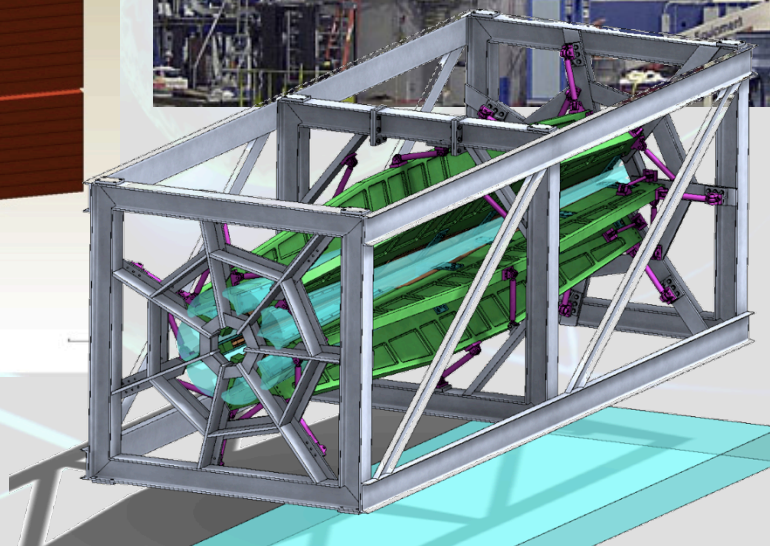
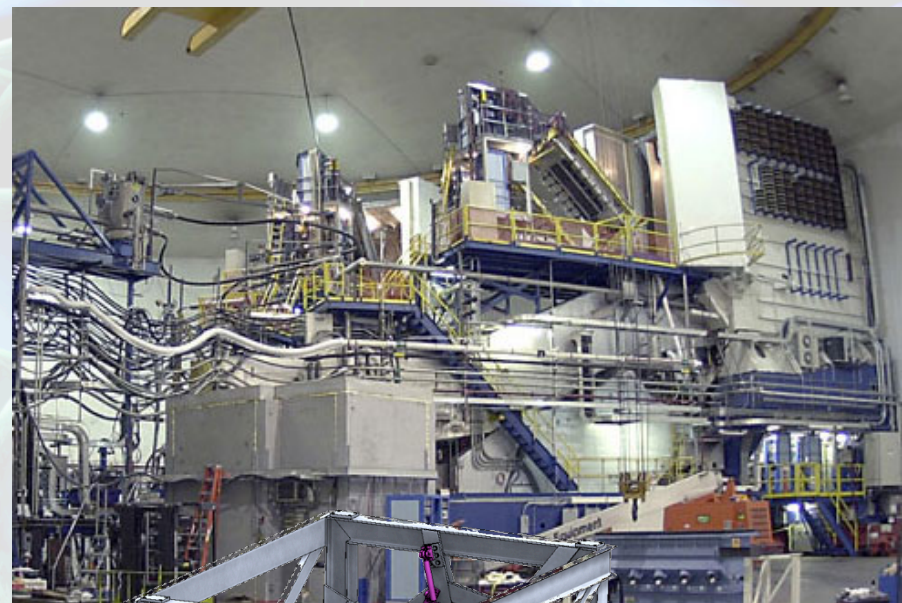
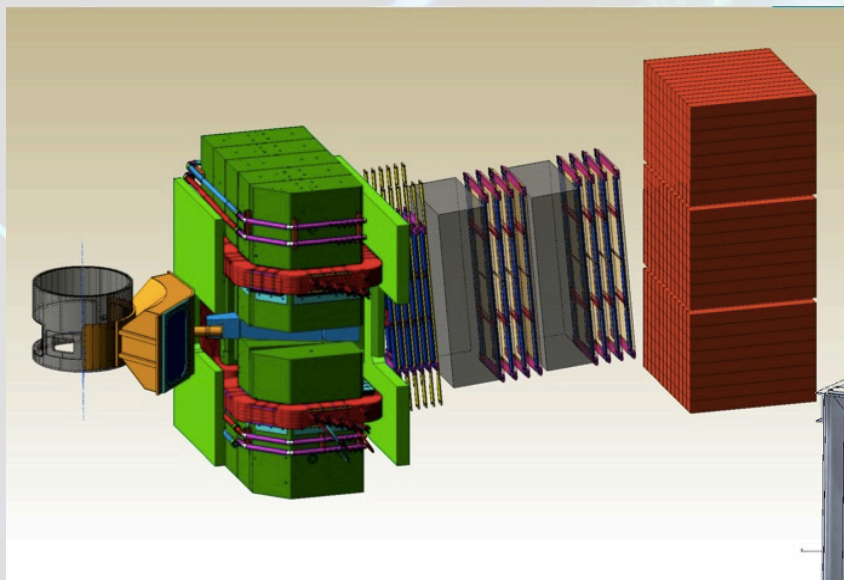


