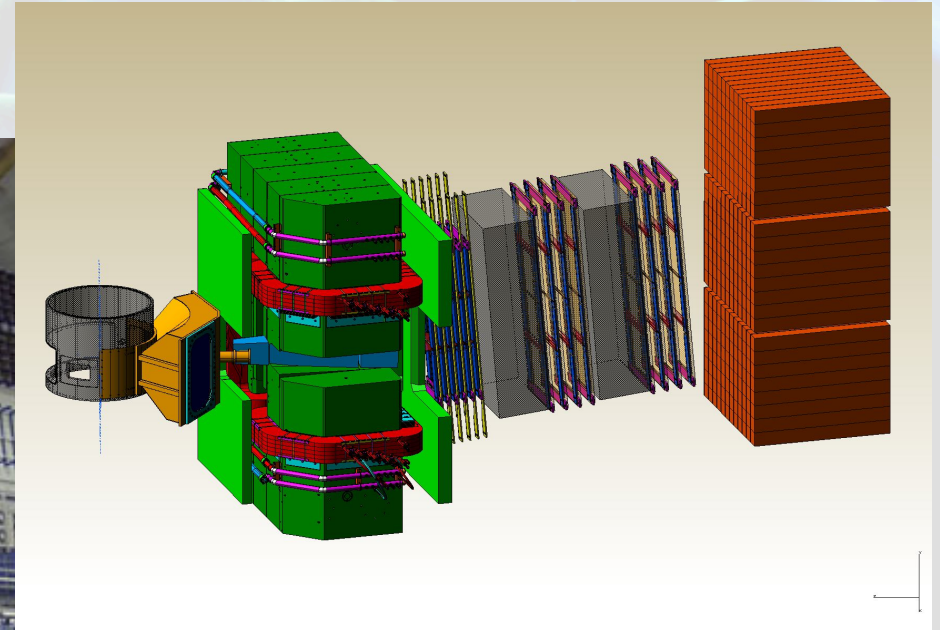
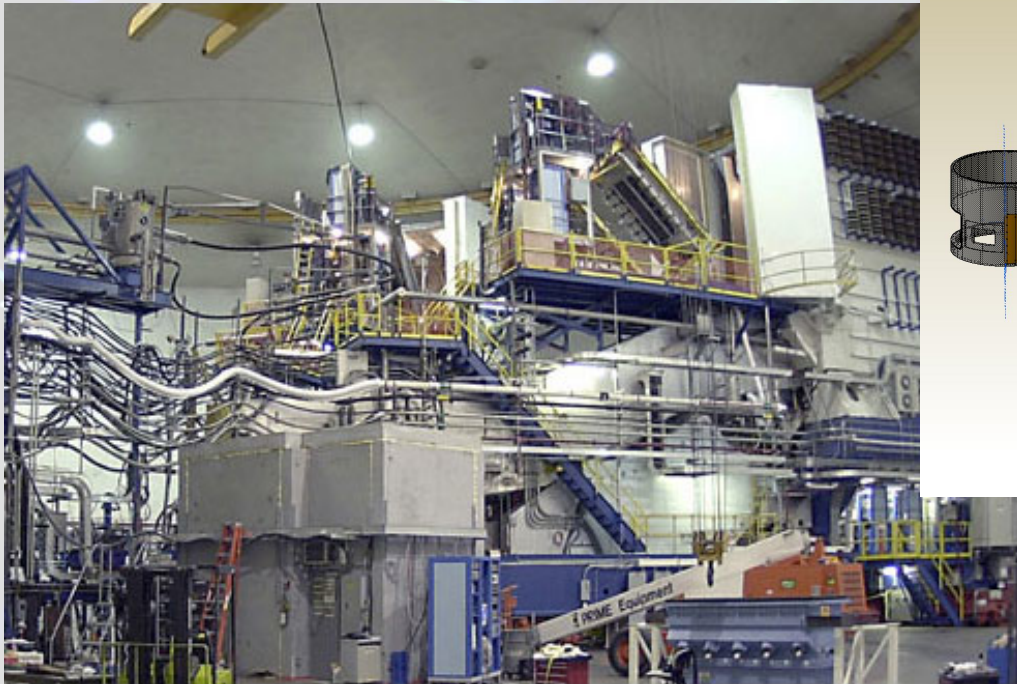


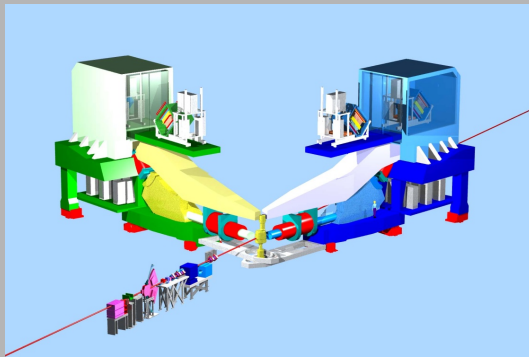
# Hall A Update

*Thia Keppel*



## 6 GeV Era

- Analyses and publications continue
  - See Camacho, Averett, Sirca, Zhu, Bloomberg talks
  - Three Hall A articles published in July 2014 PRL!



