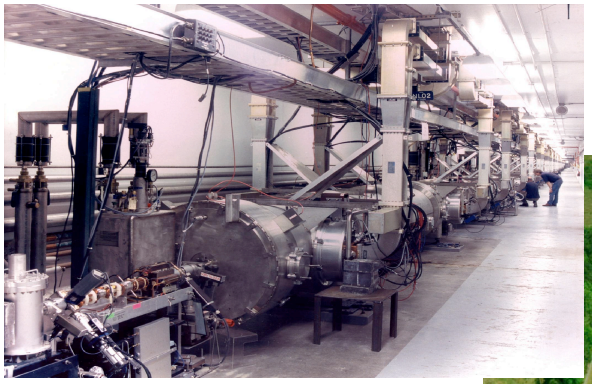
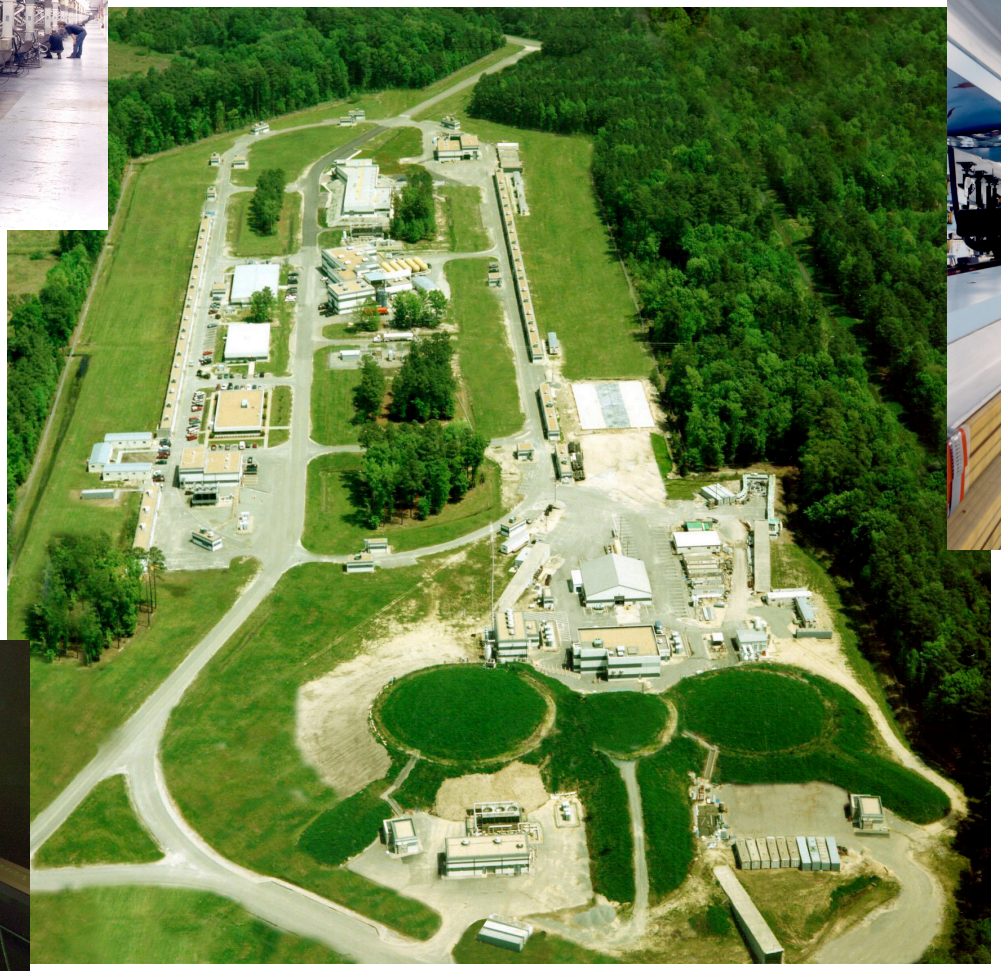
Short Range Correlations
Detectors and Equipment

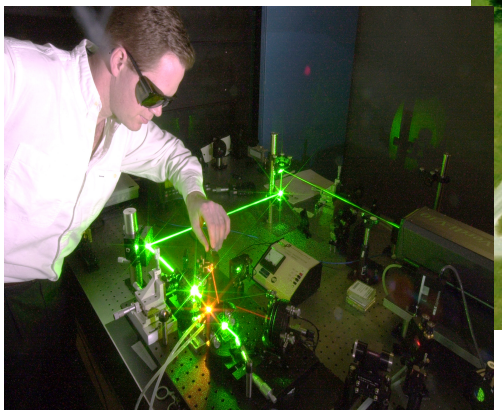
Outline of SRC Talks

- Monday Morning: History & Kinematics
- Monday Afternoon: Jefferson Lab Equipment (Tour after talk!) & Life Of An Experiment
- Tuesday Morning: Recent (e,e') &(e,e'p) Results
- Tuesday Afternoon: Recent (e,e'pN) Results
- Wednesday: Future SRC Experiments

