controls	Position and calibration algorithm to be developed; design out to fab
G2P	X	21-Sep-11	Viewers	Ready to test with hardware

Project & Customer	Status	Completion	Tasks	Comments/Concerns
G2P	X	31-Oct-11	Septum magnet controls	Waiting for information for last 5%;
PSS/MPS	X	15-Nov-11	CAEN power supply	Good progress; Communications with power supply through Ethernet established

Table 2: Other Upcoming Work (green = no concerns; yellow = some concerns; red = serious concerns)

Project & Customer	Status	Completion	Tasks	Comments/Concerns
12 GeV	X	14-Nov-11	IOC boot management	
CASA	X	1-Nov-11	MO monitor	Development under way
Hall A	X	1-Nov-11	IOCs moved to accelerator network	Implementation and 80% of testing done; testing remains for 20%
Operations	X		LCW monitoring	Server purchased
Operations	X	1-Nov-11	Control system write logging	Wider installation
Operations	X	14-Nov-11	Digital image management	Camera and network ready; computer to be installed
Operations	X	1-Nov-11	Confirm network changes do not impact accelerator or endstation operation	Testing 50% complete; no problems found

New Work Requests Requiring Schedule Changes:

- None

Permits Not Already in Hand (hot work, lifting, blind penetrations):

- None

Significant Problems Pending (delays, technical issues, resource issues, scheduling):

- None

Staffing Outlook:

- OK

G14 Experiment (with the HD target)

10/14/2011

A. Deur

Tasks:

- Instal and test polarized HD target in CLAS;
- Gather data (polarized photons on polarized protons and **deuterons**) with unprecedented efficiency (1 week of beam on HD = 10 weeks of beam on FROST, previous CLAS polarized target).
- Test a polarized HD target cell under electron beam condition;

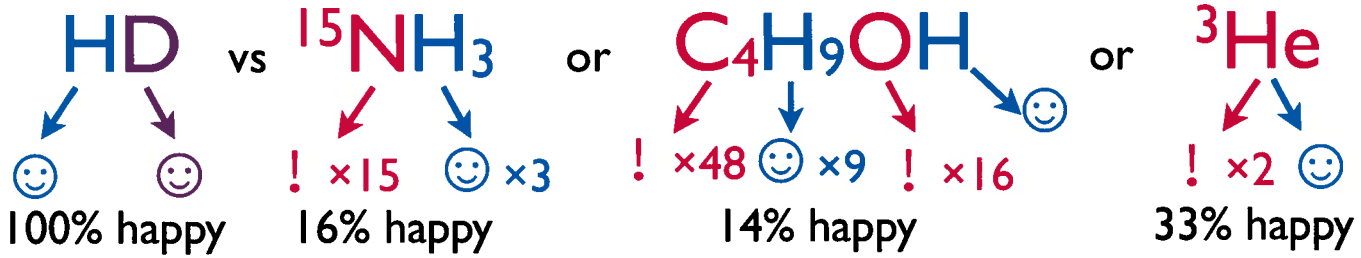
The HD target

Presented in May : https://userweb.jlab.org/~deurpam/HD_for_mcc.pdf

- **Polarized solid target** made of Hydrogen-Deuteron crystal.
- Very **challenging technology** balanced by advantages.
- **JLab is the only place with HD target**.

HD target advantages:

* **High density** (solid), **high polarization** (H:75%, D:40%) **constant in time** (no loss).
* Low magnetic field. ⇒ **Transverse target in CLAS** may be possible for **electron** beam.
* **No dilution** by unwanted material (*in principle*):



⇒ **Unprecedented efficiency** to gather data. (note: in practice, ~77% happy)

* Hard work: making target cell and transfer it into experimental area. Once done, **easy to use.**
* Need several good HD cells: accidental polarization loss (power failure, cryogenic failure, beam scrapping...) is **not recoverable**.

April-May installation

HD target was installed in CLAS. However, it did not cool properly due to a solder plug in a thin copper tube.

