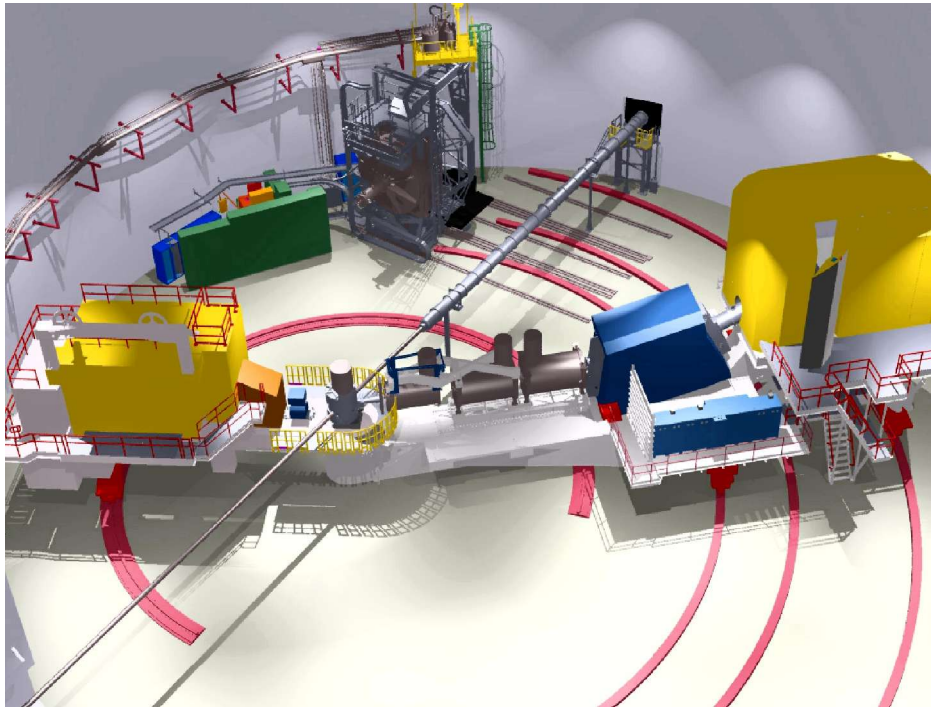
Hall C Research Program

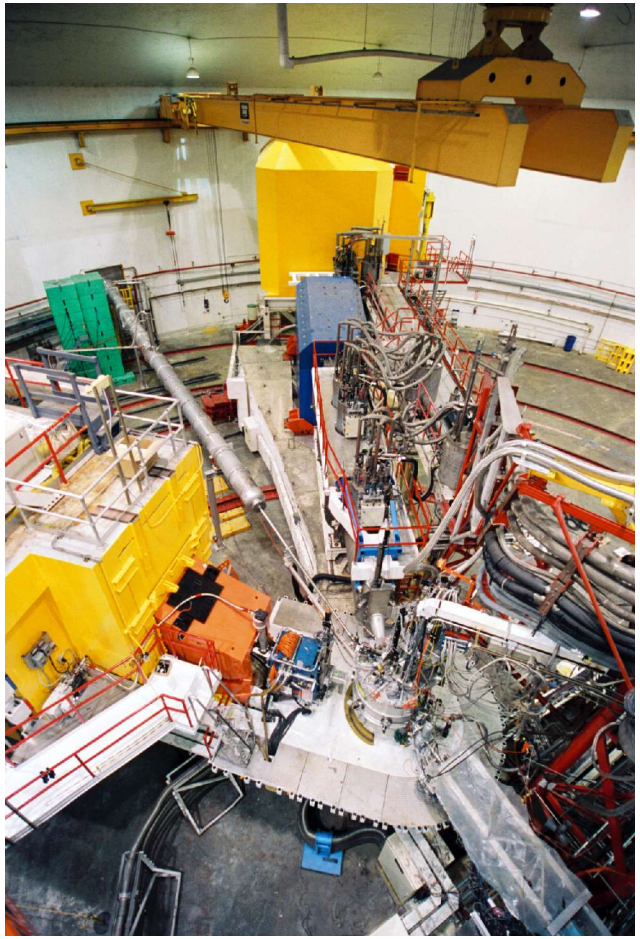
- Have been running experiments since November 1995
- 529 PAC Days run, or 23.7 experiments (August 1, 2004)
- 327 PAC Days in queue, or 15.3 experiments
  (8 large-scale installations)
  (Backlog: 4.7 Years)
- 60 PAC Days on 2004/5 schedule (0.9 years)
- 62 Ph.D. Subjects, 46 Ph.D.'s awarded
- 32 refereed publications to date (17 PRL), 3 submitted
  (not including NIM papers)
- 6 Large Installations to date: t_{20}, G_E^n-98, HNSS,
  G_E^n-00, G_E^n-01, G0 (x2)
- 324 Active users representing 18 different countries
  (100+ add'l users on 1-2 base equipment experiments)

