

Hall A Status and JLab Early Running

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DVCS Collaboration Meeting
IPN-Orsay 11/13/12

Accelerator schedule excerpts (Arne Freyberger)

- Accelerator Run II: Beam in hall 3/2014, or maybe as early as 2/2014 (?)
 - > 1.1 GeV/pass, 3 pass spin-up to Hall A
 - up to 5.5 pass to D by ~5/14
 - Shut down 5/3/14
- Accelerator Run III: 8/30/14 – 12/1/14
 - CD4A milestones
 - 12 GeV 5.5 pass capable *installed*
 - 11 GeV 5 pass to A, B, C *installed*
 - > 2 nA 2.2 GeV single pass *transported*
 - Plan
 - $E > 2$ GeV/pass, 10 GeV to Hall D
 - 2 Hall operation
- Accelerator Run IV: 2/13/15 – 6/1/15
 - $E > 2$ GeV/pass, 2 hall operation
 - CD4B Halls B,C,D operational, $> 6, 6, 10$ GeV
 - *Schedule rebaseline likely – won't effect Hall A or accelerator*
- Physics Run I: 8/30/15 – 12/23/15
 - $E > 2$ GeV/pass
- Physics Run II: 2/6/16 – 6/25/16
- Physics Run III: 9/12/16 – 12/22/16
- Spring, fall, spring, fall runs continue....

(from RE) Early Beam Guidance in PAC Days

Fold in planning of beam development by
Accelerator/OPS – see A. Freyberger talk

The table is split in years, but the exact correlation with FY or CY may shift. Treat the entries simply as one-year blocks to give some guidance on the best expectations for startup.

32 weeks of operations ~ 80 PAC days/Hall (for Hall multiplicity of 3)

YEAR	Hall A	Hall D	Hall B	Hall C
-1	25 (15)*			
0	60 (<10)*	25		
1	90	90	25	25
2	80	80	80	80
3	80	80	80	80

* PAC days between parentheses indicate possible choice of energies < 2 GeV/pass

(While 12 GeV machine development is ongoing, we assumed a conversion of actual days to PAC days of less than 50%)

Accelerator schedule – first considerations for Hall A

- Accelerator Run II: 3 (or 2!!)/2014 – 5/3/14
 - Beam energy may be increasing, tune will likely not be beautiful to start
 - Need to demonstrate/test/measure beam energy, polarization, position, angle on target, current, spot size, raster
 - Detector and DAQ checkout – HRS's a priority
 - Won't have beam constantly, accelerator work is priority
 - Try to run for physics anyway! ☺
 - Should be ready with experiment on the floor
- Accelerator Run III: 8/30/14 – 12/1/14
 - Beamline and tune should be OK
 - 11 GeV (or closeish) - physics really begins
- Assume these runs will have to be combined
 - What experiment(s) to run first?
 - Need flexible experiment(s) that can use both low and high E beams
 - Preference for A-rated, 11 GeV
 - Start “simple”
 - Likely enough work to do and problems to diagnose with the new beam line, tune, and instrumentation
 - Difficult requirements on the beam may not be met, and accelerator will not be giving priority to trying
 - Preference for HRS's, hydrogen + dummy target
 - Work with the known to troubleshoot the unknown
 - Experienced collaboration(s)

Hall A Projected Experiment Schedule as of 8/2012

	February - May	August - December	February - June	August - December	February - June	September - December
2014	GMp / DVCS - I	GMp / DVCS - I				
2015			$^3\text{H}/^3\text{He}$ (A_1^n)	PREX (APEX)		
2016					A_1^n (SBS) (DVCS-II) (APEX)	SBS (A_1^n) (DVCS-II) (APEX)

Experiments in parentheses represent potential schedule changes.

