U.S. DEPARTMENT OF ENERGY | Office of Science

Jefferson Lab

ODU

Jefferson Lab – (y)our home (not far) away from home

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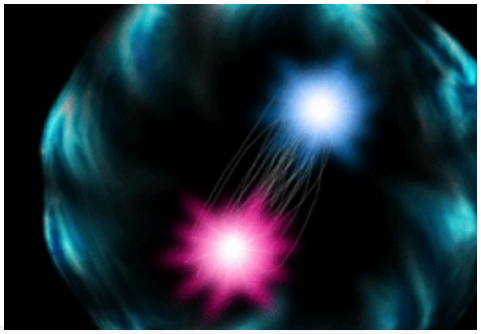
The Thomas Jefferson National Accelerator Facility (TJNAF or “Jefferson Lab”)

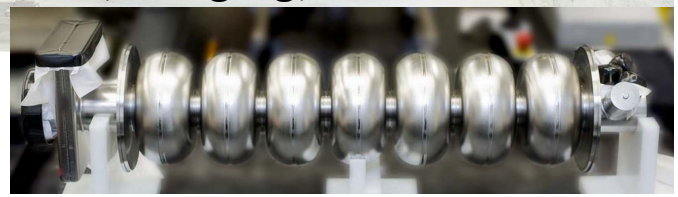
Exploring the Nature of Matter:

- Thomas Jefferson National Accelerator Facility (Jefferson Lab) is a U.S. Department of Energy Office of Science national laboratory. Scientists worldwide utilize the lab’s unique particle accelerator, known as the Continuous Electron Beam Accelerator Facility (CEBAF), to probe the most basic building blocks of matter - helping us to better understand these particles and the forces that bind them - and ultimately our world.
- In addition, the lab capitalizes on its unique technologies and expertise to perform advanced computing and applied research with industry and university partners, and provides programs designed to help educate the next generation in science and technology.
- Managing and operating the lab for DOE is Jefferson Science Associates, LLC. JSA is a limited liability company created by Southeastern Universities Research Association and PAE Applied Technologies.

Major research opportunities:



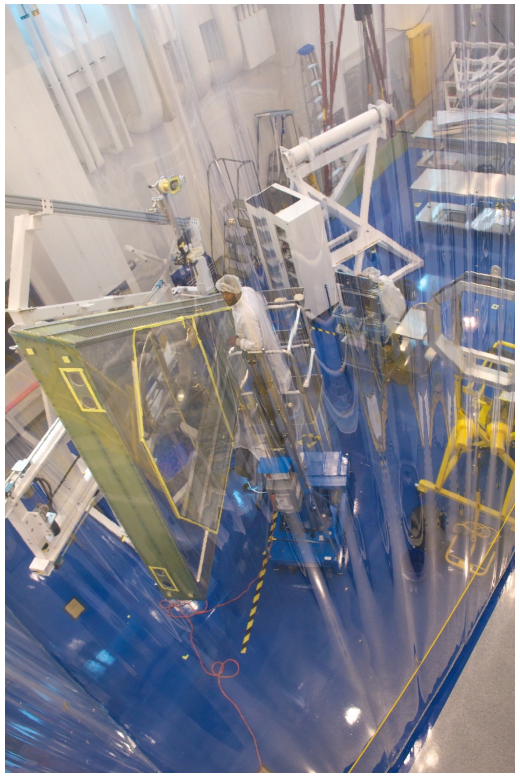
- Research in Experimental Nuclear/Particle Physics
  - Smash electrons with up to 12,000,000,000 eVolts into nuclear targets
  - Study the fundamental structure of atomic nuclei and elementary particles
  - Devise, build, test and operate sophisticated scientific instruments (detectors)
- Research in Theoretical and Computational Nuclear/Particle Physics
  - Explore the fundamental theory of the Strong Interaction
  - Predict the properties of nuclei and their constituents, including exotic particles
- Accelerator Science
- AI, Advanced Computing, Data Science, Material Science, Imaging, Industrial Applications, ...