Jefferson Lab's

Experimental Hall C

At the present 6 GeV Beam Energy





Hall C's High Momentum Spectrometer, Short Orbit Spectrometer and specialized equipment for studying:

- *The strange quark content of the proton*
- *Form factors of simple quark systems*
- *The transition from hadrons to quarks*
- *Nuclei with a strange quark embedded*

G0

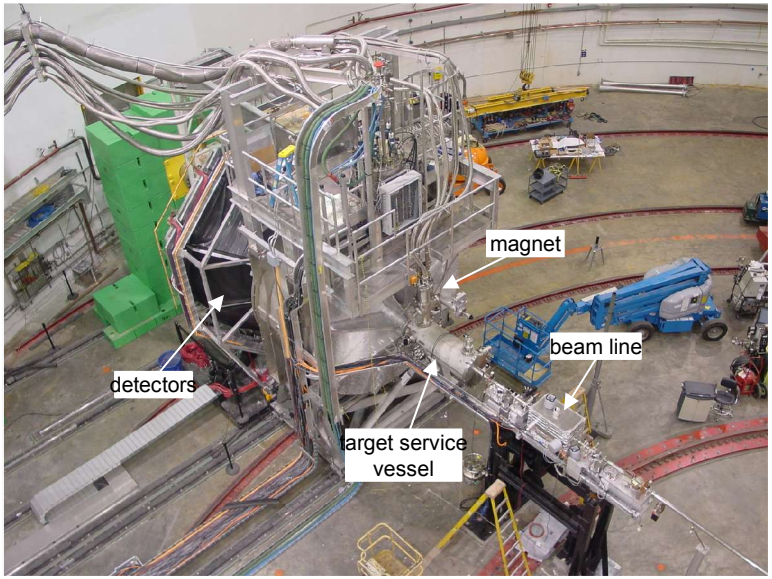
F^{π}, G_E^n-98, G_E^n-00, G_E^n-01,, G_E^p-III. G_E^n at high Q^2, t_{20}

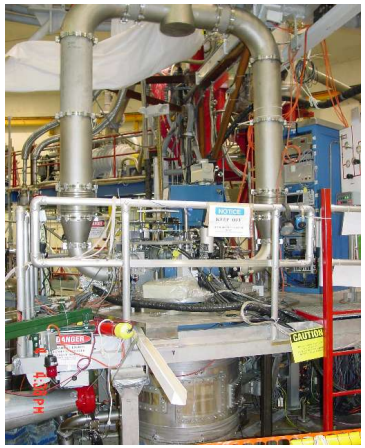
D photodisintegration, Quark-Hadron Duality