Jefferson Lab CEBAF



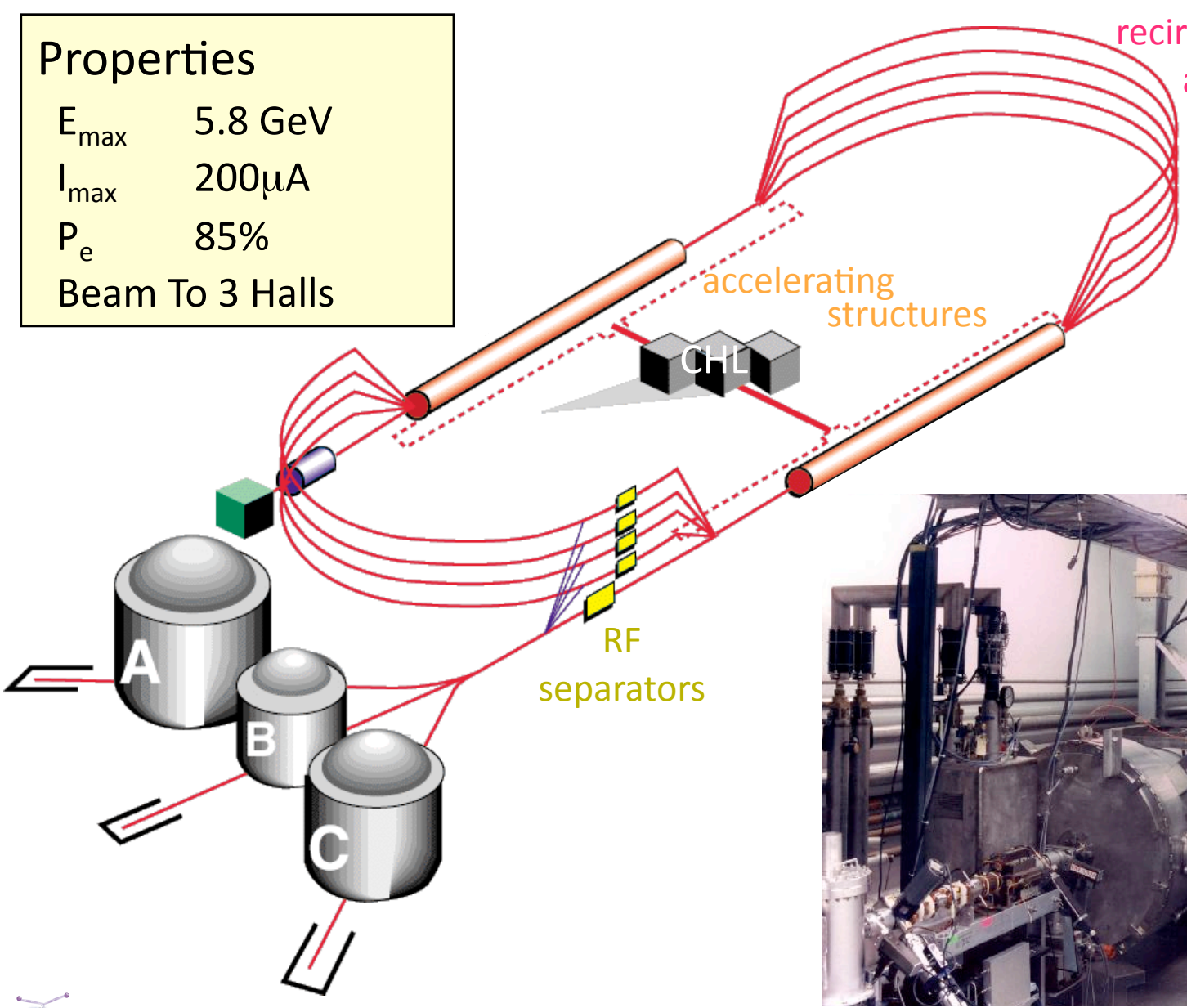


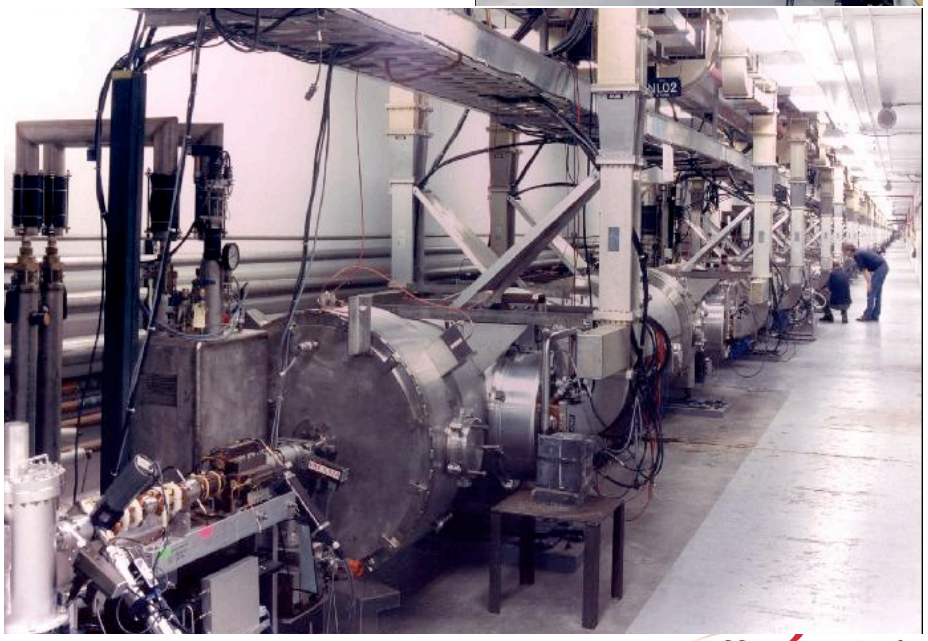


CEBAF: Continuous Electron Beam