Graduate Studies in Nuclear and Particle Physics

**Nuclear Physics Group:**
Experimental Faculty: 6(+1)
Theoretical Faculty: 6
Postdoctoral Researchers: 5
Graduate Students: 15
Female Faculty: 1(+1)
Female Graduate Students: 6
Jefferson Lab Professors: 3
Accelerator Physics Faculty: 4 + 3

**Fellows of the APS :**
7 in Nuclear Physics, 13 total

**Application deadline:**
January 15th to be fully considered for financial support

**General university information:**
http://www.odu.com

**Departmental web site:**
http://www.odu.edu/physics

**Application site:**
http://www.odu.edu/physics/academics/graduate

For admissions questions, contact Dr. Mark Havey: mhavey@odu.edu

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**General Information:**
Old Dominion University is a state-supported Carnegie Doctoral/Research Extensive institution with more than 24,000 students and over 720 full-time faculty. Norfolk, one of seven cities that form the Hampton Roads region, is located near the mouth of the Chesapeake Bay in coastal Virginia (USA). It is a culturally rich, historic city and a major international maritime center in a metropolitan area of over 1.7 million people. Nearby attractions include several beaches, the historical “triangle” of Williamsburg, Yorktown and Jamestown, and many cultural organizations and entertainment venues.

The ODU Physics Department has strong research groups in experimental and theoretical nuclear and particle physics, experimental and theoretical atomic and few-body physics, accelerator science, theoretical condensed matter physics, materials science and geophysics and offers B.S., M.S. and Ph.D. degrees. The department has 22 tenured or tenure-track faculty and six special appointment Jefferson Lab Professors and is supported by substantial external, peer-reviewed research grants as well as state funds. Thirteen faculty members are APS Fellows. The vibrant program includes 50 graduate students and more than 80 undergraduate majors.

**Nuclear physics research areas:**
- Experiments at the nearby Thomas Jefferson National Accelerator Facility (Jefferson Lab, about a half hour drive from ODU) and at other international user facilities.
- Theoretical research in high-energy QCD, Lattice QCD, nucleon structure, light nuclei and relativistic dynamics in hadrons and nuclei.

**Synergistic research:** Center for Accelerator Science - http://odu.edu/sci/research/cas.html
Theoretical Research
The ODU theory group performs research across a broad range of topics in hadronic and nuclear physics, including the electroweak properties of light nuclei, chiral perturbation theory, hadron spectroscopy, the properties of nucleons at large energy scales and lattice quantum chromodynamics. This work is of relevance to experiments across the globe, with particular emphasis on experiments performed at the nearby Jefferson Lab. All faculty in the ODU Theory Group are also staff scientists with the Jefferson Lab Theory Group. Graduate students in the group have access to facilities and resources of the Jefferson Lab Theory Group.

Experimental Research at Jefferson Lab
As one of the largest University groups working at Jefferson Lab, the ODU experimental nuclear physics group leads experiments on the form factors and quark-gluon structure of the nucleon, on studies of meson spectroscopy and decays, on the role of short-range correlations in nuclear structure and on searches for new physics. We helped formulate the Jefferson Lab research program for its (now completed) upgrade to 12 GeV beam energy, are building major detectors and other equipment for this program, and are actively planning the next generation facility, the electron-ion collider. The group typically receives about $1M funding per year from various sources, including the US Department of Energy. Students doing research at Jefferson Lab have all the advantages of working at an international laboratory while being stationed at their home institution.

Facilities at Old Dominion University
The experimental nuclear physics group has 5000 square feet of laboratory space, including a high bay area in the Physical Sciences Building II, which also contains offices for faculty, postdocs and students. The group maintains a LINUX farm for physics analysis and simulation. Standard laboratory equipment and infrastructure allows construction of large detectors for research (e.g. the Region 2 Drift Chambers for the CLAS12 spectrometer at Jefferson Lab, see image to the left). A full-time technician and three postdoctoral researchers are part of the group.