Connection ODU – Jefferson Lab

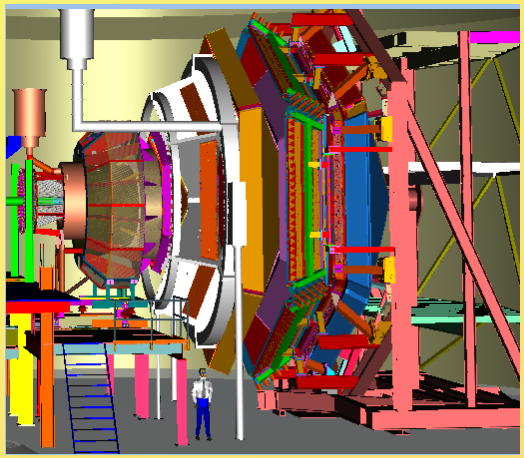
- Director of Jefferson Lab and Assoc. Director for Accelerators are Governor's Distinguished CEBAF Professors of Physics at ODU
- 6 Faculty in Experimental Nuclear Physics, 6 Faculty in Theoretical Nuclear Physics, and several faculty in Accelerator Science to research at Jefferson Lab
- Six Jefferson Lab Staff members have full faculty privileges and graduate students at ODU.
- Experimental group is one of the largest contributors to the scientific program of the CEBAF accelerator
- Theory Group makes up 1/3 of the entire theory group at Jefferson Lab.
- Many other connections (e.g., through Center for Femtography).

Experimental Nuclear Physics Group

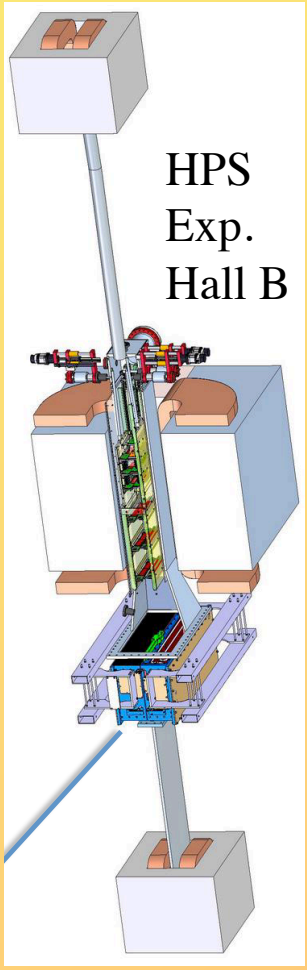


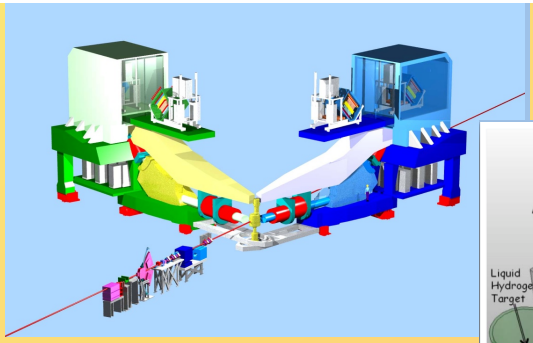
- 6 faculty and 3 Jefferson Lab professors, 4 postdocs, technician, and over 1 dozen graduate students.
- Research in all 4 Halls at Jefferson Lab (A-D).
- Building major equipment and leading several experimental collaborations
- Significant Lab space on campus: “High Bay Area”
- Our alumni have gotten positions at Universities, National Labs, Medical Physics, and in Industry

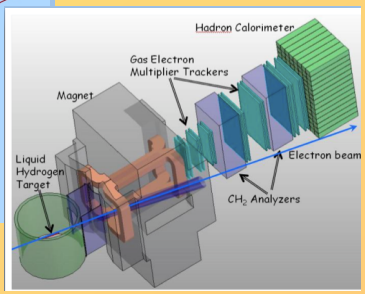
CLAS12 in Hall B (**C**EBAF **L**arge **A**cceptance **S**pectrometer)