Accelerator Facility

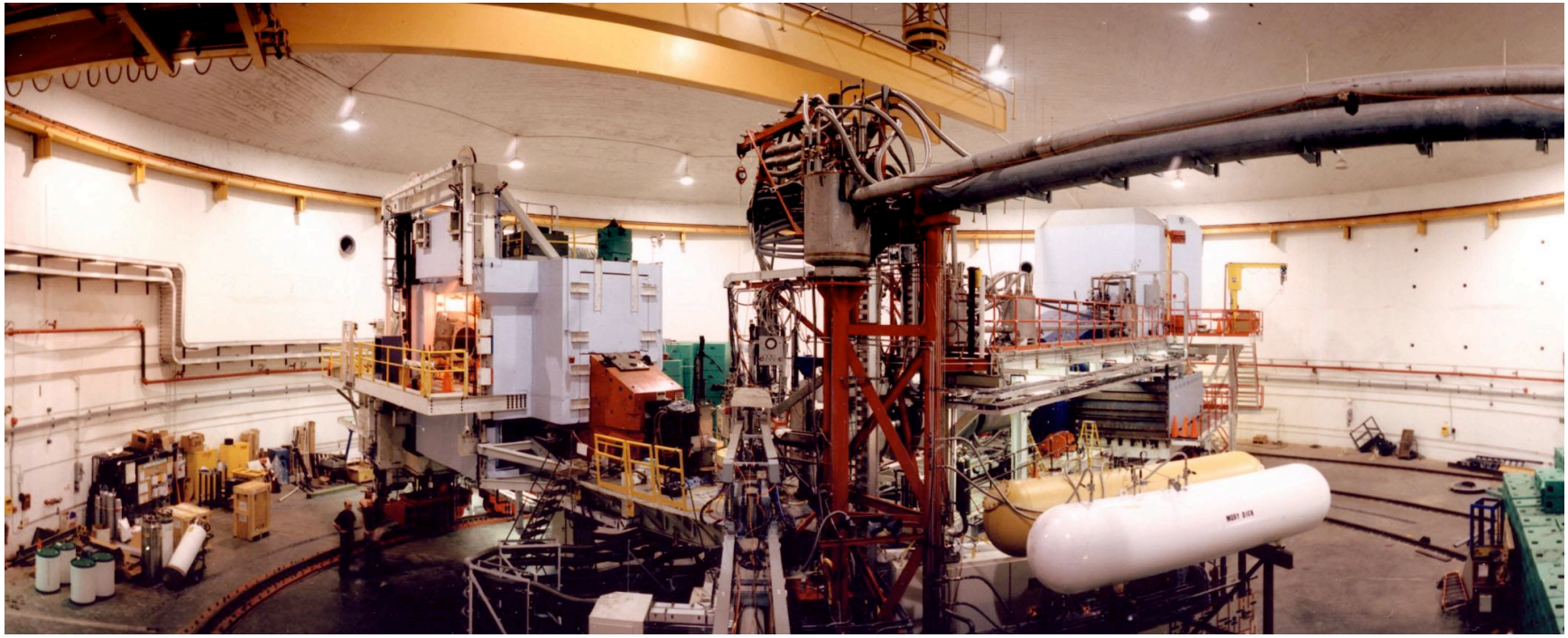
Properties

E_{max}	5.8 GeV
I_{max}	200μA
P_e	85%
Beam To 3 Halls	



