

BINGHAMTON UNIVERSITY (STATE UNIVERSITY OF NEW YORK)

DEPARTMENT OF PHYSICS, APPLIED PHYSICS, AND ASTRONOMY

Binghamton, New York 13902-6000

<http://www2.binghamton.edu/physics>

General University Information

President: Harvey Stenger
Dean of Graduate School: Aondover Tarhule
University website: <http://www2.binghamton.edu>
School Type: Public
Setting: Suburban
Total Faculty: 866
Total Graduate Faculty: 496
Total number of Students: 16,695
Total number of Graduate Students: 3,283

Department Information

Department Chairman: Dr. Bruce White, Chair
Department Contact: Judy Coderre, Administrator
Total full-time faculty: 18
Total number of full-time equivalent positions: 18
Full-Time Graduate Students: 43
Female Full-Time Graduate Students: 0
First-Year Graduate Students: 7
Female First-Year Students: 3
Total Post Doctorates: 3

Department Address

4400 Vestal Parkway East
Science II, Room 256
Binghamton, NY 13902-6000
Phone: (607) 777-4609
Fax: (607) 777-2546
E-mail: physics@binghamton.edu
Website: <http://www2.binghamton.edu/physics>

ADMISSIONS

Admission Contact Information

Address admission inquiries to: C. Nelson, Graduate Director,
Department of Physics, Applied Physics, and Astronomy,
Binghamton University, PO Box 6000, Binghamton NY
13902-6000
Phone: (607) 777-4317
E-mail: cnelson@binghamton.edu
Admissions website: <http://www2.binghamton.edu/grad-school/>

Application deadlines

Fall admission:
U.S. students: February 15 *Int'l. students:* February 15
Spring admission:
U.S. students: February 15 *Int'l. students:* February 15

Application fee

U.S. students: \$75 *Int'l. students:* \$75
Applications must be submitted online in addition to submitting documents as a single PDF to the Department.

Admissions information

For Fall of 2018:
Number of applicants: 42
Number admitted: 11
Number enrolled: 7

Admission requirements

Bachelor's degree requirements: Bachelor's degree is required.
Minimum undergraduate GPA: 3.0

GRE requirements

The GRE is required.
Quantitative score: 156
Verbal score: 153
Analytical score: 3.0
Physics Subject GRE is recommended.

Subjective GRE requirements

The Subjective GRE is recommended.

TOEFL requirements

The TOEFL exam is required for students from non-English-speaking countries.
PBT score: 550
iBT score: 100

Other admissions information

Additional requirements: Specialization in physics at the undergraduate level is desirable but not essential for admission. Three letters of reference are required. No minimum acceptable score for admission is specified.
Undergraduate preparation assumed: One year of general physics; one year of Electromagnetic Theory (Griffiths; Introduction to Electrodynamics); one semester of Classical Mechanics (Taylor; Classical Mechanics); at least a semester of quantum mechanics (Townsend, Griffiths, Shankar, or Cohen-Tannoudji; Quantum Mechanics); and mathematics through partial differential equations. Appropriate laboratory experience at the upper undergraduate levels is desirable..

TUITION

Tuition year 2018–19:
Tuition for in-state residents
Full-time students: \$5,545 per semester
Part-time students: \$462 per credit
Tuition for out-of-state residents
Full-time students: \$11,325 per semester
Part-time students: \$944 per credit
Credit hours per semester to be considered full-time: 12
Deferred tuition plan: No
Health insurance: Yes, \$15.79 bi-weekly.
Other academic fees: \$2,051 (maximum except international students). International students should add an average of \$1,300 per calendar year for international student health insurance and service fees.
Academic term: Semester
Number of first-year students who received full tuition waivers: 10

Teaching Assistants, Research Assistants, and Fellowships

Number of first-year
Teaching Assistants: 12
Fellowship students: 2
Average stipend per academic year
Teaching Assistant: \$23,000
Research Assistant: \$23,000
Fellowship student: \$23,000