Hall A User Feedback

Thia Keppel



Operations Staytreat
July 2015

DVCS / G_M^p Experiments in Hall A Now

- Experiment dedicated to effort! 7 graduate thesis students (MIT, Ohio, Orsay, Hampton, William and Mary, Catholic, ODU), 3 sabbatical faculty, 3 postdocs

Fall 2014:

- Only L-HRS working, $E_b = 7.3$ GeV
 - R-HRS quad removed
- Møller polarimeter commissioning
- DVCS electronics/trigger commissioning
- DVCS calorimeter calibration
- ~3 days of data taking for DVCS
- Optics data and 1 elastic point at $Q^2 = 7.7$ GeV² for G_M^p (but large or unmeasured systematic uncertainties)



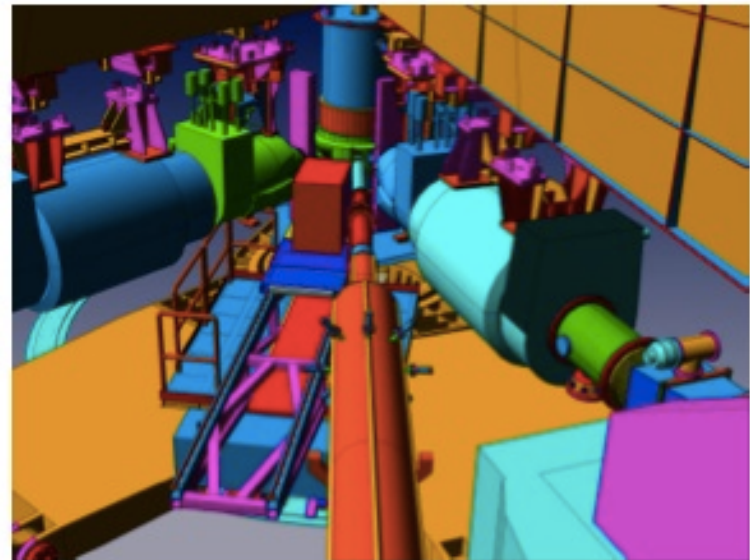
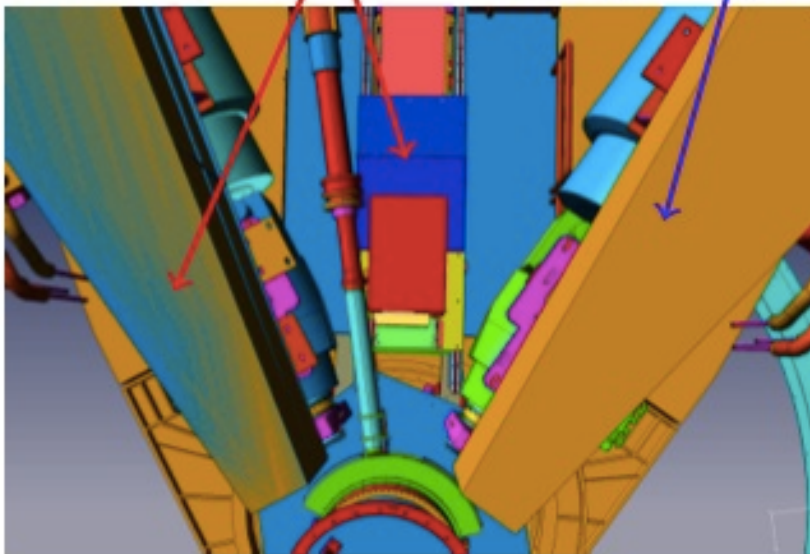
DVCS / G_M^p Experiments in Hall A II

Spring 2015:

- $E = 9.6$ GeV, then $E = 2.2$ GeV (*no physics*)
- HRS optics calibrations (R-HRS now with SOS quad)
- New raster system commissioning
- BPM & BCM calibrations
- Beam energy measurement
- Compton polarimeter commissioning
- Target boiling studies