⇒ No HD cell installed (no test done on HD cell); !

⇒ No beam on HD target.

Benefits of the April-May work:

- Experience in **installing** and partly **operating** the whole target system;
- Superconducting (3) and warm (1) HD **magnets tested** and operated;
- Polarimetry system tested. **Polarization signals seen** where expected; Noise in Hall assessed.
- **Transfer succesfully** a HD cell from HD Lab to entrance of In Beam Cryostat.

Present status

- In Beam Cryostat **in CLAS and cooling** (IBC was already cooled once successfully in the HD Lab and operated at 35 mK).

- Status of HD cells: -**1 good cell**: 52% H polarization, 19% D polarization. As good as best BNL cells.
  -Cell polarization now **34% D** (23% H).
  -**1 Test cell** (long pol. lifetime with a few % pol.)
  - Batch of **3 new cells** being made, to be **available in January**.

- Hall B repairs (1752 Drift Chamber channels repaired. Now working on Scintillators).

Plan

- Next week: Check **In Beam Cyrostat operation with the test cell**.

- Test **H to D polarization transfer**.1 method (50% efficient) successful in HD lab cryostat. Will try another method more difficult but potentially 100% efficient. (Need the good IBC field homogeneity.)

- Mid-Nov: Install good cell and **start G14 experiment**: (polarized photons on polarized HD, mostly D). G14: **best shot at unravelling the excited state spectrum of the nucleon**, the **original raison d'être of CLAS.**

  - G14 VIPs & contacts:
    - Spokespersons: F. Klein & A. Sandorfi
    - RC: Ken Livingston, Bryan McKinnon, Mahbub Khandaker, Pat Collins, Franz Klein.
    - PDL: Alexandre Deur (weeks), Stepan Stepanyan (week-ends).
    - wiki: http://clasweb.jlab.org/rungroups/g14/wiki/index.php/Main_Page

- May 2012: Test HD target under **electron beam** condition: uncharted territory. Transverse target in CLAS with electron beam **open a large physics programs**. **Critical information for Hall B 12 GeV** program.

What is important to us that MCC should know

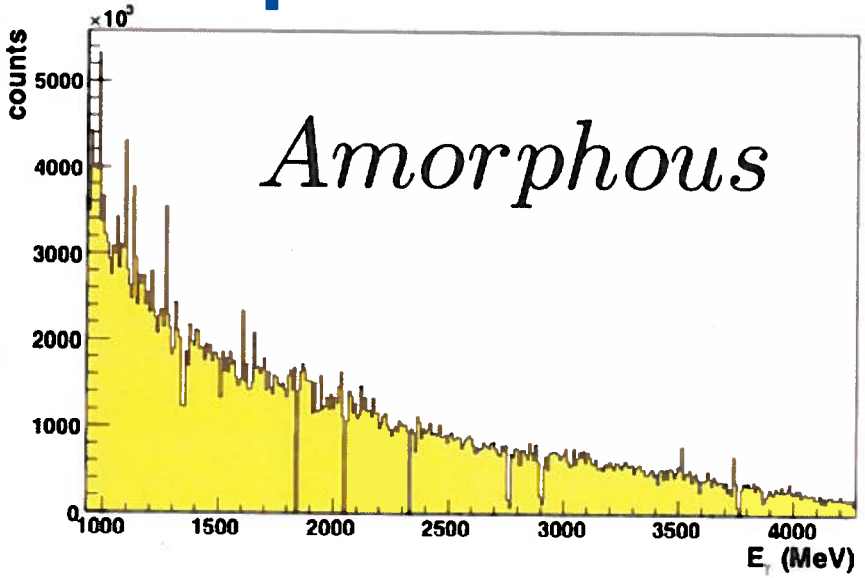
- Start with 1 week (or as long as we are allowed) of **1-pass, max pol. beam**. Then, 2-passes beam.
  - → Hall A will not run until Dec. and Hall C initially does not require pol.