# Hall A Planning

- 3 A-rated experiments in first years of running
- $G_M^p$  (HRS-R) and DVCS (HRS-L + calo) run is combined
- Some flexibility incorporated

16 mo.  
Shutdown

12 GeV  
Commissioning

## Early Experiments

DVCS-I and  $G_M^p$

Access to GPDs  
EM Form Factor  
Photon calorimeter to be installed on floor

$^3\text{H}/^3\text{He}$  APEX/PREX (A1n)

d/u at High x  
Requires tritium target, venting system and BigBite spectrometer  
Dark photon A' / Neutron skin  
Both require additional small angle septum magnets

Neutron spin structure  
Polarized  $^3\text{He}$  target

## SBS Experiments

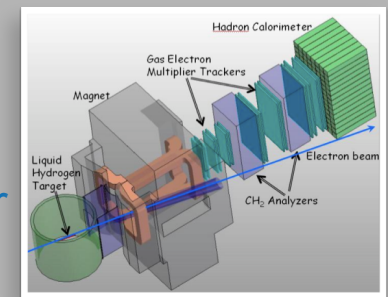
EM Form Factors at high  $Q^2$

### 12 GeV Projects:

1. Moller polarimeter
2. Compton polarimeter
3. Energy measurement upgrade

## SBS Project

## SuperBigbite Spectrometer



Beam 1<sup>st</sup> to Hall A

11 GeV

FY 2013

FY 2014

FY 2015

FY 2016


FY 2017

commissioning beam



# Hall A Projected (nearish term) Experiment Schedule

*...will soon be available on Hall A wiki*

	Spring	Fall	Spring	Fall	Spring	Fall	Spring
2014	DVCS -I/ GMp checkout	DVCS - I/ GMp					
2015			DVCS - I/ GMp	${}^3\text{H}/{}^3\text{He}$ (4) ( $A_1^n$ ) Ar(e,e'p)			
2016					( $A_1^n$ ) (APEX) (PREX) (CREX) Ar(e,e'p)	(PREX) (APEX) (CREX) (DVCS-II)	
2017							APEX (DVCS-II) (SBS)

- Experiments in parentheses represent potential schedule changes/options

PAC42 High Impact Experiments including SBS  $G_e^p$

New experiments approved

SBS

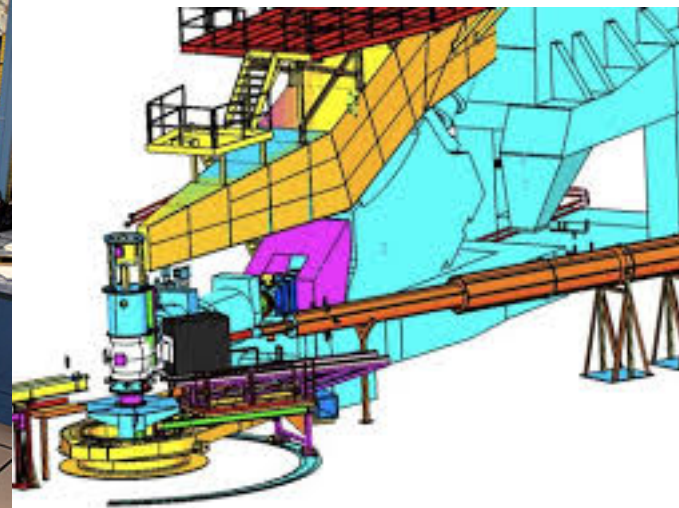
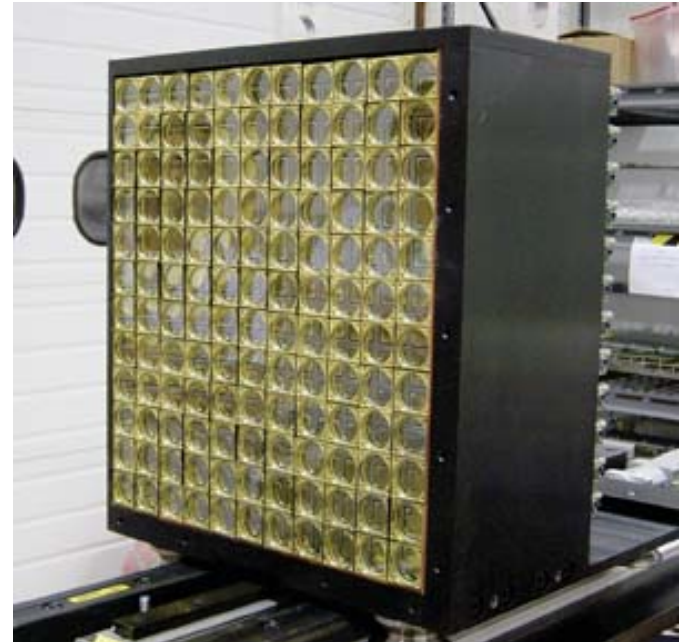
MOLLER,  
SOLID...?.....



