

# Physics at Indiana University

Guide to graduate programs at Indiana University Bloomington



Our department strives to conduct internationally-competitive research across many sub-disciplines within an inclusive and welcoming community of scholars. Our students are our colleagues, and we celebrate their many successes. We are leaders in such areas as nuclear physics, high-energy physics, neutrino physics, neutron physics, fundamental symmetries, precision measurement, materials research, quantum information, and biophysics. We have a strong record of cross-disciplinary research and have historically supported all our graduate students financially. We welcome your interest in our department and urge you to give us a closer look as you consider your future in Physics.

David V. Baxter *Professor and Chair of Physics*

The IU-Bloomington Department of Physics offers students the opportunity to earn advanced degrees in physics while performing cutting-edge research in a variety of fields. Our students select from a variety of programs and interdisciplinary degrees and are integral participants in our research. Graduate students work with professors whose research takes place on the beautiful IU Bloomington campus and at research centers and national labs throughout the world.

## Research topics spanning the world of physics

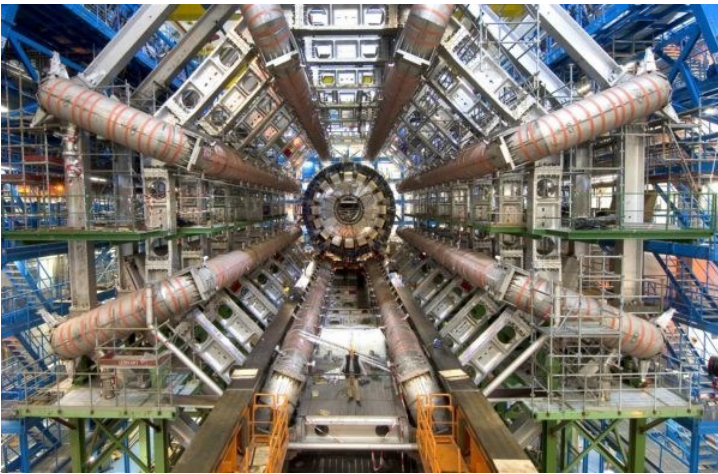
The faculty at IUB are leaders in a wide variety of fields ranging from the study of complex biological systems to investigations of the mysterious neutrino. As a student you will be an integral part of a team researching:

- ◆ **Astrophysics:** *We study the rarest cosmic rays and dark energy above the Earth and in Space.*
- ◆ **Atomic physics and quantum information:** *The study of ion spin systems is underway in our labs and with simulations with the goal of better understanding of quantum mechanics and future applications.*
- ◆ **Biophysics:** *We apply techniques of physics to complex systems such as the principles by which cells process signals, how thoughts travel through the brain, and how flies make decisions during flight.*
- ◆ **Condensed matter and materials:** *We explore the dynamics and structure of new materials using various experimental probes and theoretical approaches. Materials exhibiting topological phases, high-temperature superconductivity, superfluidity, high porosity and non-Newtonian viscoelasticity that are expected to address the technological and energy challenges of the upcoming decades are among those we study.*



## More research topics in the world of physics

- ♦ **Mathematical physics and computing:** *We study lattice gauge field theories both rigorously and using some of the world's most powerful computers.*
- ♦ **Neutrino physics:** *Are these ghostly particles the reason we exist? We are leaders of the experiments that just might find out.*
- ♦ **Nuclear physics:** *Ours is one of the highest ranked nuclear physics groups in the country probing fundamental symmetries and properties of neutrons and protons with unprecedented precision. We are leading efforts to understand the force that binds quarks together and to search for exotic new states of matter.*
- ♦ **Particle physics:** *We're there when the conditions of the Big Bang are recreated at the Large Hadron Collider in Geneva, Switzerland and we're ready with the theories of gravity, strings, quanta, and QCD to help explain what we'll see.*



## Graduate programs in physics at Indiana University-Bloomington

Get more information on our research, degrees, and how to apply at:

[physics.indiana.edu](http://physics.indiana.edu)



## Bloomington, Indiana A great place to live and work

Bloomington is frequently cited as one of the top ten college towns in the United States. With numerous festivals, international restaurants, charming neighborhoods, and easy access to beautiful state parks, Bloomington is an immensely livable city.

As one of the most culturally active places in the Midwest, Bloomington has exciting art and theater scenes, as well as being a world-renowned center for music, with over 1,000 performances every year.

Bloomington is a safe place to live and work, easily navigated by bicycle or public transportation, with a relatively low cost of living. This multicultural community also serves as the gateway to the beautiful hills of Southern Indiana.



## DEPARTMENT OF PHYSICS

INDIANA UNIVERSITY  
College of Arts and Sciences  
Bloomington

727 E. 3rd Street  
Bloomington, IN 47405-7105

Tel: (812) 855-1247 Fax: (812) 855-5533

Email: [gradphys@indiana.edu](mailto:gradphys@indiana.edu)

Website: [physics.indiana.edu](http://physics.indiana.edu)