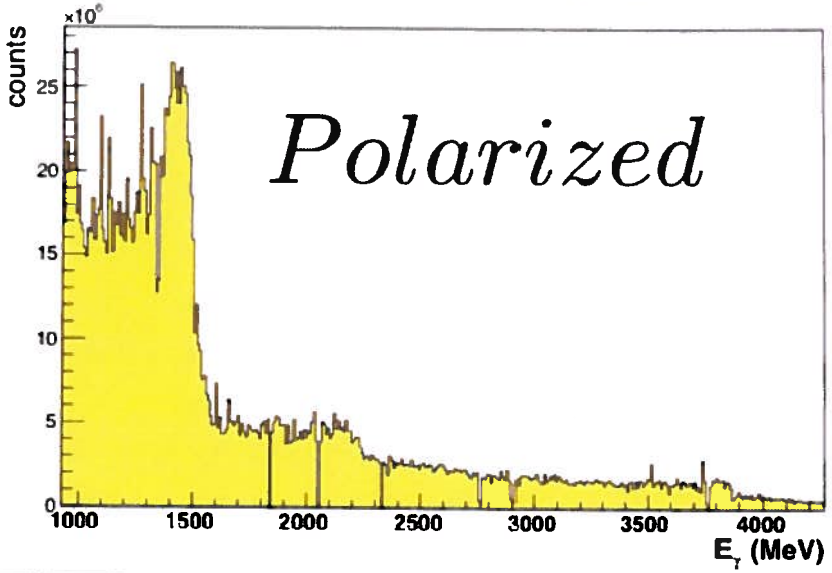
- Bother: Photon beam from tagger's diamond has **coherent edge jittering**. Pol. scramble for G14.

  Due to diamond vibrations or/and beam instability.
  Will be investigated at the start of G14.

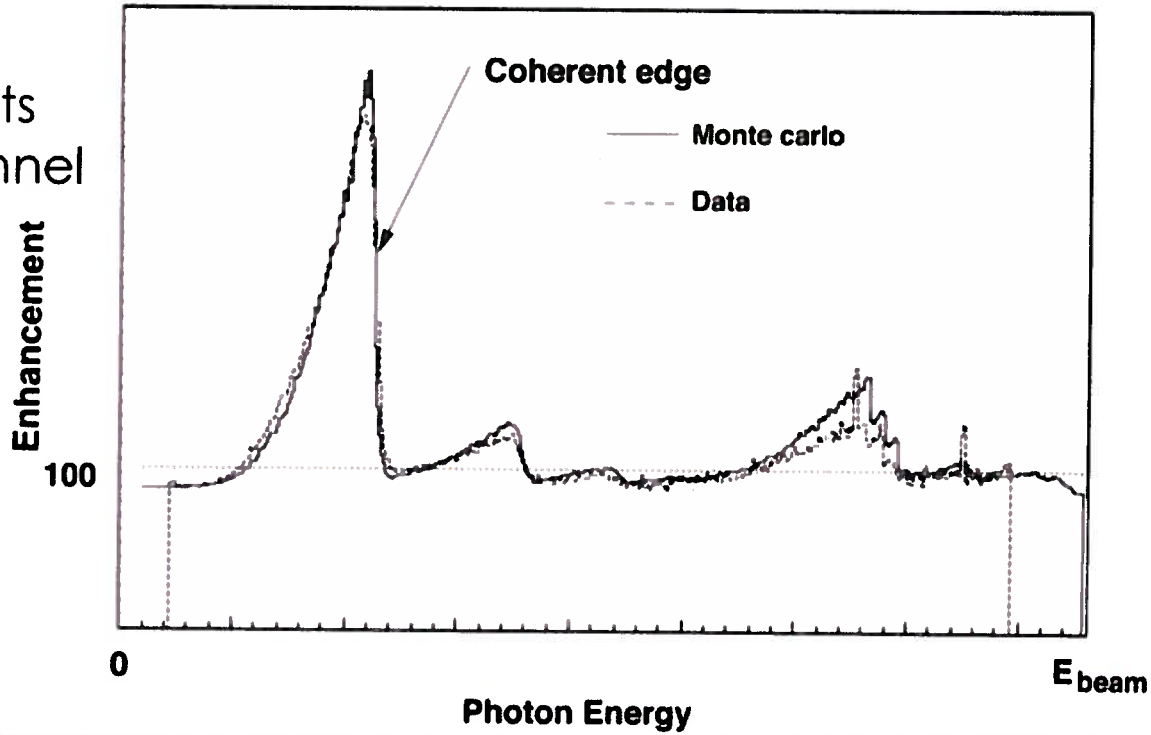
What is important to us that MCC should know