available on Hall A wiki

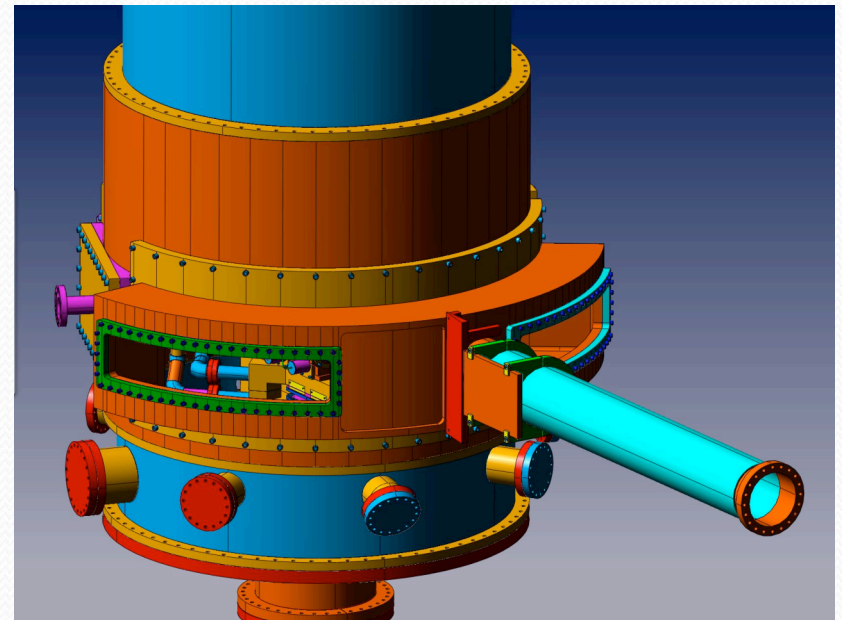
SBS



MOLLER,
SOLID...?.....

