GRADUATE PROGRAMS

Expand your view

PHYSICS & ASTRONOMY

OHIO UNIVERSITY

Explore your options

Gain experience
at hands-on facilities

Research facilities: In addition to having access to national labs and research collaborations around the world, OHIO has many advanced facilities on campus, including the Edwards Accelerator Laboratory, scanning tunneling microscopes, a surface science lab, laser labs, a helium liquefier, and more. Our students learn to perform experiments with the local accelerator, manipulate atoms with scanning microscopes and operate telescopes at the MDM Observatory in Arizona.

Our department is small enough for students to get personal attention, yet large enough to provide access to state-of-the-art facilities. Students have regular opportunities for direct experience and close interactions with research groups in theory and experiment.

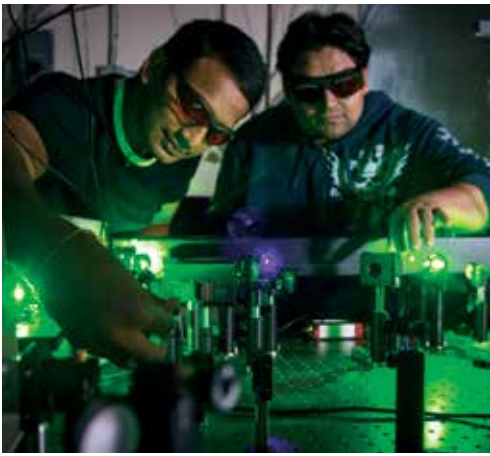
Work closely
with world-class faculty

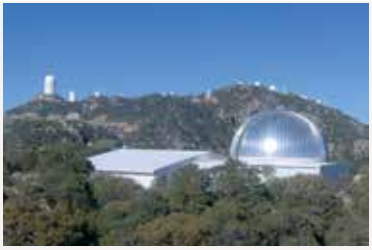
Active researchers: The Department of Physics & Astronomy is dedicated to developing a deeper understanding of the natural world. Graduate students work with world-class faculty at forefront international research facilities to answer fundamental questions about our universe.

Faculty members are known for teaching excellence, recognized by awards at the college and university levels.

Faculty research specialties span a variety of topics, including

- Astronomy and astrophysics
- Biophysics
- Condensed matter physics
- Nuclear and particle physics





FACILITIES AND INSTITUTES

- Astrophysical Institute
- Edwards Accelerator Laboratory
- Institute of Nuclear and Particle Physics
- Nanoscale & Quantum Phenomena Institute
- MDM Observatory, Kitt Peak, AZ

Perform research
in a variety of fields

Research categories: Graduate students work closely with an international and diverse faculty and are supported by teaching and research assistantships.

Our research is broadly categorized into:

- **Astrophysics:** Exploring the contents of the universe
- **Biophysics:** Discovering the diversity of life
- **Condensed Matter Physics:** Unraveling the complex properties of matter
- **Nuclear & Particle Physics:** Investigating the fundamental forces that shape matter and the universe

RESEARCH LOCATIONS

- Chandra X-Ray Observatory
- Fermi Gamma-ray Space Telescope
- Oak Ridge National Lab, TN
- Hubble Space Telescope
- Institute of Nanoscience and Nanotechnology, CEA — Argentina
- Joint Institute for Nuclear Astrophysics
- Lawrence Livermore National Laboratory, CA
- Los Alamos National Laboratory, NM
- Argonne National Laboratory, IL
- National Superconducting Cyclotron Laboratory, Michigan State University
- Relativistic Heavy Ion Collider, Brookhaven National Laboratory, NY
- Thomas Jefferson National Accelerator Facility, VA

Our research is performed under the auspices of several departmental institutes at state-of-the-art facilities located on campus, and throughout the world.

About the graduate program

3:1 student to faculty ratio

26 FACULTY MEMBERS

70 GRADUATE STUDENTS

Graduate students are supported by

Research or teaching assistantships and tuition scholarships

Graduate students may take one year of core courses to determine placement into

the Ph.D. program

no comprehensive examination

Learn how to apply

The Admissions Committee at OHIO looks for candidates with an aptitude for and active interest in scientific inquiry.

Admissions requirements

Bachelor's degree: Completion of a bachelor's degree from government recognized/accredited U.S. institutions or equivalent

Grade Point Average (GPA): Successful candidates are students who have excelled academically. A minimum GPA of 3.0 on a scale of 4.0 or equivalent is required.

Graduate Record Examination (GRE): The verbal and quantitative GRE general tests are recommended. The Physics GRE subject test is optional.

Recommended coursework: Students entering the program normally are expected to have successfully concluded undergraduate work in mechanics, electricity and magnetism, thermodynamics, statistical mechanics and quantum mechanics, and should also possess a working knowledge of mathematics including ordinary differential equations, calculus, Fourier series, vector analysis, and the elements of partial differential equations.