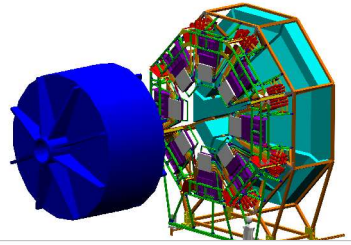
D,He(e,e'K^+), HNSS, HKS

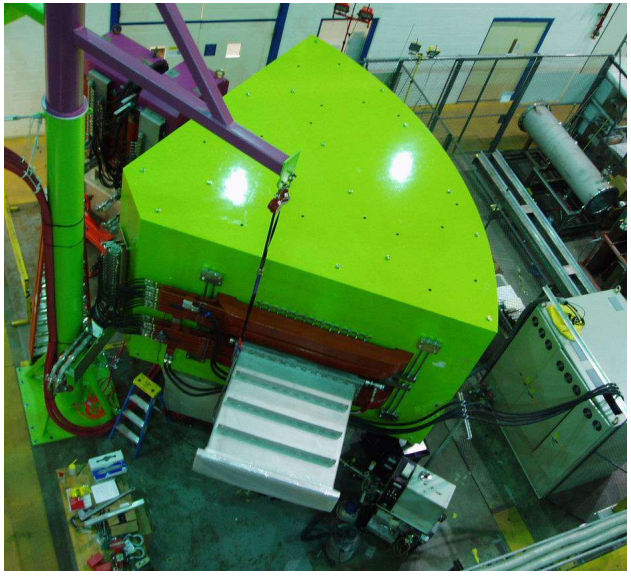
+ Qweak, SANE, Semi-SANE

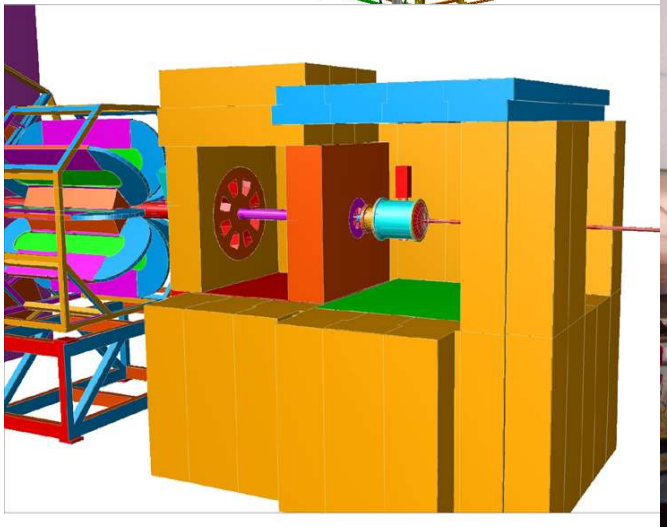
Home of the Large Installations

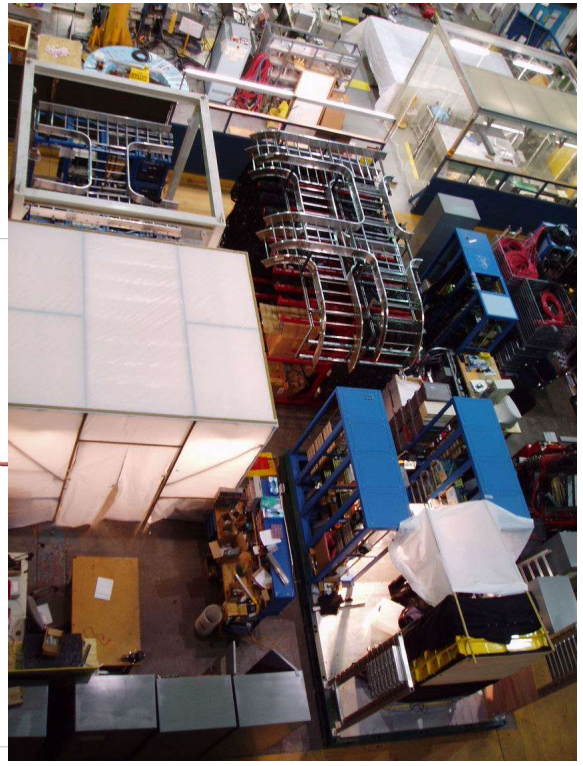












"Upcoming" Program in Hall C

DATE	EXP	PROGRAM	SPOKESPERSON
June, 2004	E01-109	G_E^p/G_M^p to Q^2 = 9 GeV^2	E. Brash, M. Jones, C. Perdrisat, V. Punjabi
June	E02-019	BigCal-HMS test x > 1 at high Q^2 Part	J. Arrington, D. Day, B. Filippone, A. Lung
July	E01-107	Lat 5 GeV Pion Transparency in Nuclei Part	D. Dutta, K. Garrow, R. Ent
August-September		Lat 5 + 4 GeV Maintenance, G0 Turnaround	
September-November	E02-019	x > 1 at high Q^2 Part	J. Arrington, D. Day, B. Filippone, A. Lung
November-December	E03-103	II at 5.75 GeV EMC Effect in Light Nuclei	J. Arrington, D. Gaskell
December	E01-107	Pion Transparency in Nuclei Part	D. Dutta, K. Garrow, R. Ent
January-Mayl, 2005		II at 5.75 GeV HKS Experiment Installation	