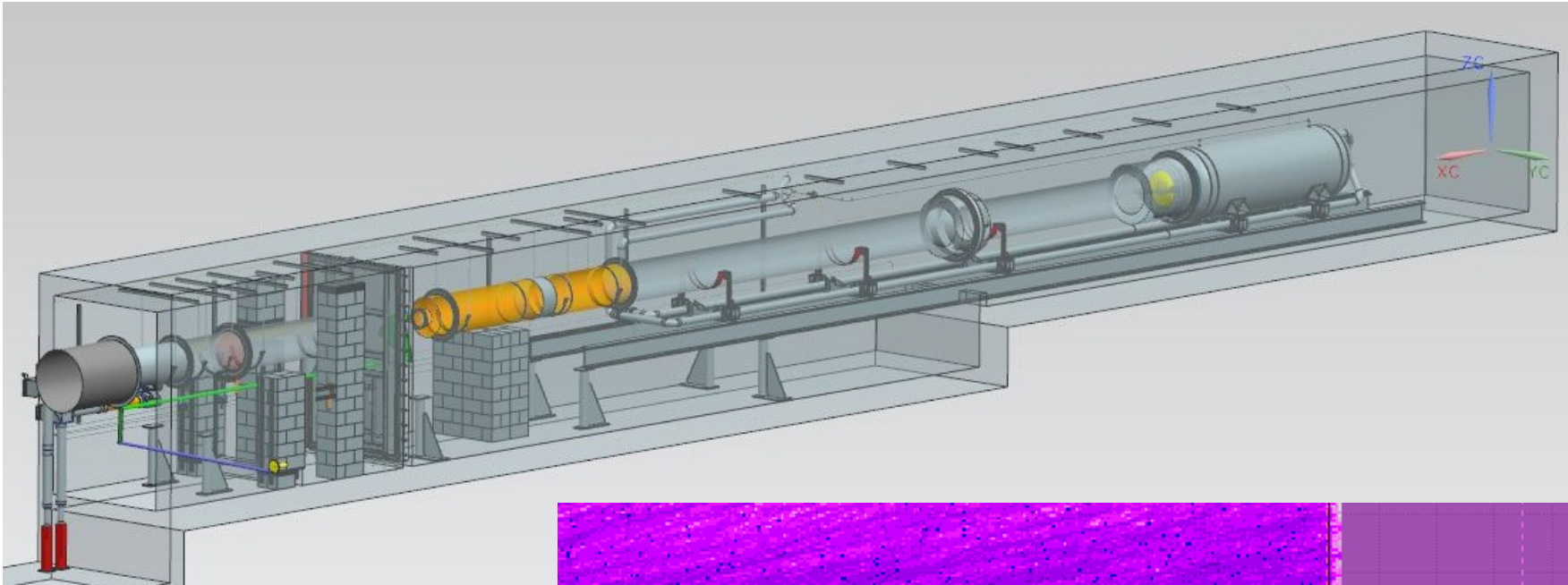
# Fall 2014 Run ( beam in the hall now!)

## DVCS / $G_M^p$ Experiments

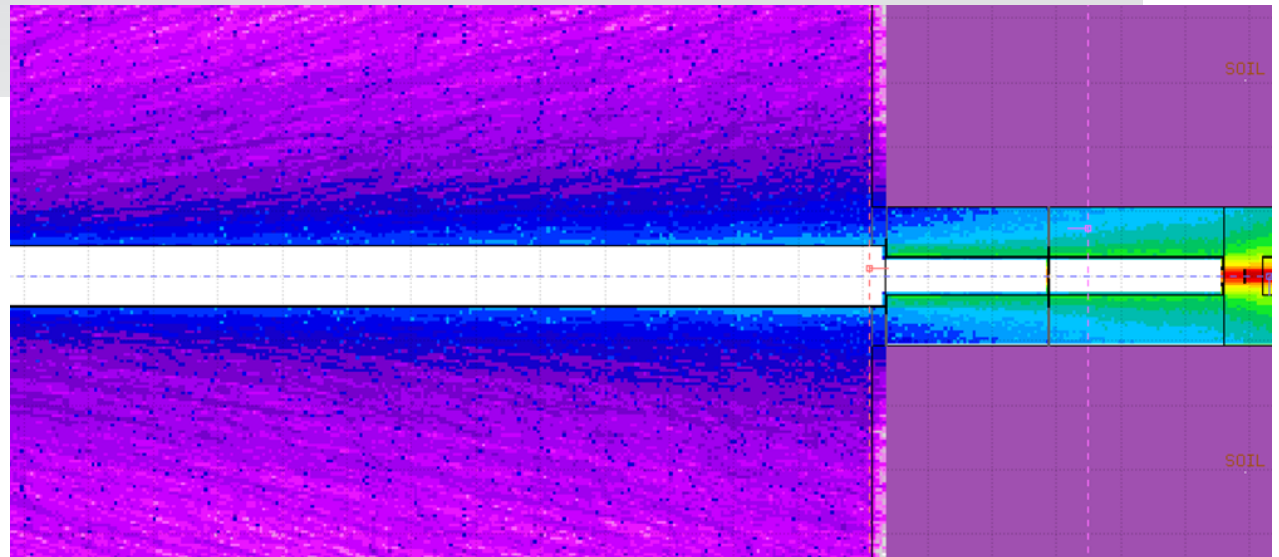
- 4 pass beam, ~2 weeks left in Fall run
- Start up again mid February with 5 pass beam
- Problems with HRS Q1-R (L too?)
- See Ou, Diamini, Schmookler talks
- Target test cell
- Sign up for shifts ☺