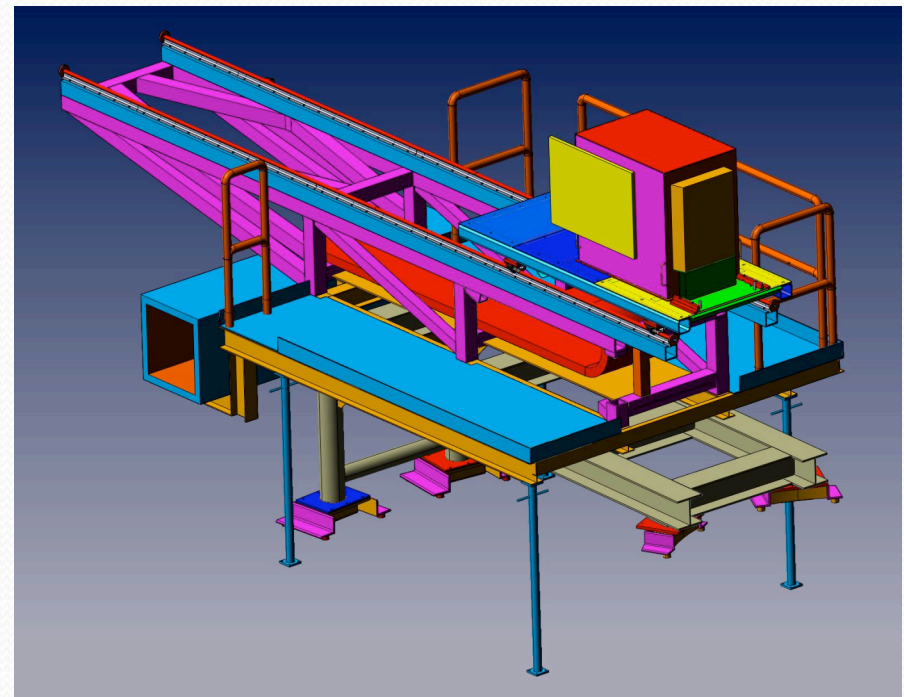
G_M^p / DVCS-I* Combined Run

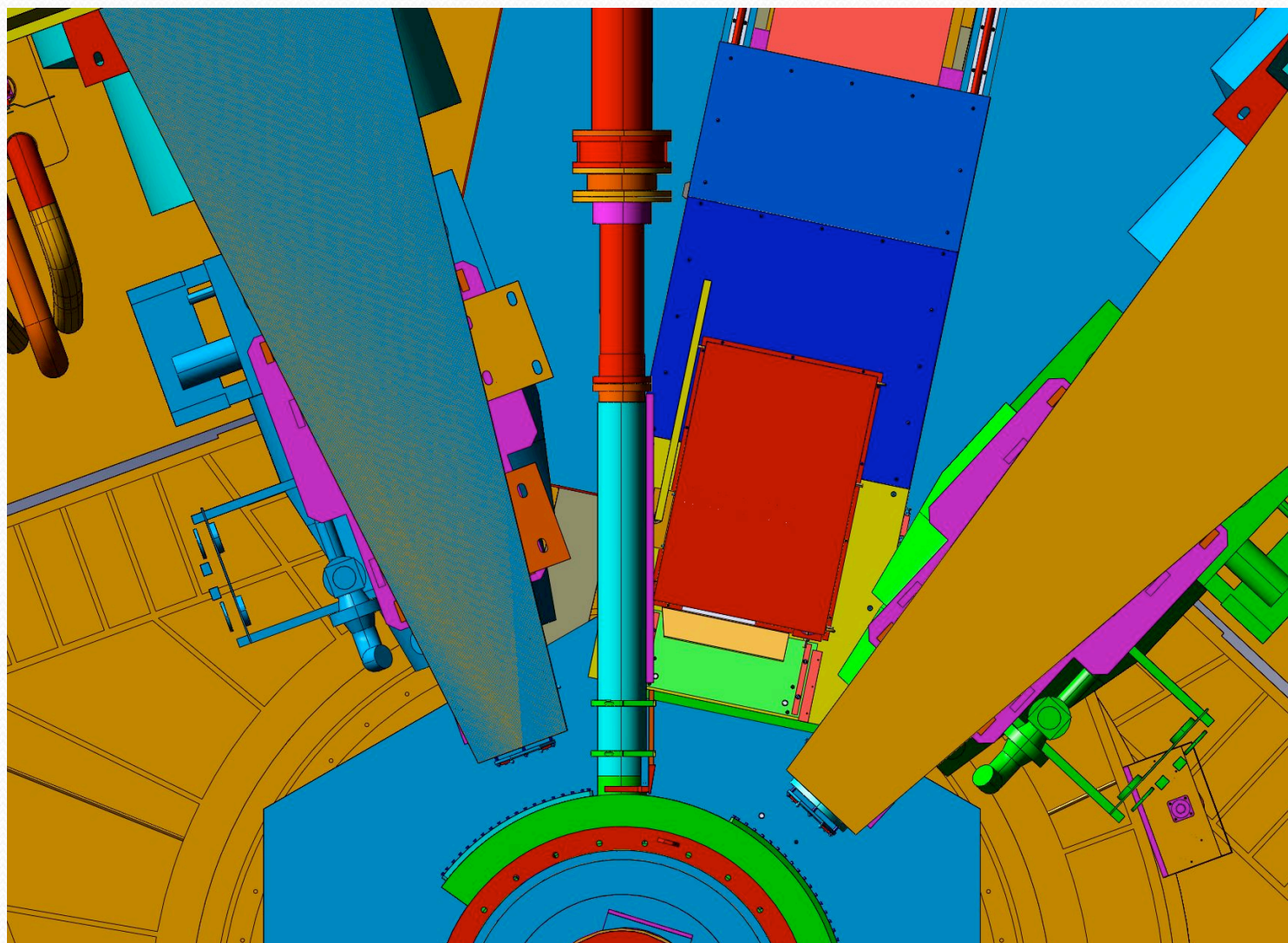
- G_M^p largely backward angle, high Q^2 : HRS-R
 - May need some early, short running at forward angle, lower Q^2
- DVCS entirely forward angle: HRS-L + calorimeter
 - Plan to put calorimeter on the floor summer 2014 (between Accel. Runs II, III)
- Small differences in proposed target length, current
 - Agreed now on 15 cm target
 - Current can be accommodated by run time – which will be dominated by accelerator performance anyway
- With appropriate target chamber/extension design, calorimeter stand modifications, can achieve symbiosis – 2 for 1! ☺
- *For DVCS anticipate a two run approach (100 days approved), so long as full x_{Bj} run(s) obtained



Hall Upgrade Status and Near-Term Plans

- 12 GeV Upgrade (Beamline)
 - Compton Polarimeter
 - Moller Polarimeter
 - BCMs, BPMs, Unser
 - Raster
 - Arc Energy
- Cryotarget Upgrade
 - + Swing Arm for Optics Centering
- Design Work (almost complete!)
 - Scattering Chamber + Extension
 - Calorimeter Shielding
 - Calorimeter Stand
 - Cables on the floor?
- DAQ (Alexandre)
- TED-F space for Calorimeter
-more..... ->





HRS Tasks - *want to help?*

- VDCs - need 3-4 FTE-month in electronics than 1 FTE-month for software/analysis
- Shower - need 1 FTE-month in electronics than 1 FTE-month for test/analysis
- So - need 0.5 FTE-month for installation/tests
- S2m - need 1 FTE-month for electronics - high resolution TDC (in DVCS)
- Gas Cherenkov - 2-3 FTE-month for mirror test/installation, PMT tests
- Online analysis GUI - 2-3 FTE-month
- HV system with units and crates - 2-3 FTE-month
- Trigger with EDTM - 1 FTE-month
- Beam information in the HRS DAQ - 1 FTE-month
- FPP chamber electronics re-installation - 3 FTE-month

Other Tasks

- Beam energy measurement(s) - Arc, (e,e'p), nuclear elastic,...
- Polarimetry
 - Compton (e- and γ)
 - Moller
- Beam charge calibrations
- Beam position
- Target boiling (new raster)
- Spectrometer motion
-!



Some thoughts for moving forward

- Likely a readiness review is on the near horizon - new process!
- Combined collaboration (+Hall, +accelerator) task list
- Begin regular meeting schedule
 - Consider combining experiment meetings periodically, or cross-attending
- Look at run plan integration
- Very exciting – the beam is on the way! 😊