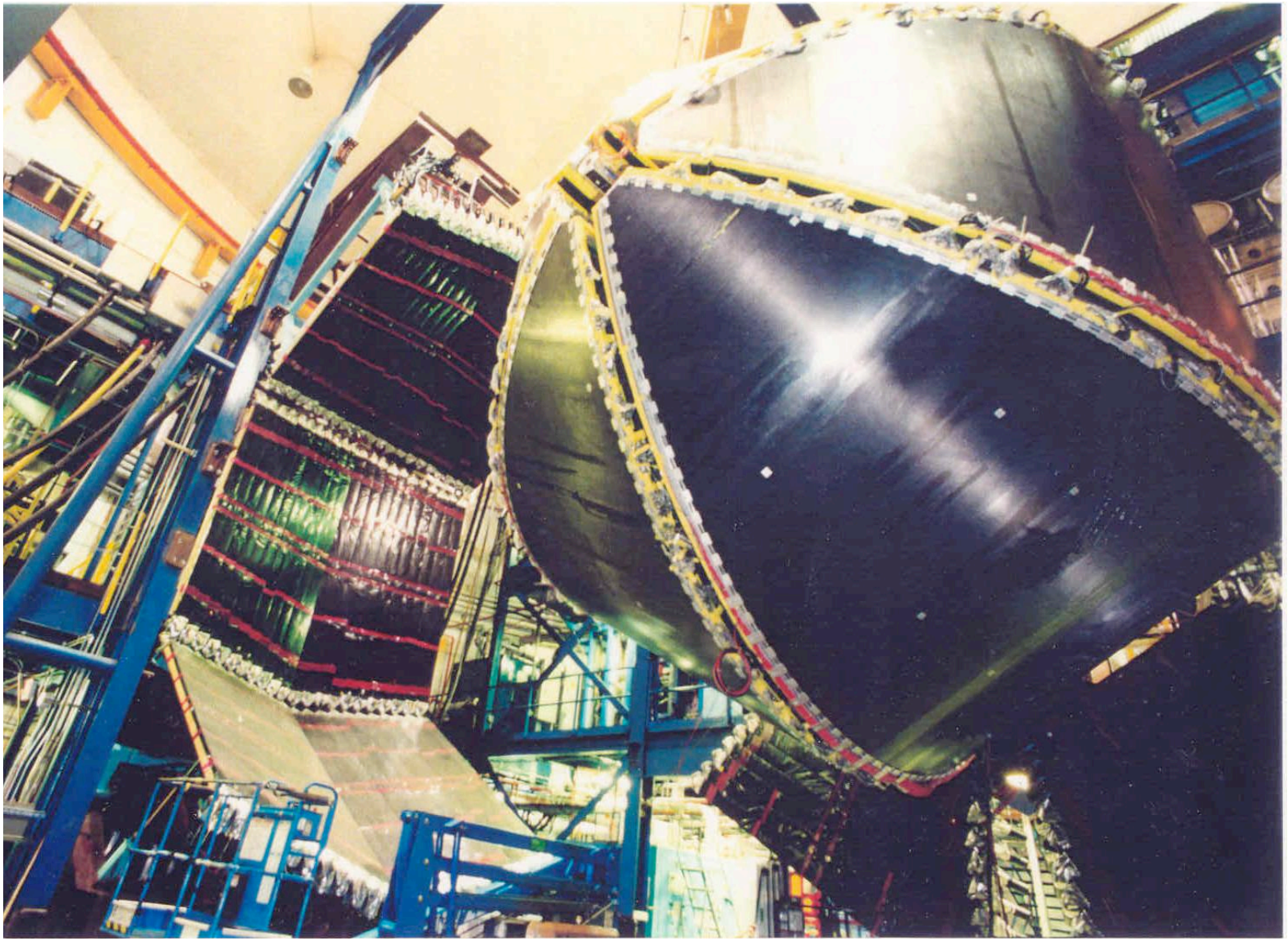


Jefferson Lab's Hall C

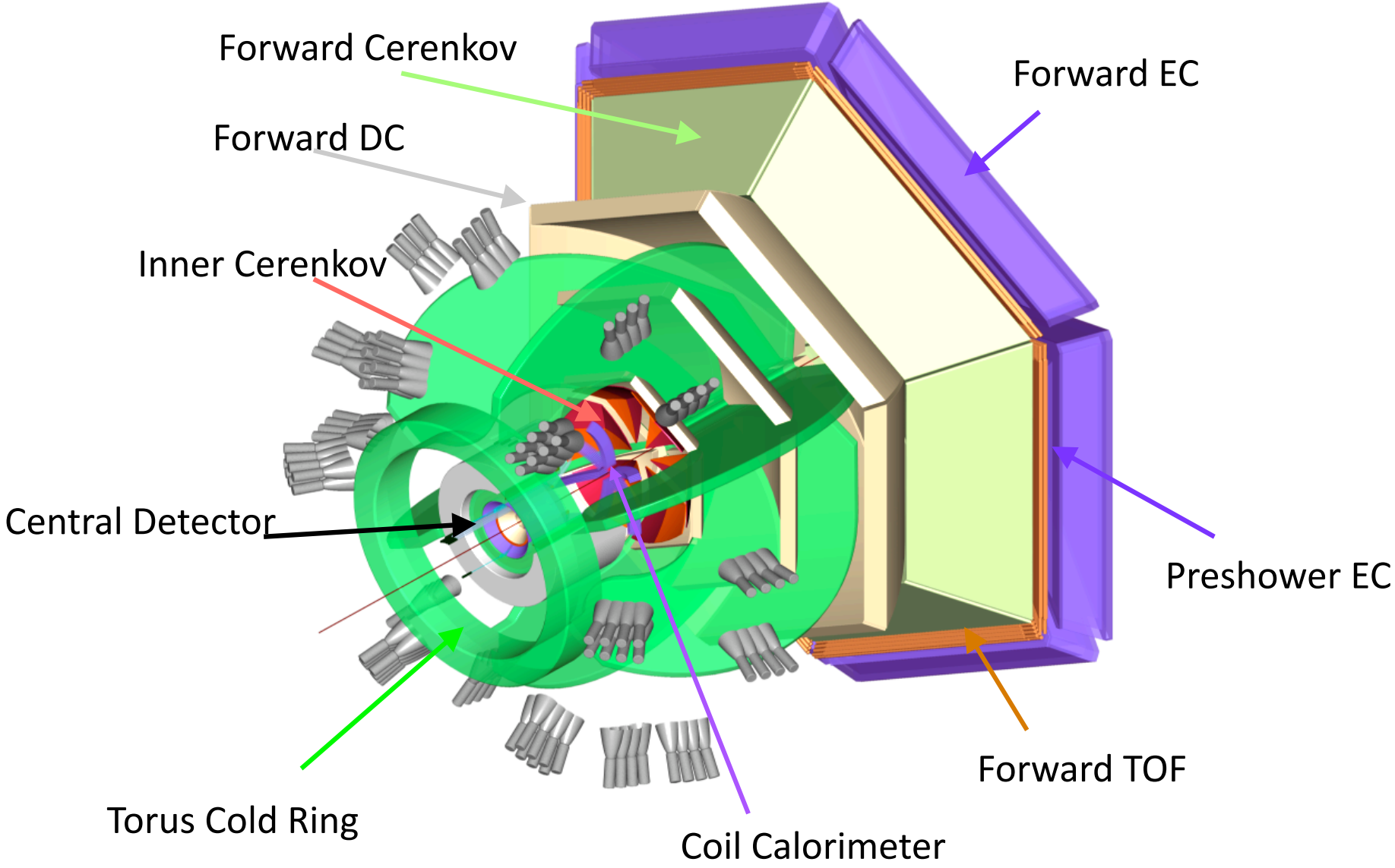


Designed for Major Installations