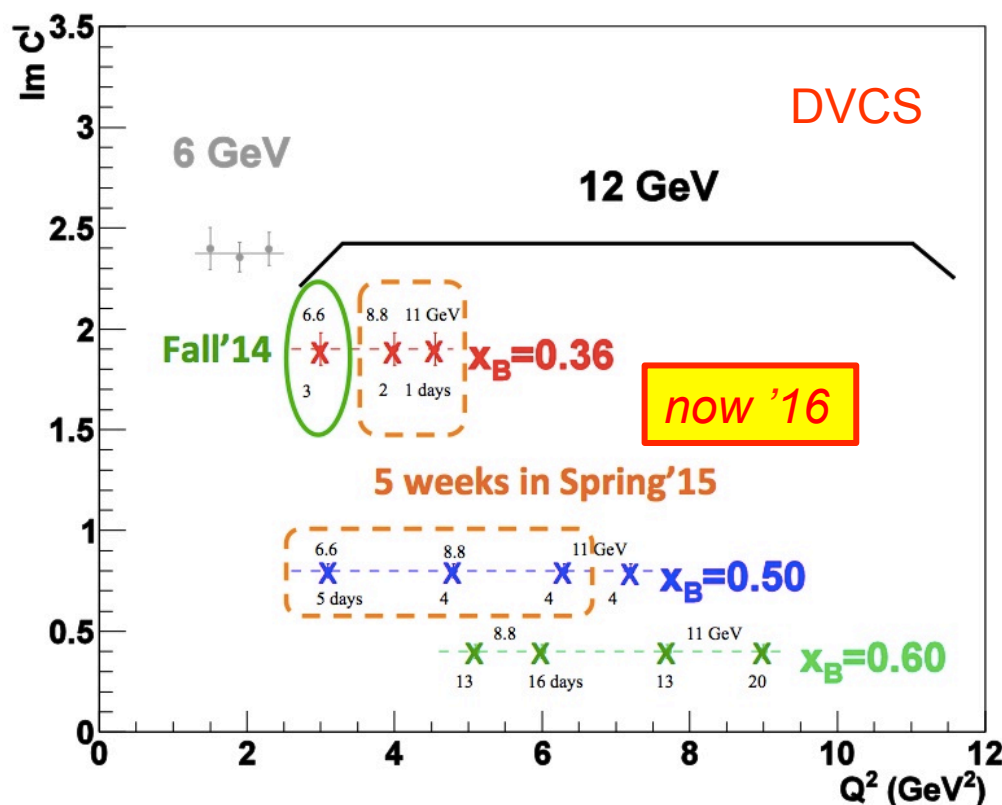
DVCS: $ep \rightarrow e'\gamma p$

G_M^p : $ep \rightarrow e'p$



Experimental configuration in Hall A (Fall'14 – Spring'15)

DVCS and G_M^p : Concurrent Experiments in Hall A at 11 GeV



7 graduate thesis students on site taking data (MIT, Ohio, Orsay, Catholic, William and Mary, ODU, Hampton)

High Q^2 Form Factors

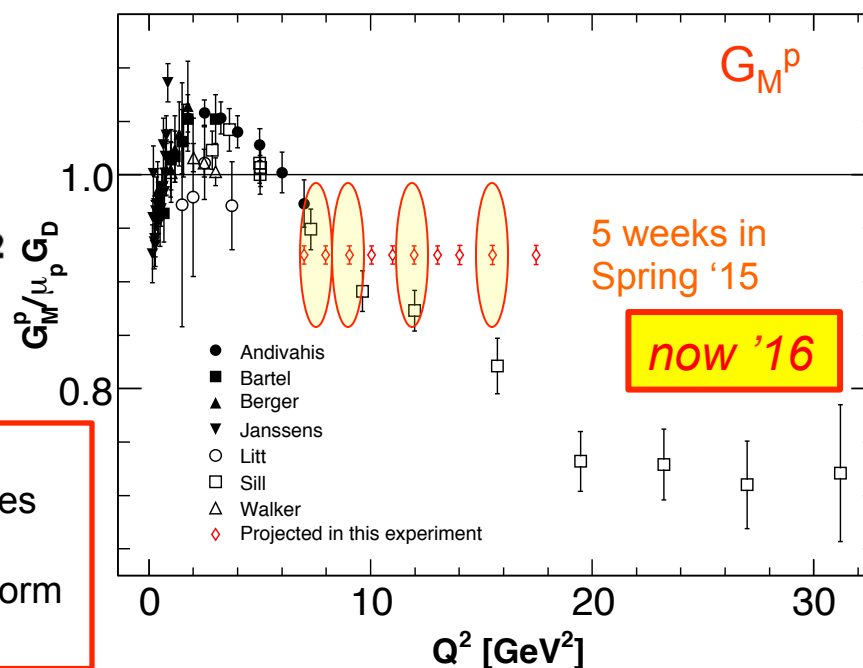
Reducing G_M^p uncertainties will enable Super BigBite high impact program of Form Factor Measurements