FINANCIAL AID

Loans

Loans are available for U.S. students.
Loans are available for international students.
GAPSFAS application required: No
FAFSA application required: No

For further information

Address financial aid inquiries to:
 Phone: 607-777-2428
 E-mail: finaid@binghamton.edu
 Financial aid website: <https://www.binghamton.edu/financial-aid/funding-needs/graduate-students.html>

HOUSING

Availability of on-campus housing

Single students: Yes
 Married students: Yes

For further information

Address housing inquiries to: Director of Graduate Housing.
 Phone: 607-777-2321
 E-mail: reslife@binghamton.edu
 Housing aid website: <https://www.binghamton.edu/grad-school/student-life/housing-transportation.html>

Table A—Faculty, Enrollments, and Degrees Granted

Research Specialty	2014–15 Faculty	Enrollment Fall 2014		Number of Degrees Granted 2011–12 (2004–10)		
		Mas-ter's	Doc-torate	Mas-ter's	Terminal Master's	Doc-torate
Applied Physics	2	–	6	–(8)	–	–
Atomic, Molecular, & Optical Physics	–	–	3	–	–	–
Biophysics	1	–	2	–	–	–
Chemical Physics	–	–	–	–	–	–
Condensed Matter Physics	3	–	12	–(3)	–	–
Energy Sources & Environment	4	–	10	–	–	–
Engineering Physics/Science	–	–	–	–	–	–
Low Temperature Physics	–	–	–	–	–	–
Materials Science, Metallurgy	1	–	4	–(2)	–	–
Optics	2	–	6	–(1)	–	–
Statistical & Thermal Physics	1	–	–	–(2)	–	–
Non-specialized	1	–	–	–	–	–
Total	15	–	43	–(16)	–	–
Full-time Grad. Stud.	–	–	43	–	–	–
First-year Grad. Stud.	–	–	7	–	–	–

GRADUATE DEGREE REQUIREMENTS

Master's: Thirty graduate credit hours with at least a "B" average. There is a two-semester residence requirement. Students have a choice of thesis or comprehensive examination.

Doctorate: At least 24 credit hours of course study (in residence) and 24 additional credit hours of dissertation work. Passing a written qualifying examination, in three parts, covering the core areas of physics and successful defense of dissertation are required.

Other Degrees: Master of Science in physics with a specialization in applied physics is designed for students seeking careers in applied physics. Emphasis is to provide a comprehensive education in fundamental physical principles and their applications to enhance the ability to evolve with changing technology and to avoid technical obsolescence. Student may study part-time and complete a degree in three years or complete a full-time graduate assistantship and complete the degree in two years or less. Thesis topics may be drawn from

employment with the consent of the department and employer. M.A.T. and M.S.T. programs are designed for students who wish to teach physics at the secondary level. The M.A.T. program is designed for students with a physics background who need education courses; the M.S.T. program is designed for teachers who want to improve their physics background. The credits in professional education courses required for certification are offered, as well as additional work in physics and allied fields. Certified teachers may enroll in the M.S.T. program, in which almost all of the training involves substantive physics coursework.

Thesis: Thesis may be written in absentia.

SPECIAL EQUIPMENT, FACILITIES, OR PROGRAMS

AC and DC magnetic susceptibility bridges; X-ray diffractometers; 100,000 kilogauss superconducting magnet; 15" iron core magnet; differential scanning calorimeters; sputtering equipment; vacuum deposition stations; dilution refrigerator; Raman spectrometer; clean room; sput quench; resistivity bridges; hydrator; cryo-cooler; dielectric analyzer; thermogravimetric analyzer; dynamic mechanical analyzer; thermomechanical analyzer; scanning electron microscope; high-pressure intensifier; squid magnetometer; femtosecond lasers; Low temperature STM; Linux cluster for computational physics.