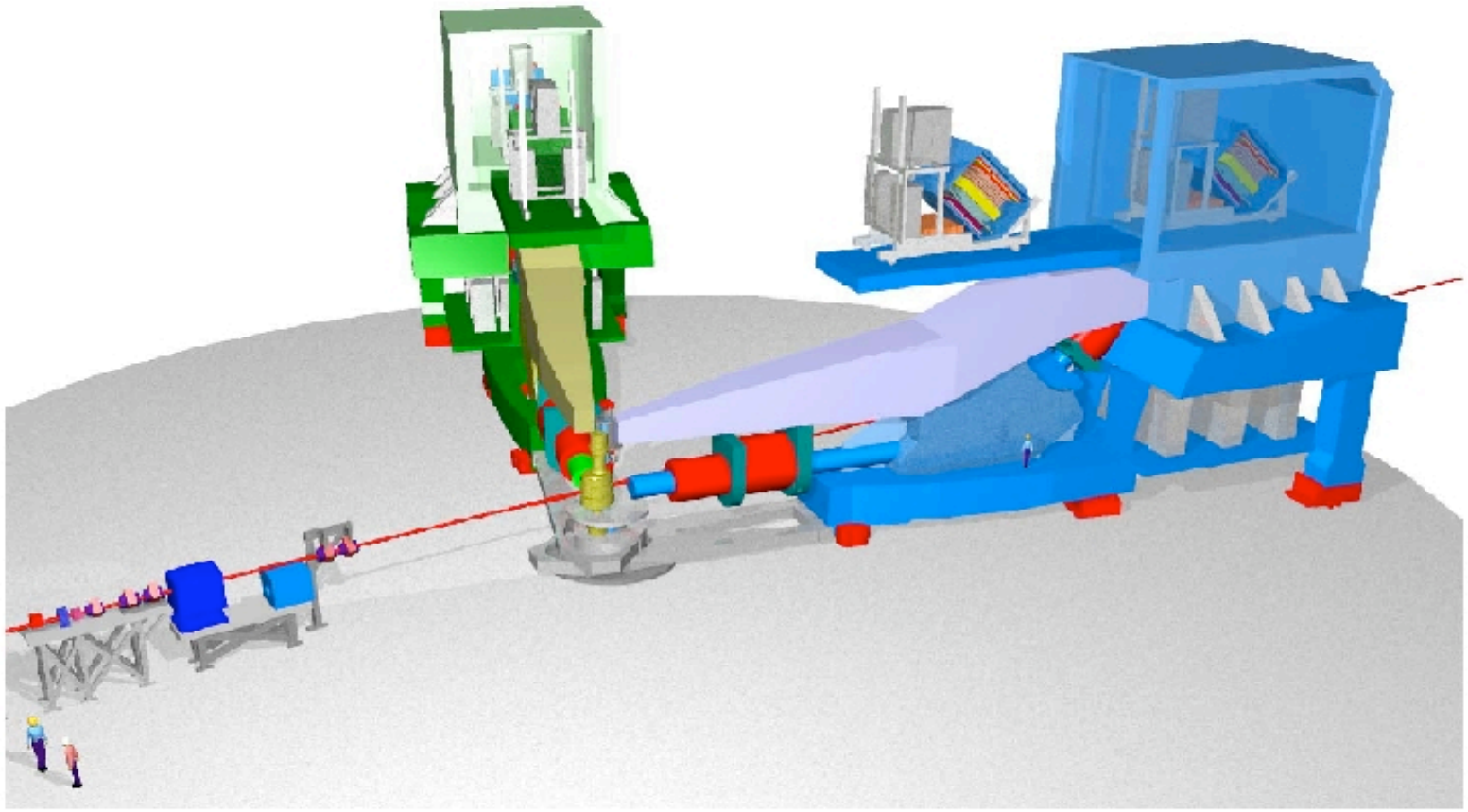
CLAS in Maintenance Position



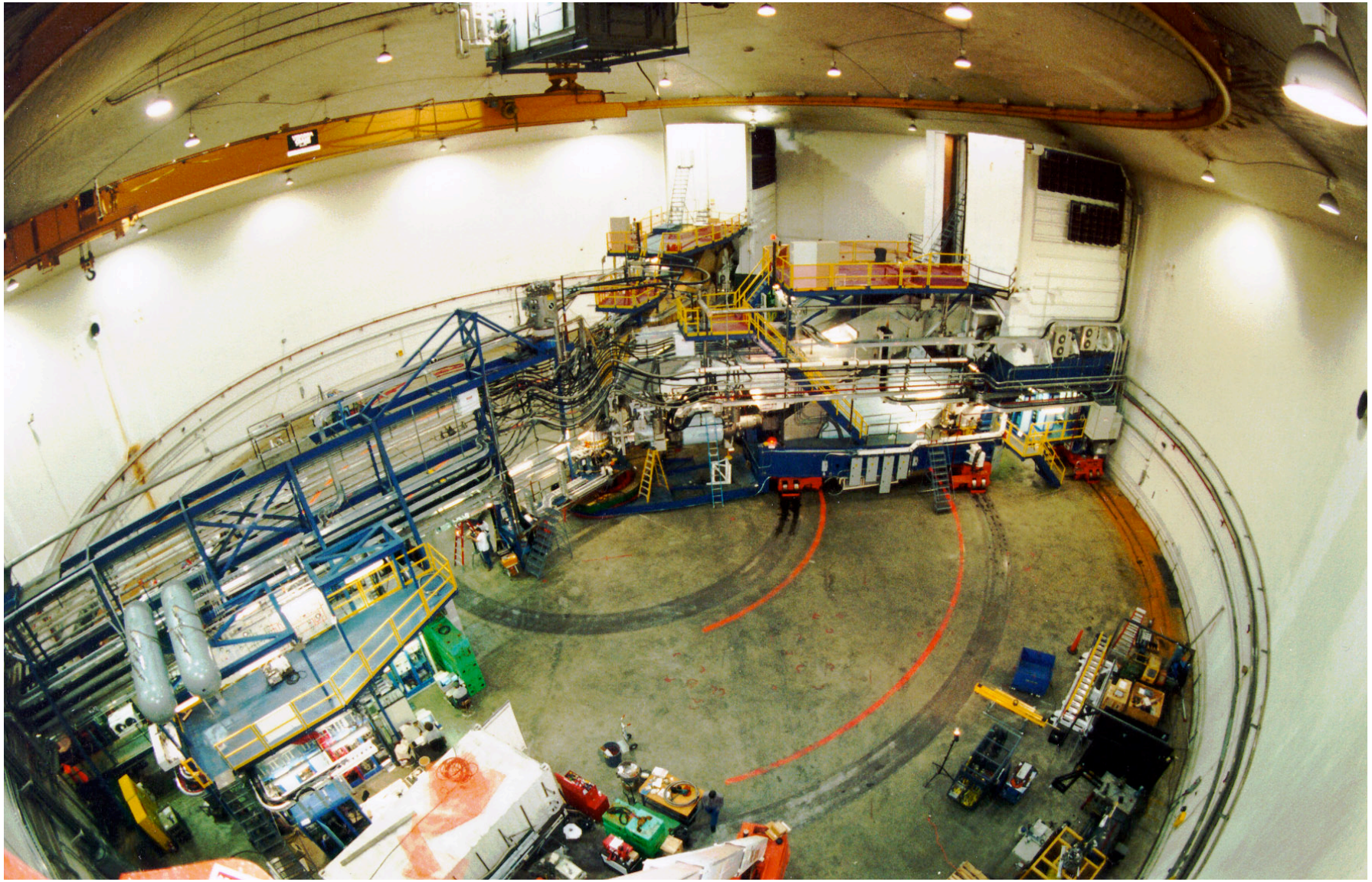
Upgraded CLAS (CLAS++)