May-July	E01-011	Spectroscopy Study of Medium to Medium-Heavy Mass Λ Hypernuclei	O. Hashimoto, S. Nakamura, J. Reinhold, L. Tang

"Reasonable" start of E02-019/E03-103 running period in September

Long-Term Experiment Schedule

2005
- Hypernuclear Physics
  - HKS Experiment (Hashimoto, Nakamura, Reinhold, Tang) (1.8-2.0 GeV)
  - Fission Detector Test (Margaryan, Tang)
- Transition to E04-115 Experiment (Beck, G0 Backward)

2006
- G0 Backward Run (0.8 GeV)
- Transition to E04-108 Experiment
- GEp-III Run (Perdrisat, Brash, Jones, Punjabi)
  - 2-γ Exchange Run intermixed?

2007
- HMS/SOS L/T Runs? (Bodek, Christy, Keppel)
- Polarized Target Runs
  - SANE (g_2 at high Q^2) Run (Rondon, Meziani, Choi)
  - Semi-SANE (flavor decompositions) Run (Jiang, Bosted, Day, Jones)

2008
- Qweak (Bowman, Carlini, Finn, Kowalski, Page) Phase I
- GEn Run (Madey, Anderson, Kowalski, Semenov)

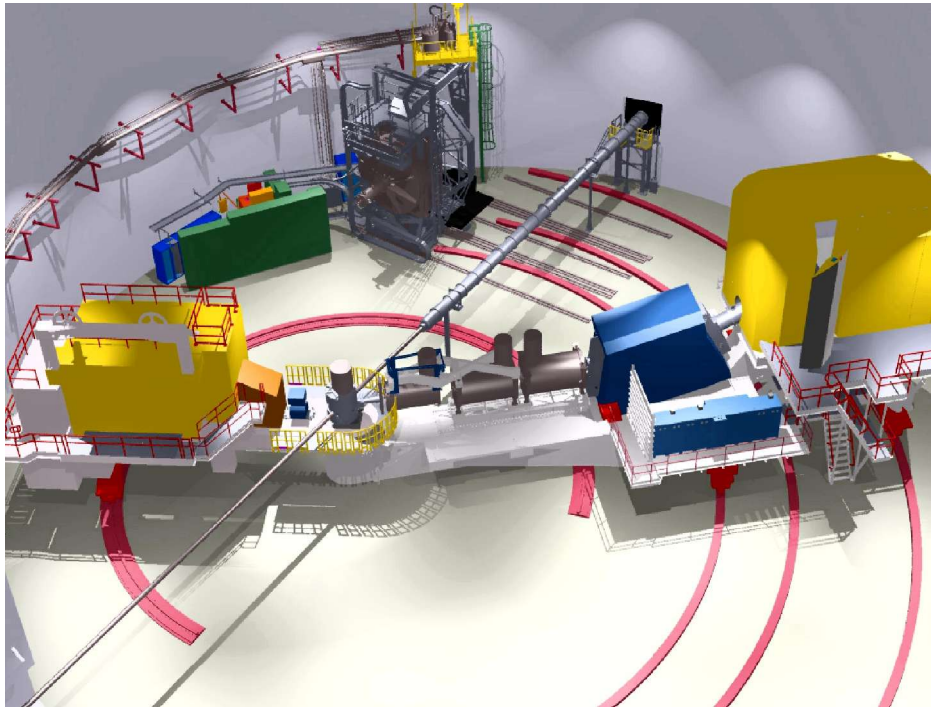
2009
- Qweak (Bowman, Carlini, Finn, Kowalski, Page) Phase II

2012? Start 12-GeV Program?