Table B—Separately Budgeted Research Expenditures by Source of Support

Source of Support	Departmental Research	Physics-related Research Outside Department
Federal government	\$4,500,000	\$12,000,000
State/local government	\$300,000	\$500,000
Non-profit organizations	–	–
Business and industry	\$500,000	\$1,000,000
Other	–	–
Total	\$5,300,000	\$13,500,000

FACULTY

Professor

Cotts, Eric J., Ph.D., University of Illinois, 1983. *Applied Physics, Materials Science, Metallurgy, Physics and other Science Education, Solid State Physics.* Experimental solid-state physics.

Nelson, Charles A., Ph.D., University of Maryland, 1968. Graduate Director. *Astrophysics, High Energy Physics, Particles and Fields.* Theoretical high-energy physics.

Suzuki, Masatsugu, Ph.D., University of Tokyo, 1977. Undergraduate Director. *Materials Science, Metallurgy, Solid State Physics.* Experimental solid-state physics.

White, Bruce E., Ph.D., Cornell University, 1995. Department Chair. *Applied Physics, Condensed Matter Physics, Electrical Engineering, Energy Sources & Environment, Low Temperature Physics, Materials Science, Metallurgy, Nano Science and Technology, Solid State Physics.*

Associate Professor

Kolmogorov, Aleksey, Ph.D., Penn State University, 2004. *Computational Physics, Energy Sources & Environment, Statistical & Thermal Physics.* Development and modeling of new materials with ab initio methods.

Lawler, Michael, Ph.D., University of Illinois at Urbana-Champaign, 2006. *Condensed Matter Physics, Solid State Physics.*

Levy, Stephen, Ph.D., University of California Santa Barbara, 2003. *Biophysics, Nano Science and Technology, Polymer Physics/Science*.

Mativetsky, Jeffrey, Ph.D., McGill University, 2006. *Applied Physics, Condensed Matter Physics, Energy Sources & Environment, Nano Science and Technology, Solid State Physics*. Relationships between nanoscale structure and electrical function in organic materials for solar cells and electronics.

Piper, Louis, Ph.D., University of Warwick, 2003. *Applied Physics, Condensed Matter Physics, Energy Sources & Environment, Nano Science and Technology, Solid State Physics, Surface Physics*.

Shim, Bonggu, Ph.D., University of Texas @ Austin, 2006. *Applied Physics, Atomic, Molecular, & Optical Physics, Nonlinear Dynamics and Complex Systems, Optics*. Nonlinear interactions with matter using high-power, ultrashort laser pulses.

Assistant Professor

Aynajian, Pegor, Ph.D., Max Planck Institute (University of Stuttgart), 2009. *Condensed Matter Physics, Low Temperature Physics, Solid State Physics*.

Lee, Wei-Cheng, Ph.D., U. Texas (Austin), 2008. *Computational Physics, Condensed Matter Physics, Solid State Physics*.

Margine, Roxana, Ph.D., Penn State University, 2007. *Computational Physics, Condensed Matter Physics, Solid State Physics*. Develop and apply ab initio computational methods

for modeling of emerging materials with applications in energy transport and electronics.

Smeu, Manuel, Ph.D., McGill University, 2012. *Computational Physics*.

Adjunct Professor

Poliks, Barbara, Ph.D., Jagiellonian University, 1982. *Applied Physics, Condensed Matter Physics, Polymer Physics/Science, Solid State Physics*. Computer simulations of polymeric systems, including proteins and materials.

DEPARTMENTAL RESEARCH SPECIALTIES AND STAFF

Theoretical

Computational Physics. Kolmogorov, Lawler, Lee, Margine, Poliks, Smeu, White.

Condensed Matter Physics. Lawler, Lee.

Experimental

Applied Physics.

Biophysics. Levy, Poliks.

Condensed Matter Physics. Low-temperature condensed-matter physics; localized magnetic moments in metallic crystals; induced valence changes in impurity doped metals; Raman spectroscopy; properties of disordered materials, amorphous metals, and layered materials.

View additional information about this department at www.gradschoolshopper.com. Check out the “Why Choose Us?” section, find out more about the department’s culture and get links to social media networks.