# Hall A Beam Dump Upgrade

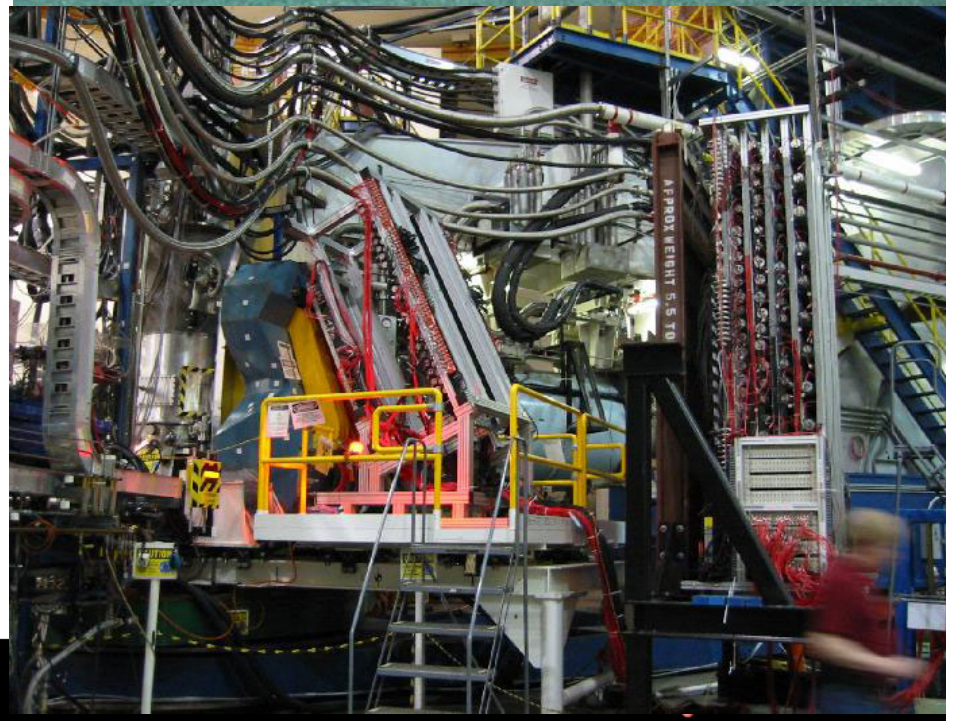
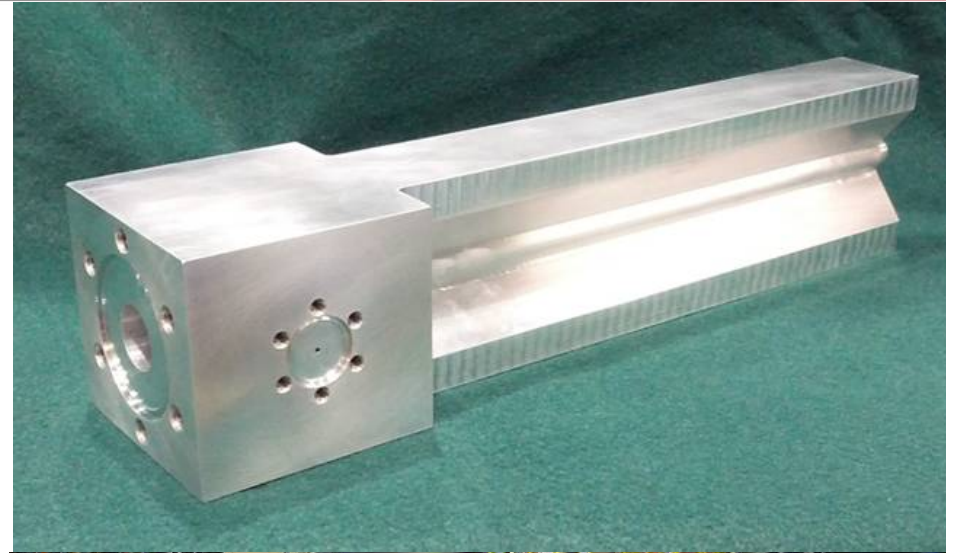


Still moving  
towards high  
current running..



# Tritium Experiment Preparations

- Two new experiments approved by PAC 42
- Preparing for (target) readiness review ~March-April
- BigBite under (re-)construction in test lab
  - Active collaboration
  - Design for modified Cerenkov
  - Plan to add SBS GEM plane
- See Tuesday morning session



