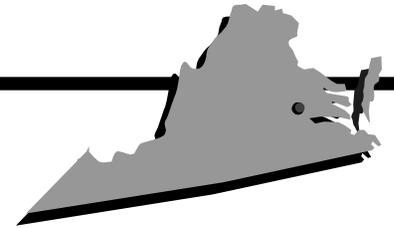

Presentation to the Higher Education Subcommittee House Appropriations Committee

Dr. Christoph W. Leemann
Jefferson Lab Director
President, Jefferson Science Associates
January 22, 2007

Background



History

- In 1985, a university consortium led by three Virginia schools (University of Virginia, William & Mary, Virginia State) won the contract to locate CEBAF (now Jefferson Lab) in the Virginia.
- Virginia committed \$1 Million per year and the Federal government provided \$600 Million.

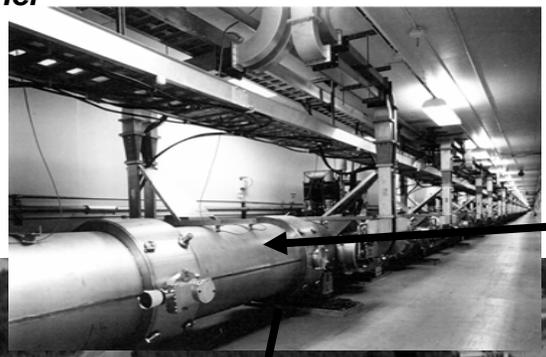
What does JLab “do?”

- Experimental and theoretical nuclear physics
- Superconducting accelerator technology
- Free electron lasers defense, materials, nanotechnology and bioscience

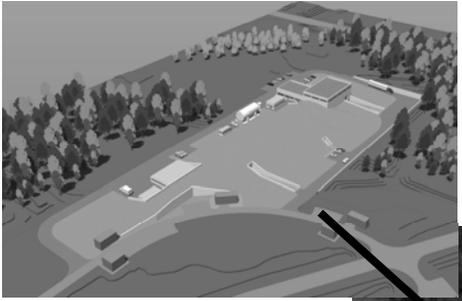


Unique Forefront Capabilities for Science

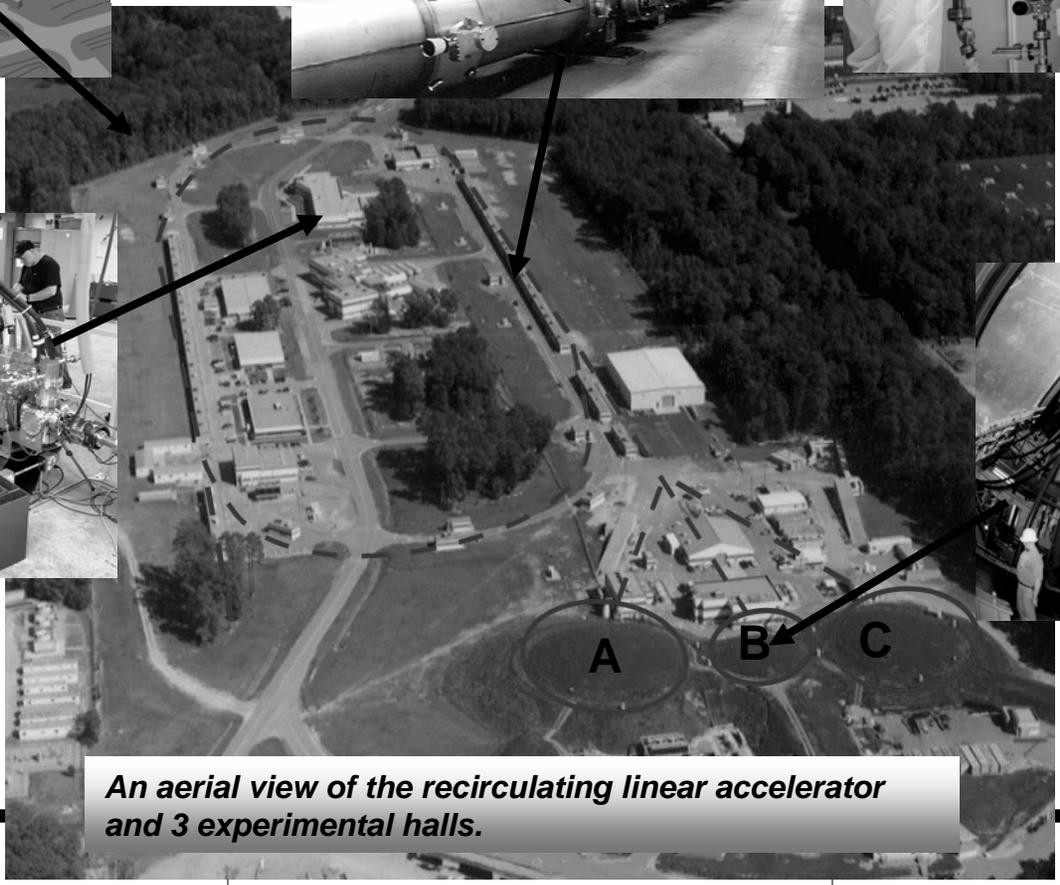
Cryomodules in the accelerator tunnel



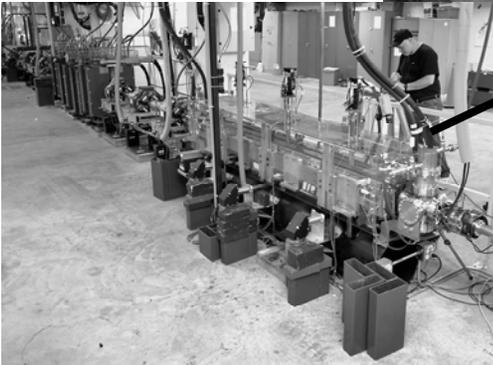
Superconducting radiofrequency (SRF) cavities undergo vertical testing.