HPS Exp. Hall B

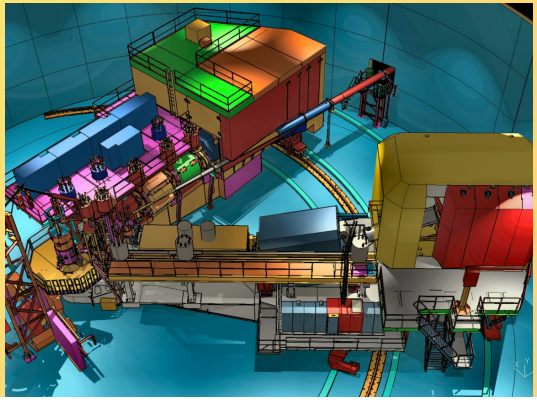


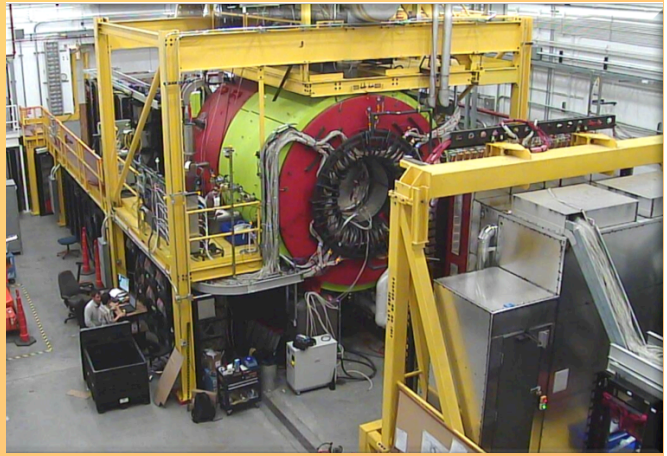




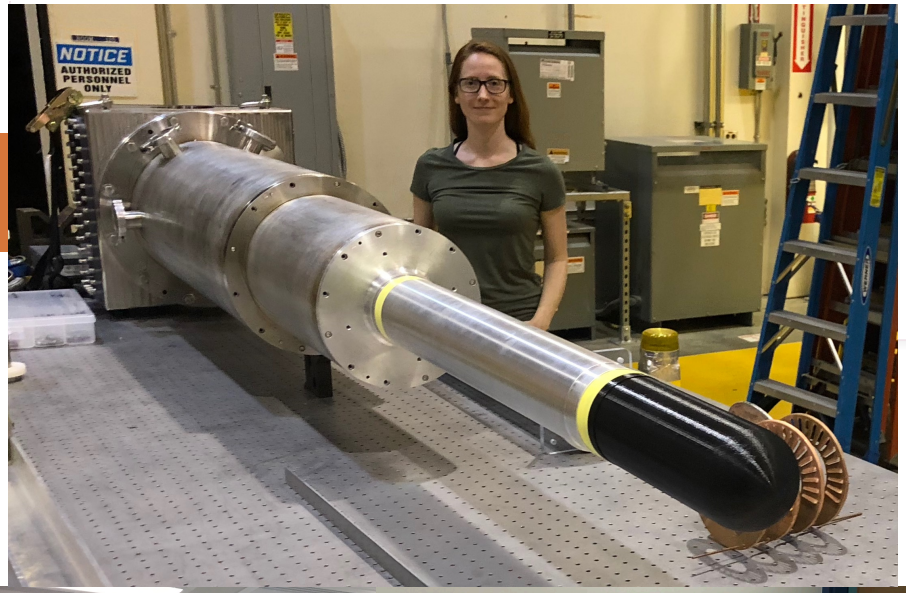
HRS and SuperBigbite in Hall A

HMS and SHMS in Hall C





GLUEX in Hall D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For more information:

- http://ww2.odu.edu/%7Eskuhn/NucWebsite/ODUExperimentalNuclear PhysicsGroup.html
- https://www.youtube.com/watch?v=W_1D6L_GDNw&feature=youtu.be
- https://sites.google.com/view/odu-nuc-th/odu-nuclear
- https://www.odu.edu/sci/research/cas