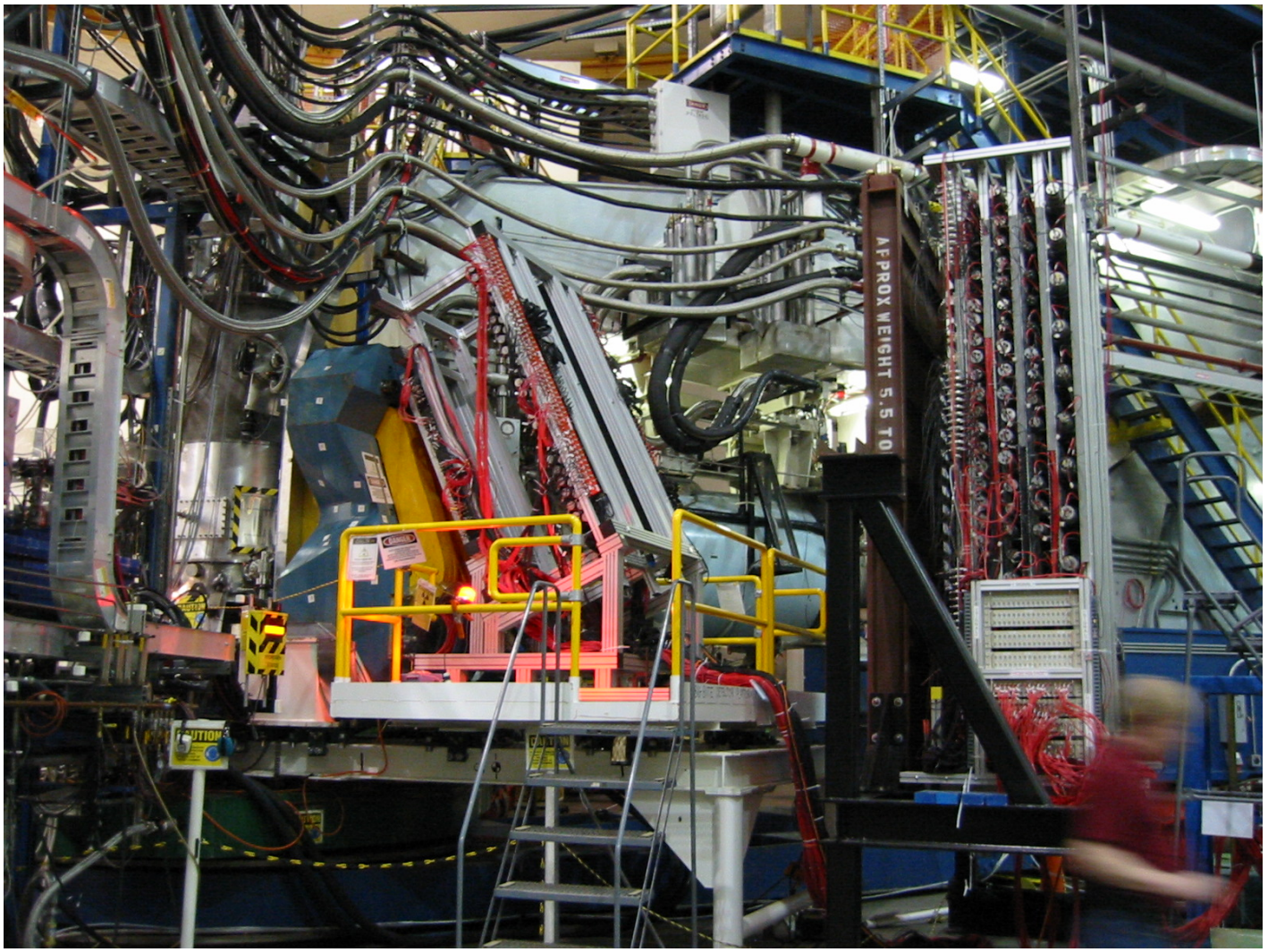
Jefferson Lab's Hall A



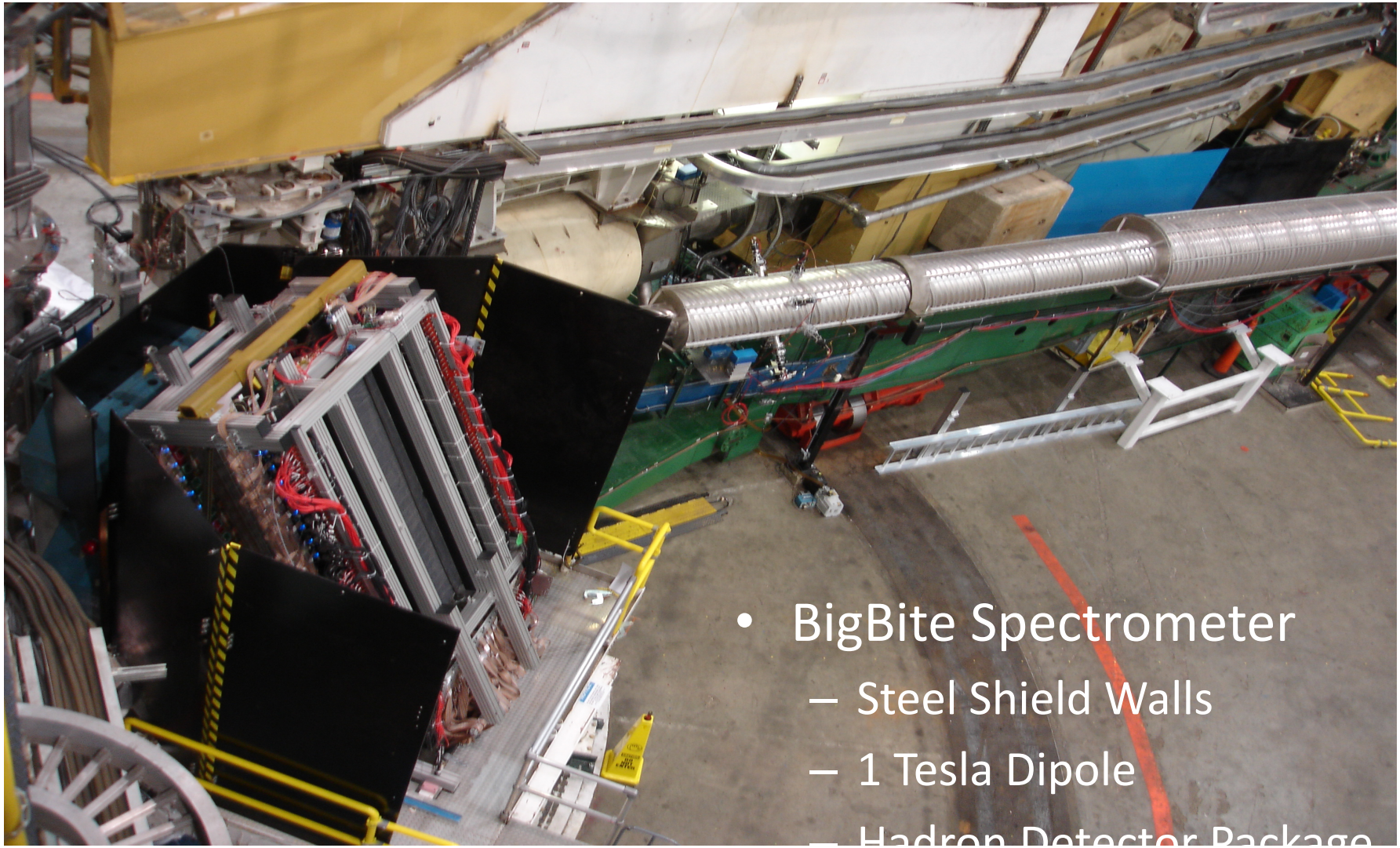
Jefferson Lab's Hall A



BigBite and Neutron Detector



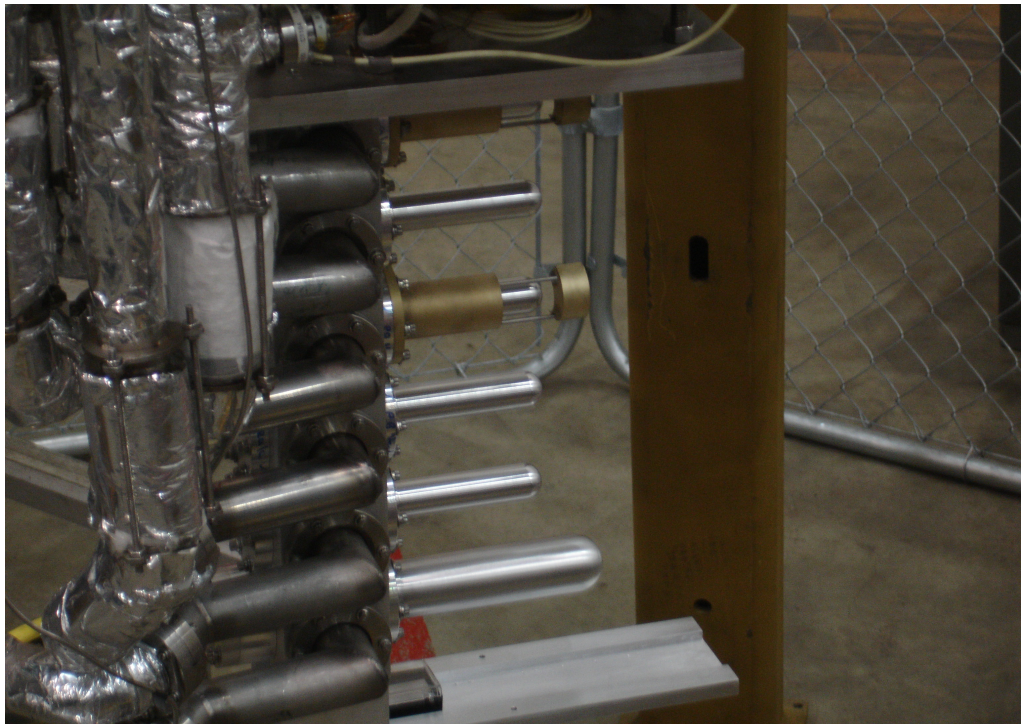
Hall A with BigBite Forward



Custom Made Target Cells

Target Cells