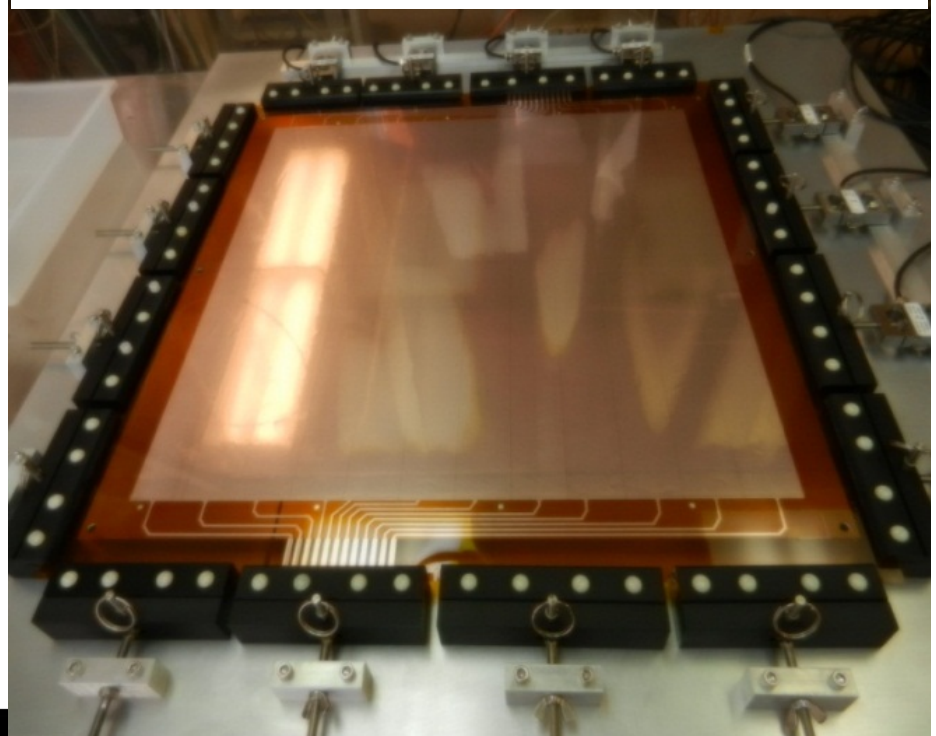
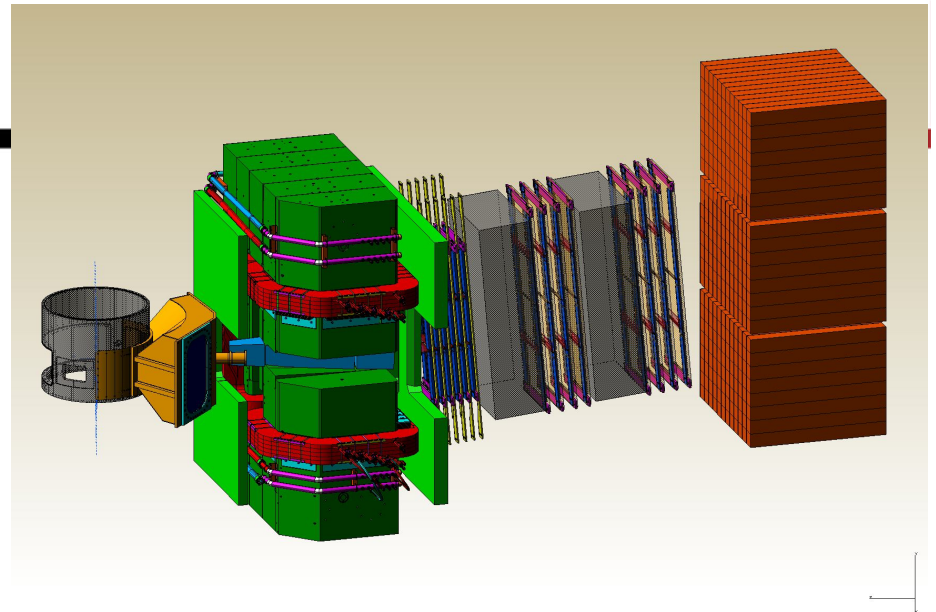
# Beyond $^3\text{H}$