Polarized photon beam





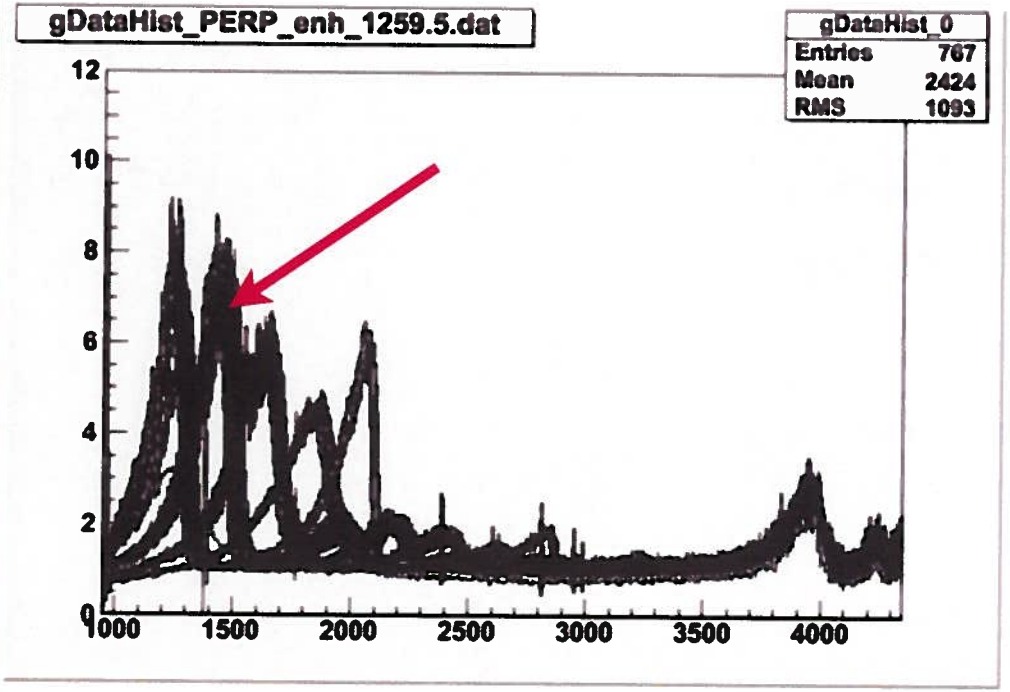
Remove incoherent bremsstrahlung effects and channel-to-channel fluctuations