Target Ladder



Beam Information

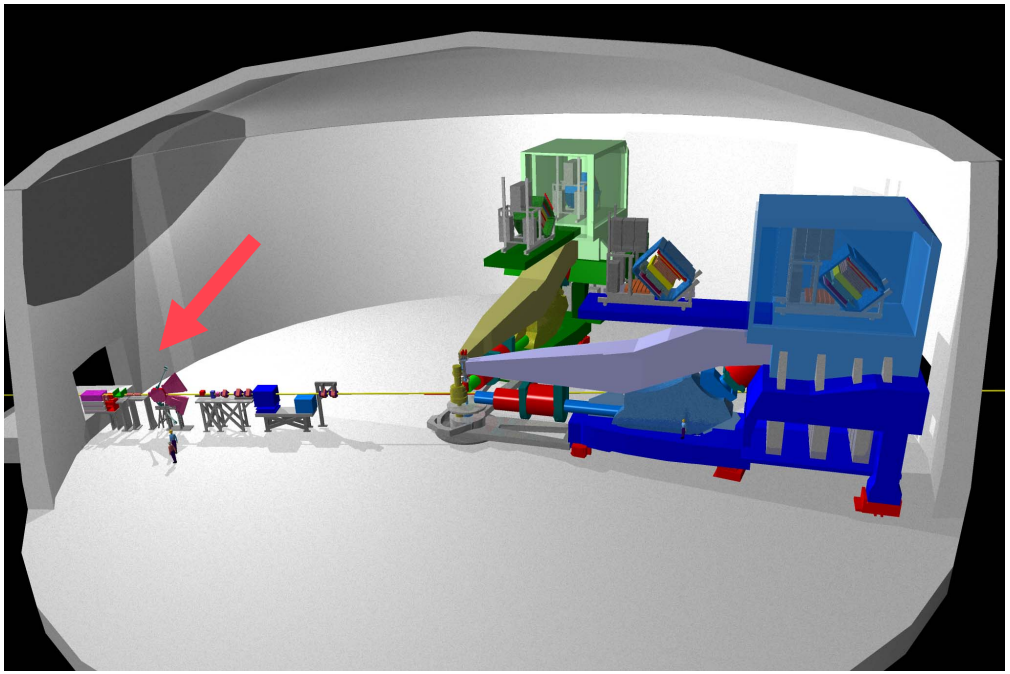
Items We Measure

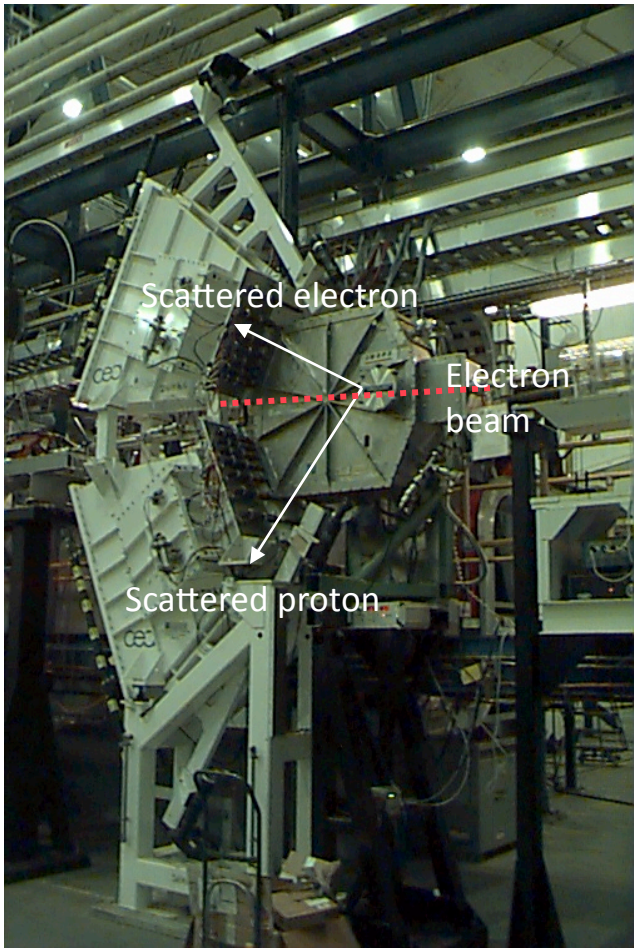
- Beam Energy
  - ARC Energy
  - eP (next slide)
- Beam Polarization
  - Moller
  - Compton
- Beam Position
  - BPM
  - Harps
- Beam Current