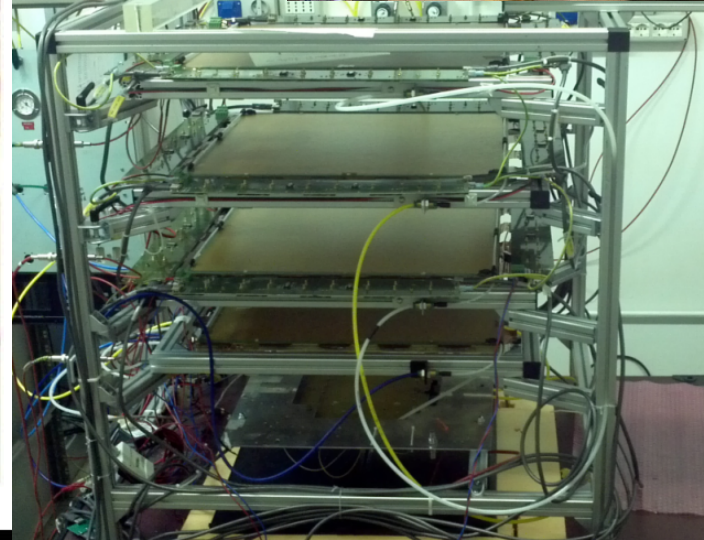
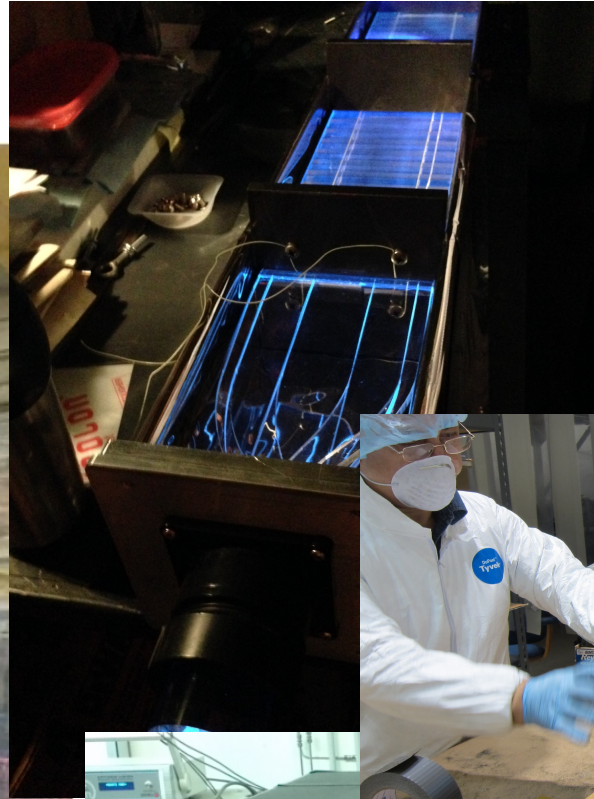
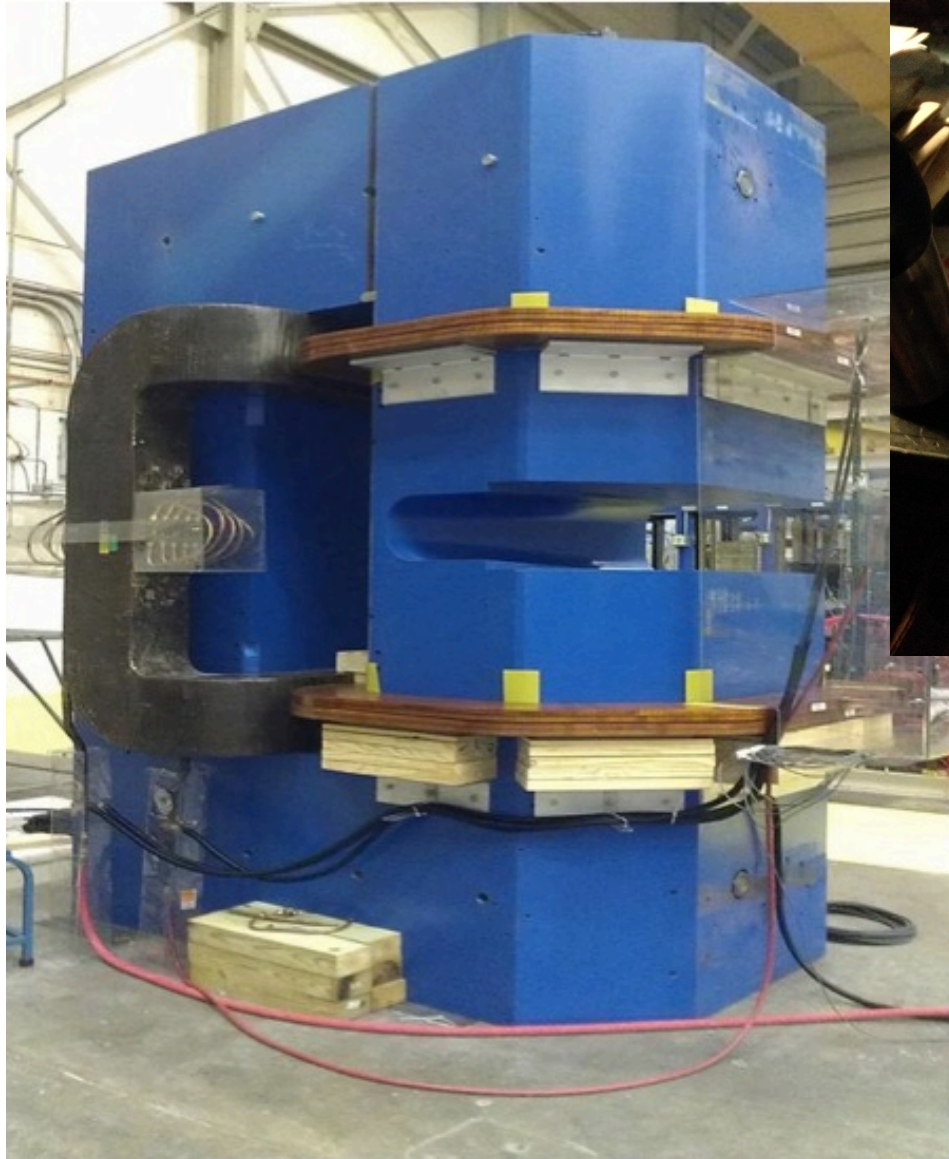
- Polarized  $^3\text{He}$  target improvements and continued development
  - Convection, new lasers, metal windows, ...
  - See Cates talk
- PREX/CREX
  - Pb targets, new coils purchased
  - Shielding designs underway
  - Computation fluid dynamics for target design
  - Polarimetry
    - Plan to test Compton (photon) in Spring 2015 Run
    - New superconducting magnet purchased
    - See Gaskell, Pomatsalyuk talks
  - See Saylor talk
- New septum magnet purchased by APEX collaboration now in test lab
  - See Toro talk