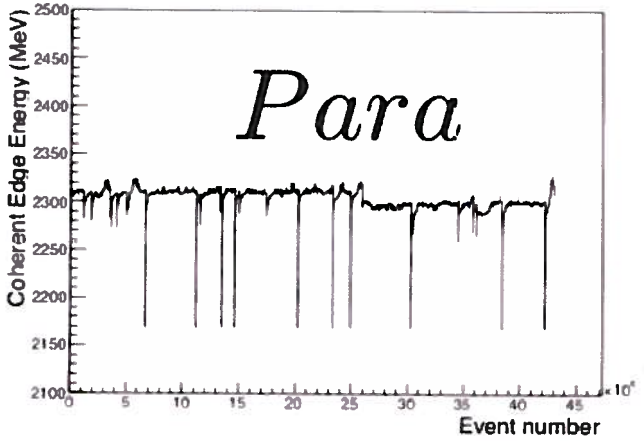


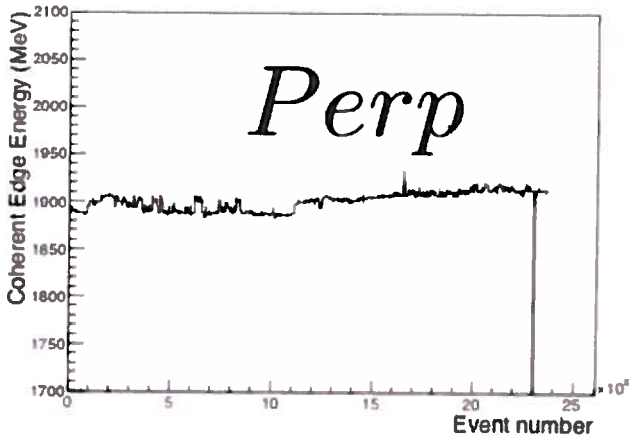
What is important to us that MCC should know

Enhancement

- Data collected showed a drift in the coherent-edge position







Typical drift in coherent-edge position

What is important to us that MCC should know

- Start with 1 week (or as long as we are allowed) of **1-pass, max pol. beam**. Then, 2-passes beam.
- Bother: Photon beam from tagger's diamond has **coherent edge jittering**. Pol. scramble for G14.
- Beam characteristics for G14 and HD target operations.

What is important to us that MCC should know

ACCELERATOR REQUIREMENTS (I)

for circularly polarized photon beam:

- beam current up to 60 nA (photon beam produced on 10^{-4} r.l. radiator)
- instability of beam current < 5%
- accuracy of beam energy 5×10^{-4} (instability of $E_{beam} < 10^{-4}$)
- beam divergence at 2C24A: < 100 μrad
- beam spot size at tagger harp: σ_x, σ_y < 150 μm
- beam position instabilities at 2C21A and 2C24A: < ±100 μm
- max. electron beam polarization (direct reporting)
- beam charge asymmetry < 5×10^{-4}
- beam halo at tagger harp (shoulder/peak) ~10^{-4}
- bleed-through from other halls < 10^{-3}
- under no circumstances must the beam spot position on the tagger dump be adjusted by changing the tagger magnet current
- machine fast shutdown interlocked with tagger magnet

F. Klein

What is important to us that MCC should know

ACCELERATOR REQUIREMENTS (II)

for linearly polarized photon beam:

- beam current up to 20 nA
- instability of beam current < 5%
- accuracy of beam energy 5×10^{-4} (instability of $E_{beam} < 10^{-4}$)
- parallel beam: beam spot size at 2C21A and 2C24A: σ_x, σ_y < 150 μm
- difference in spot size at 2C21A and 2C24A: < 50 μm
- beam position instabilities at 2C21A and 2C24A: < ±100 μm
- beam halo at tagger harp (shoulder/peak) ~10^{-4}
- bleed-through from other halls < 10^{-3}

- all magnets between 2C21A and tagger must be off
- under no circumstances must the beam spot position on the tagger dump be adjusted by changing the tagger magnet current
- machine fast shutdown interlocked with tagger magnet

F. Klein

What is important to us that MCC should know

ACCELERATOR REQUIREMENTS (III)

for electron beam tests:

- Spring '11: beam current below 0.5 nA (CLAS start counter still in place, upstream beam line being changed from photon to electron setting)
- Dec '11 or May '12: beam current below 10 nA (upstream beam line being changed and minitorus installed instead of start counter)
- tagger magnet de-energized (electron beam onto dump behind Faraday cup)
- use raster magnet to radiate the central part of HDice target uniformly

- beam spot size at 2C24A: σ_x, σ_y < 150 μm
- beam position instabilities at 2C21A and 2C24A: < ±150 μm
- beam halo at tagger harp (shoulder/peak) ~10^{-4}
- bleed-through from other halls < 10^{-3}

F. Klein

SAD ES&H Report
October 2011