Item We Must Agree On

- Exact Energy
- Setting the Wien Angle

Beam Energy from Elastic Scattering





$$E = M_p \frac{\cos(\theta_e) + \sin(\theta_e)/\tan(\theta_p) - 1}{1 - \cos(\theta_e)} + O\left(m_e^2 / E^2\right)$$

Beam Information

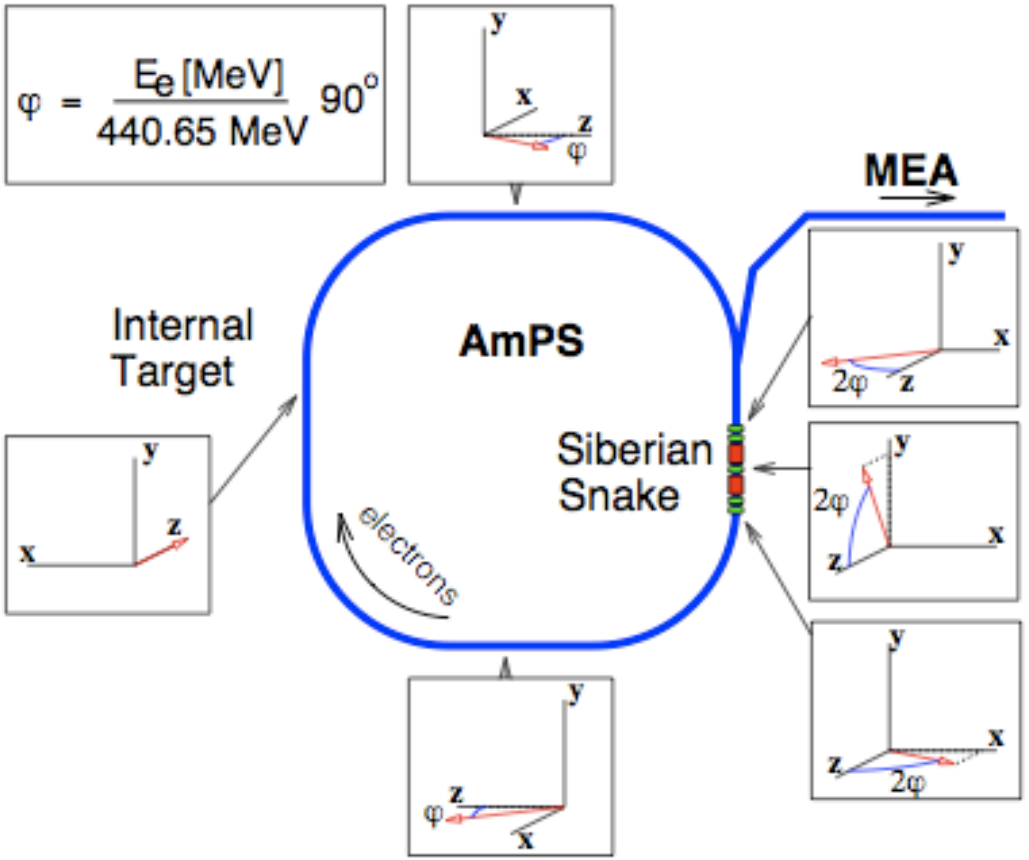
Items We Measure

- Beam Energy
  - ARC Energy
  - eP
- Beam Polarization
  - Moller
  - Compton
- Beam Position
  - BPM
  - Harps
- Beam Current

Items The Hall A Most Agree On

- Exact Energy
- Setting the Wien Angle

Spin Rotation In A Ring



Spin Rotation At Jefferson Lab

Spin Presession

Wien Angle	-40.2							
						P^2	P^2	P^2
1st pass		Energy	Rotation			Hall A	Hall B	Hall C
	Injector	63.5	-40.2	0.763796				
	North Linac	565	216.53	-0.8035				
	South Linac	565	704.06	0.96157		**0.55405**	0.64561	0.17815
	Total	1193.5						
2nd pass			1422.4					
			2371.5			1	0.90847	0.66535
		2323.5						
3rd pass			3551.4					
			4962.1			0.17429	0.43778	0.9093
		3453.5						
4th pass			6603.6					
			8475.9			0.80379	0.30696	0.0039
		4583.5						
5th pass			10579					
			12913			0.00679	0.57035	**0.95079**
		5713.5						

Finding New Solutions

Keeping Machine Energy Fixed @ 1193.5 MeV

Balanced Linacs

- Hall A $P^2 = 0.66$
- Hall B $P^2 = 0.68$
- Hall C $P^2 = 0.89$

Unbalanced Linacs

- Hall A $P^2 = 0.89$
- Hall B $P^2 = 0.68$
- Hall C $P^2 = 0.89$

05/15/08	Thursday	1.13	E08-007		g12	5.714/30	E04-108	5.714/80/p
05/16/08	Friday	1.13	GEp/GMp	1.194/20/p	g12	5.714/30	E04-108	5.714/80/p

Read the schedules & go to scheduling meetings.

The Hall leaders work extremely hard on this thankless task.

The Life Of A Jefferson Lab Experiment

In General

- Idea
- Proposal (PAC)
- Jeopardy Review
- Experiment
- Analysis
- Publications

A Tale of Two Experiments

- My First Experiment
  - E01-014 January 2001
  - Jeopardy E04-007 January 2004
  - Built New Detector & Targets
  - Ran April 2008
  - Two Ph.D. Students Working
- My Latest Experiment
  - E08-007 Gep
  - PAC January 2008
  - Ran May 2008
  - Preliminary Results Ready

E08-007: Was Defended By G. Ron

Ph. D. Student @ Tel Aviv University