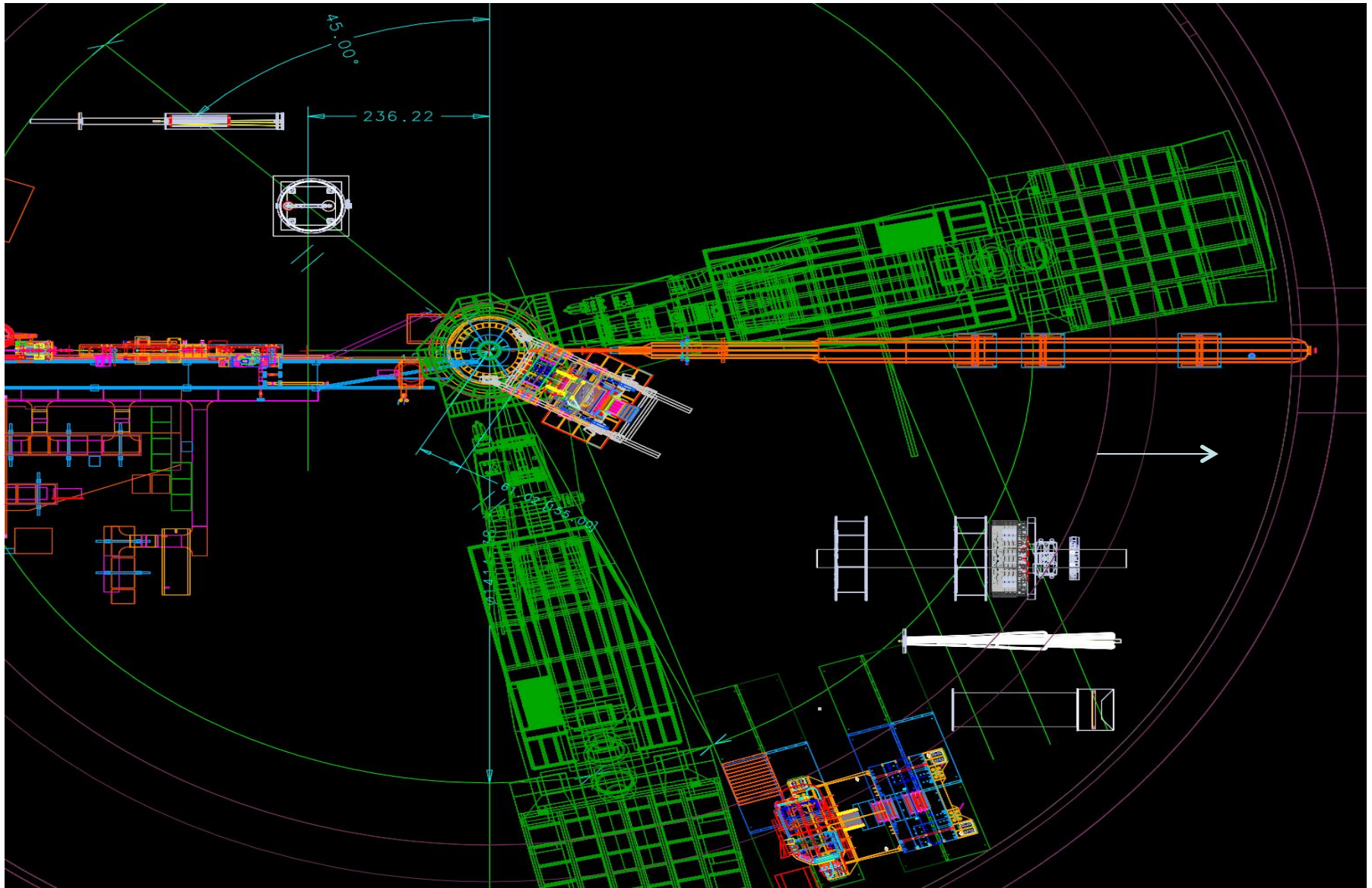
# SBS Construction

- Project started October 2013
  - **Just** passed second annual review
  - Some recommendations, but *overall very positive, project on track*
- Spectrometer, ECAL work at JLab
  - Power Supply in hall
  - 48D48 magnet modified, assembled, tested in test lab
  - Working on support, stand, vacuum, beamline
  - thermal annealing of ECAL
- GEM construction at UVA
- Coordinate detector at Idaho State
- HCAL Hadron calorimeter at CMU
- See Jones talk



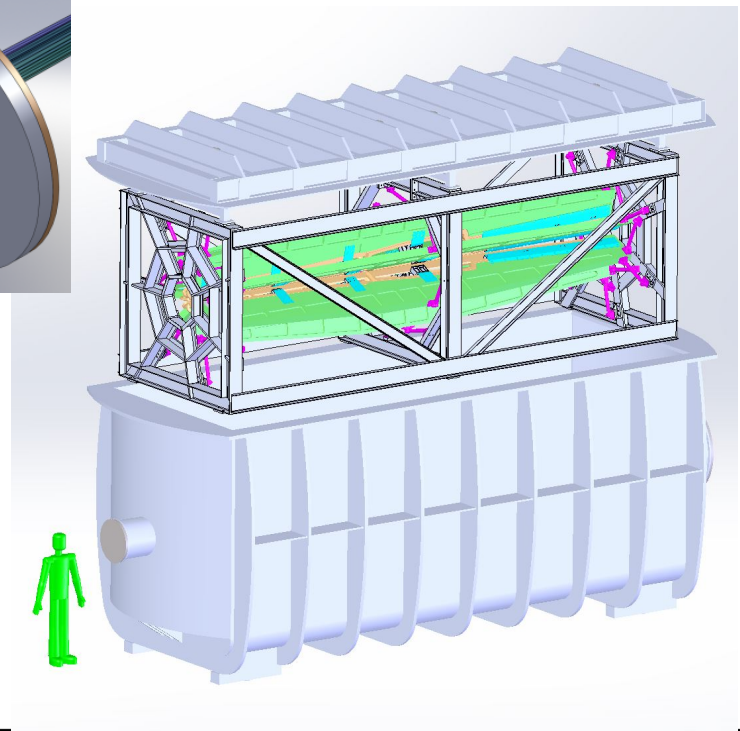
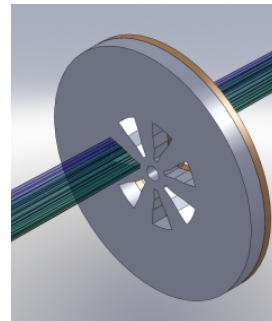
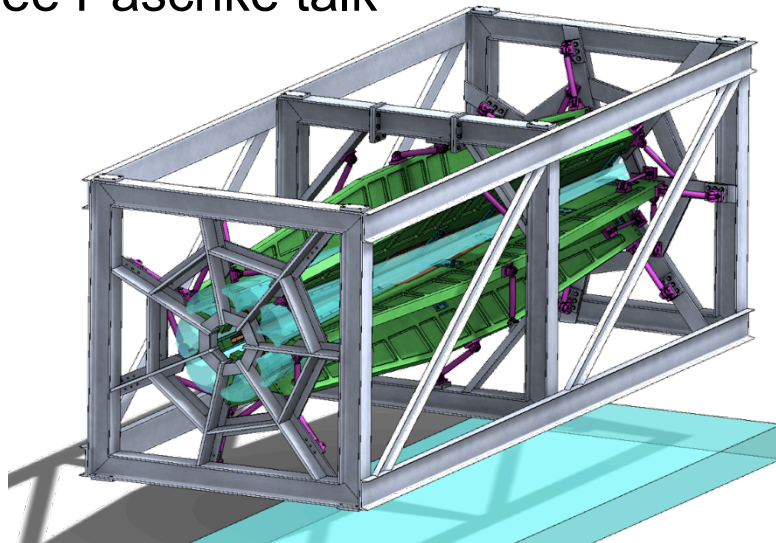