Program overview

The first year and placement into the Ph.D. program

Students who are admitted spend their first year taking six core courses:

FIRST YEAR FALL

- Quantum Mechanics 1
- Mathematical Methods in Physics
- Classical Mechanics

FIRST YEAR SPRING

- Quantum Mechanics 2
- Electrodynamics
- Statistical Mechanics

BEYOND

- Graduate Laboratory course
- Computational Physics course
- Three courses within the Student's Research Area
- A course Outside of Research Area (can be outside the department with permission)
- Optional course on Teaching College Physics
- Colloquia and Seminar Participation

FAQs

When are applications due?
Review of application materials begins on January 7. Application packages should be completed by January 15.

What is the program's typical incoming class size?
The incoming class size is approximately 14 students (2018 numbers).

Do I need to know which subfield I want to enter?
No. Students need not know which subfield of physics and astronomy they want to pursue prior to attending Ohio University.

Will I receive financial support?
Yes. All students receive teaching or research assistantships and tuition scholarships. Financial support is sufficient to cover the cost of living in Athens, Ohio.

I already have an M.S. degree in Physics and/or Astronomy; do I have to repeat introductory coursework?
It depends. Students possessing an M.S. degree have the opportunity to take an oral exam upon arriving at Ohio University. The exam tests core physics knowledge and mastery of prior research efforts.

Do you require the GRE/PGRE/TOEFL?
The GRE is recommended for all applicants. The Physics GRE is optional. The TOEFL is required for applicants whose native language is not English.

I have or am planning to start a family. What benefits does Ohio University offer?
Graduate student health insurance has options for covering your spouse and your children. For those growing their family via birth or adoption, six weeks and three weeks paid parental leave are available for eligible primary and secondary care givers, respectively.

No comprehensive examination: At the end of a student's first year of graduate study, suitability for Ph.D. work is evaluated by the full Physics & Astronomy faculty with the six core course GPA used to determine advancement. In addition, we offer an MS degree which can lead to admission to the Ph.D. program through a research project.

Ph.D. candidacy: After the first year, students placed in the Ph.D. program form a Dissertation Committee in consultation with their research adviser. Students must prepare a Dissertation Prospectus for approval by this committee within 18 months.

Dissertation and oral defense: A dissertation and oral defense are the program capstones, typically during the fifth or sixth year.

Outstanding **faculty**

Our faculty members are highly regarded internationally and within Ohio University. Distinctions include nine Fellows of the American Physical Society, four Distinguished Professors, and a member of the Mexican National Academy of Sciences.

OHIO's Department of Physics & Astronomy faculty members are recognized leaders in their fields, such as these exemplary scholars:

RYAN CHORNOCK

Dr. Chornock uses some of the largest telescopes in the world to study transient phenomena in our universe. He played a leading role in the observations that identified r-process enriched ejecta from the first neutron star merger detected using gravitational waves.

Our alumni and careers

Our Ph.D. graduate students are trained to solve problems, to handle large amounts of data, and to test hypotheses. They have a myriad of fulfilling career options in research, teaching and industry.

In addition to academic positions, graduates often find research positions in national labs, government or industry. Many types of engineering roles are good fits for physics and astronomy graduates, and the growing field of data science is also well-served by these degrees.

Here are a few recent examples:

Sneha Pandya
Ph.D. 2016
Process Engineer, Intel

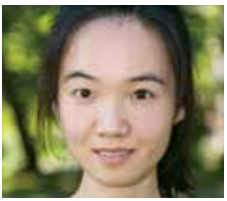
Linda Hlophe
Ph.D. 2016
Postdoctoral Researcher, MSU/FRIB

Chris Johnson
Ph.D. 2016
Data Analyst, IBM

Pratheesh Jakkala
Ph.D. 2016
Assistant Professor, Illinois College

Mahvand Khamesian
Ph.D. 2018
Physics Lecturer, Saginaw Valley State University

Chris Diltz
Ph.D. 2016
Software Developer, Edaptive Computing, Inc.



Yuan Zhang
Ph.D. 2014
Postdoctoral Researcher, Argonne National Laboratory

Anup Pandey
Ph.D. 2017
Postdoctoral Researcher, Oak Ridge National Laboratory

Find more of our recent graduates at: ***www.ohio.edu/cas/physastro/careers/find.cfm***

JULIE ROCHE

Dr. Roche studies the electro-weak structure of the nucleon using high-energy electron scattering. She is a key part of the Qweak collaboration, which recently determined the weak charge of the proton, placing stringent constraints on parity-violating physics beyond the Standard Model.

ALEXANDER GOVOROV

Dr. Govorov started the field of chiral plasmonics and plasmonic assemblies. His group uncovered quicker ways to convert power from light to energetic electrons generated from broadband plasmonic nanopatch metasurfaces. This could allow for higher efficiency solar power devices.

A picturesque college town

For more on life at Ohio University, visit *www.ohio.edu/life*

Ohio University is situated in the scenic foothills of Appalachia and is the first college in the Northwest Territory. Located next to the Hocking River in Athens and founded in 1804, the university is a leading-edge public research institution. Athens, Ohio, is a small college town which boasts a rich offering of arts, cuisine, and entertainment, including the sporting events of the Division I Ohio Bobcats.

Graduate students in the Department of Physics & Astronomy participate in a wide variety of activities, including cultural organizations and intramural sports.

OHIO UNIVERSITY

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