High impact experiment for 3D nucleon imaging

Deeply Virtual Compton Scattering (DVCS) provides access to Generalized Parton Distributions (GPDs)

Will provide highest available Q^2 measurement of the DVCS cross section

Demonstration of scaling critical to full JLab 12 GeV GPD program





Feedback from DVCS/ G_M^p I

The collaboration worked to provide a single, cohesive statement. DVCS and G_M^p are Hall A Collaboration experiments. Summary excerpts follow:

- In general, we have very good communication between the Hall A Counting House crew and the MCC crew. We appreciate the hard work they have put in to commission the accelerator.
- As Users, the major challenge we have confronted (other than lack of beam!) is an experience of disarray of the Hall A beamline instrumentation. This includes Harps, BCM, BPM, Raster, Quads, Dump.
- The first challenge we face as users is that we don't have a clear understanding of which individuals or even which laboratory division are responsible for each piece of equipment. As the de-facto commissioners of 11 GeV Hall A operations, we would appreciate a more detailed picture of the organizational responsibilities of the various equipment along the Hall A Beamline and who to contact for problems.



Feedback from DVCS/ G_M^p II

Specifics (still excerpts):

- Harps: We had great difficulty with the harps. Some seemed to be broken/non-operational, or electronics borrowed for other harps. We need all of the harps operational, including the ARC Energy measurement equipment and all others downstream.
 - *Note: The Hall is currently working with accelerator and engineering on this, bringing the Hall A system into improved compatibility with the rest of the machine.*
- BCM: The upstream and downstream BCM electronics originally each had 3 amplifiers: x1, x3, x10. Only a subset of these are currently operational. We should have all six. At a minimum for accurate DVCS/ G_M^p operations we need U1, U3, D1, D3. There also seems to be some issue regarding 10 KHz(?) vs 1MHz amplifiers. This should be resolved and documented.
- Beamline Quads: At one point, the raster pattern on target was strongly distorted relative to the raster coil current pattern. Apparently an intervening quad was reverse wired. *It was difficult to convince Acc-Ops to check and repair this issue.*
 - *Note: This was solved quickly once the expert was engaged.*



Feedback from DVCS/ G_M^p III

Specifics (still excerpts):

- Beam Dump: The diagnostics in the beam dump seemed to be only partially operational. There also seemed to be an elaborate calibration scheme of the dump with every beam change. This procedure required many hours of beam and an accelerator specialist. *A little more clarity and a more streamlined operational protocol would be greatly appreciated.*



Feedback from DVCS/ G_M^p IV

One last excerpt:

“In general, our basic message is that we need a fully operational beam line, and it is our impression/experience that many components are either non-functional or operating with band-aids that may fail at any moment. We are willing, even eager, to work on these issues, but enthusiasm could be greatly enhanced by clear leadership and specific responsibility from the appropriate JLab staff and management.

Hall Request:

For each experiment, accelerator to provide list of people responsible, with contact information, for each specific beamline instrumentation components

Ending on positive note:

Communications and organization beyond the beamline instrumentation problems seems to be going well. “We have Run Coordinators, Program Deputies, regular meetings, lots of communication, and the Crew Chiefs and MCC crews do a good job communicating with our shift workers.”



More General Feedback from Hall A Community

Summary Comment: The main problem we've had lately is no beam for physics!

“Of course, we all know and understand the reasons, but clearly it’s a source of frustration. The lab should make sure Operations has the resources it needs to be successful, even if it means sacrificing elsewhere; and we need to manage expectations among the Users.”

Note to the last words:

The Users spend their precious and often scarce resources to try and run. The message thus far for Hall A has been “opportunistic physics”, kind of you’re on your own if you want to try. But, trying is a big decision that begs respect and input. Realistic probability discussions should to be publicly presented to the Hall and Users.

After (much appreciated!) internal discussions with Arne, I have let DVCS/GMp know not to plan on any shifts in the Fall, not to send students, delay any sabbaticals. They did not get this pessimistic a message from the major meeting presentations that they attend.

The sooner that we can let them know realistic plans for the Spring the better!



Thank You!