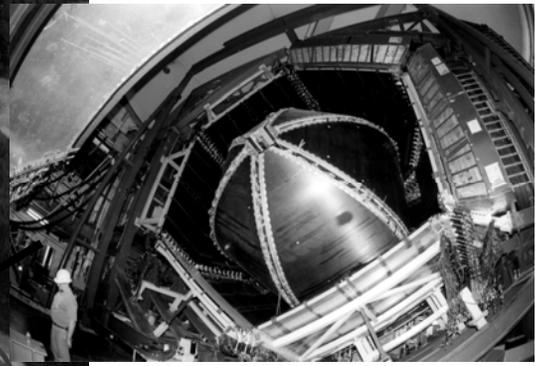
Artist concept of the new Hall D



An aerial view of the recirculating linear accelerator and 3 experimental halls.



FEL Wiggler inside FEL tunnel



CEBAF Large Acceptance Spectrometer (CLAS) in Hall B

Snapshot

Statistics

- \$100 Million annual budget
- 650 employees and 100 subcontractors
- \$53 Million annual payroll
- Average annual salary over \$75,000
- 58% with B.S. degree or higher, 21% Ph.D.s
- 1,200 active researchers from 180 institutions (35 states and 27 countries)
- 15 Virginia universities participate, with four of the ten most active user groups from Virginia (University of Virginia, William & Mary, Old Dominion University, Hampton University)



Department of Energy Secretary Samuel Bodman announces DOE approval of JLab 12 GeV Upgrade and interacts with students in the BEAMS program.

Snapshot

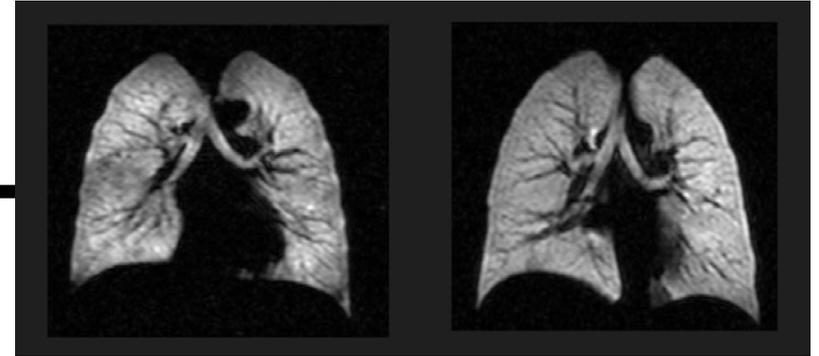
Results

- \$20 Million in Commonwealth funds have returned \$2 Billion in federal funds to Virginia.
- Over 70 new professorships at Virginia's universities have been created.
- Over ¼ of all Ph.D.s awarded in the U.S. in Nuclear Physics are based on JLab research (69 from Virginia with another 59 in progress).
- \$20 Million per year is spent on goods and services in Virginia supporting Jefferson Lab operations.
- Over 200 visiting scientists work at the Lab daily, utilizing area airports, short-term lodging and related goods and services during their stay.



The Applied Research Center, built by the City of Newport News, serves as an incubator for JLab-related technologies.

Snapshot



High resolution image of lungs made possible by JLab detector technology.

Applications/Spin-Offs

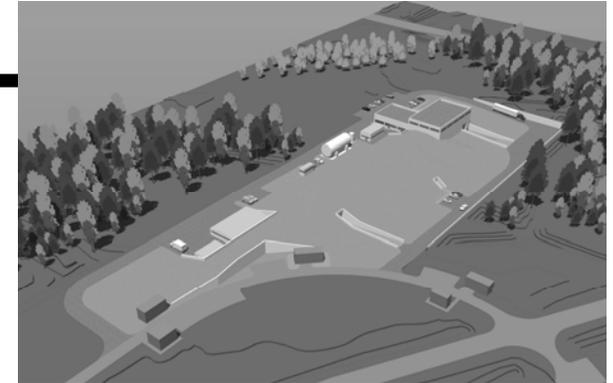
- World class medical imaging effort with applications for breast cancer detection, prostate imaging, live small animal imaging for biological research, and high resolution lung imaging (Ex: Identification of cystic fibrosis gene).
- 67 patents awarded to JLab staff



- Free Electron Laser recognized by 2005 R&D 100 Award
Dilon Technologies, a start-up company, is producing new type of mammography camera featured on ABC Evening News (October 23, 2006).

The Future

- Jefferson Lab must upgrade its main accelerator (CEBAF) and experimental areas in order to maintain the Lab's world scientific leadership for several decades.
- FY08 request would provide \$3.5 Million (\$10 Million total needed over 3 years) which would leverage \$300 Million in Federal funds.
 - Upgrade would increase by 1/3 the number of scientific users (currently 1,200)
 - Would result in a projected increase of \$13 Million in Federal operating budget
- President Bush's 2007 budget included \$7 Million for Project Engineering and Design of the 12 GeV Upgrade at Jefferson Lab.



Artist's concept – Hall D