Jefferson Lab's

Experimental Hall C

At the present 6 GeV Beam Energy



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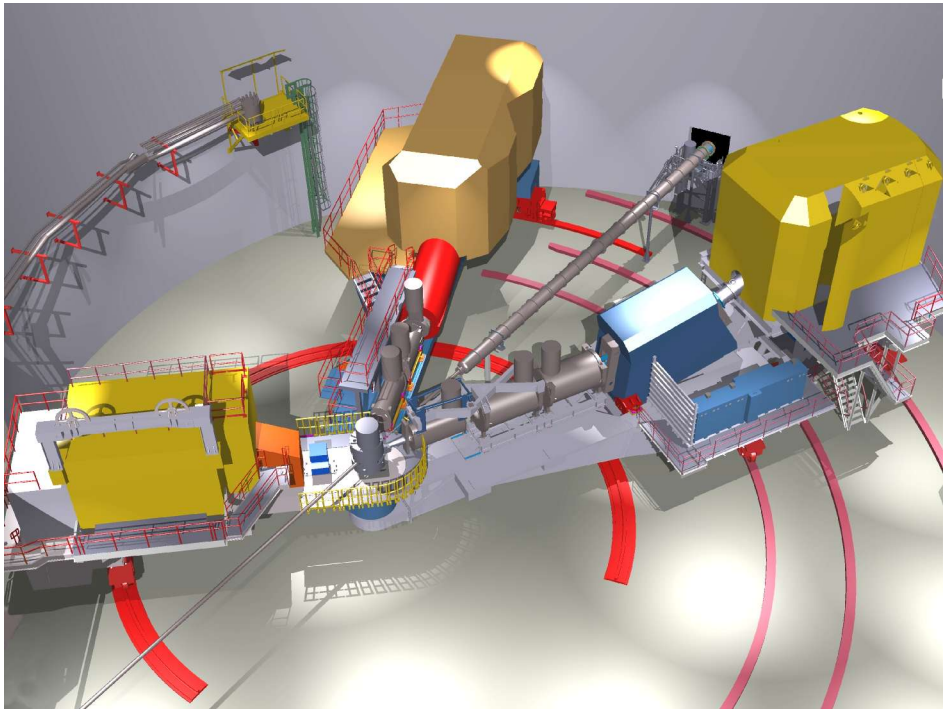
After the 12-GeV Upgrade



Add a Super-High Momentum (11 GeV) Spectrometer for studying:

- *Super-fast quarks*
- *Form factors of simple quark systems*
- *The transformation of quarks into hadrons*
- *Quark-quark correlations*

12-GeV Status

- April, 2004: CD-0 Mission Need Statement
- Since May, 2004, Bi-weekly meetings of Physics Staff and interested users to get work organized and in motion (simulation packages mostly available!) Fridays 9:00 am – 10:30 am
- Present "Schedule":
  - Update draft CDR with **full** Hall C physics package (Realistic Simulations of New and "Old" Physics)
  - Contact Editors of relevant Physics Topic to be included
  - Update Cost Book (Antje Bruell et al.)
  - January 2005: PAC reviews new 12-GeV physics ideas
  - Early 2005: DOE Review of 12-GeV Science Case
  - Later 2005: "Lehman Review" of Full 12-GeV Project

- Impact on SANE:
  - Priority of mainly accelerator engineering support but also Hall C design/engineering may shift to 12-GeV work
  - FY'05 will be "lean" year with Hall C funds required for remaining HKS work, G0 work, start of Qweak funds plus possible 12-GeV redirect

- January Hall C “nuts + bolts” User Meeting:
  January 06 + 07
- PAC-27 Presentations (12 GeV only?):
  January 08