Starting to plan for future installations – example: Hall A with HRS-R, SBS, MOLLER (in 4 sections) removed from beamline, BigBite and HRS-L functional



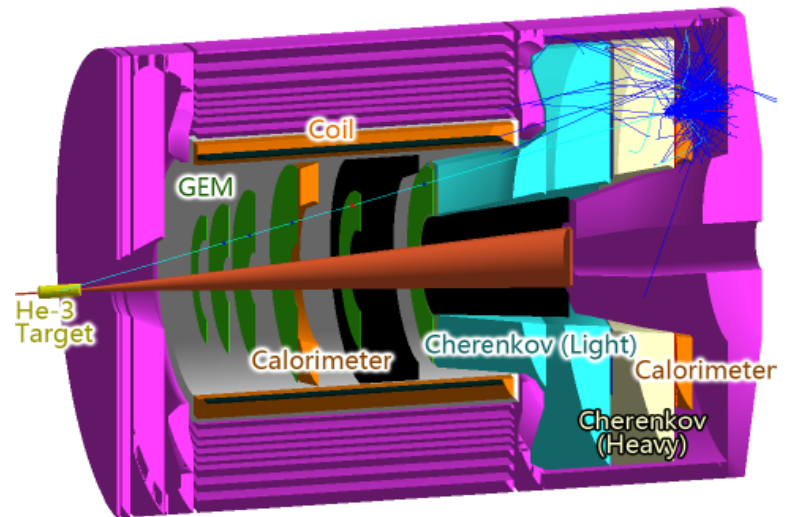
# MOLLER

- DOE S&T visit 7/17, SBS, MOLLER, SoLID talk from hall
- Successful Science Review September 2014
  - MOLLER dependencies drafted
- Supporting ongoing magnet. Collimator development work at MIT
- Upgrading Moller polarimeter (new magnet, work at RPI/Temple)
- LRP Process Important
- Looking towards CD0
- See Paschke talk



# SoLID

- SoLID Experiment submitted draft CDR to Physics Division as first step for Winter 2015(?) Director's Review
  - Continued detector optimization
  - Background studies
- DOE S&T visit 7/17, SBS, MOLLER, SoLID talk from hall
  - Let them know that SoLID was submitting report, anticipating Director's Review
- Working with Cornell to move solenoid in Summer 2016
  - Hall A E&D June planning trip to Cornell
  - LRP Process Important
  - See Ye talk



# More?.... 7 New Proposals to PAC42 (5 approved, 2 run group + ~1 LOI)

12-14-009	A	The EMC PVDIS Experiment: A Constraint on Isovector Dependent Nuclear Modification Effects Using Parity-Violating Deep Inelastic Scattering
12-14-010	A	Measurements of Semi-Inclusive DIS Double-Spin Asymmetries on a Longitudinally Polarized $^3\text{He}$ Target
12-14-011 *	A	Ratio of the electric form factor in the mirror nuclei $^3\text{He}$ and $^3\text{H}$
12-14-012 *	A	Dihadron Electroproduction in DIS with Transversely Polarized $^3\text{He}$ Target at 11 and 8.8 GeV
12-14-013	A	Measurement of Tagged Deep Inelastic Scattering (TDIS)
12-14-014 *	A	Proton and Neutron Momentum Distributions in $A = 3$ Asymmetric Nuclei
12-14-015 *	A	Measurement of the Spectral Function of $^{40}\text{Ar}$ through the $(e,e2p)$ reaction
LOI12-14-006	A or C	Dark matter search in a Beam-Dump eXperiment (BDX) at Jefferson Lab
E12-11-108/E12-10-006 *	A	Target Single Spin Asymmetry Measurements in the Inclusive Deep-Inelastic $\vec{N}(e,e'\prime)$ Reaction on Transversely Polarized Proton and Neutron ( $^3\text{He}$ ) Targets using the SoLID Spectrometer

- *Questions?*