

**Bowling Green State University (BGSU)** in Ohio, USA, offers positions for talented students to pursue a doctoral degree (PhD) in Photochemical Sciences. This is a multi-disciplinary degree that emphasizes studies of the interaction of light with physical, chemical, and biological systems, and practical applications of that basic knowledge. The program is designed for students with a background in all chemistry disciplines (organic, inorganic, physical, theoretical), physics, biological sciences, materials science, and features small to medium-sized research groups having strong interaction between research directors.

**The Center for Pure and Applied Photosciences (CPAPS)** at BGSU is a guarantor of the PhD degree program. CPAPS is a unique scientific entity: the only institution in the world that offers a doctoral degree in the Photosciences. Founded in 1985, the Center evolved from research activities of faculty in the Department of Chemistry at BGSU to make more effective use of focused resources in the photochemical sciences by assembling teams of scientists collaborating in an interactive, interdisciplinary research setting.

**Location.** BGSU is located in the city of Bowling Green in Ohio. Bowling green is a mid-size college town with population of ~30,000. It is located in part of the Great Lakes region of the United States, close to major cities such as Toledo, Detroit, Cleveland and Chicago. An important advantage to students is a very low cost of living (for example, apartments can be rented for as low as \$350/mo. The city has many amenities including local restaurants, brew pubs, coffee shops, farmer's market, etc.

**Faculty research areas** include various topics centered around a common theme of "interaction of light and matter" and include:

- Organic/inorganic synthesis
- Polymer photochemistry/physics
- Solar cells and light emitting materials
- Photocatalysis
- Nanostructured materials
- Laser spectroscopy
- Single molecule imaging
- Theoretical chemistry, simulations and modeling
- Analytical and supramolecular chemistry
- RNA Structural Bioinformatics
- Phototropic biologics

Many more interdisciplinary topics are researched.

**Faculty members** (group information and their [contacts](#)):

**Prof. Pavel Anzenbacher, Jr.** (Organic Supramolecular and Analytical Chemistry, Light-emissive materials); **Prof. John R. Cable** (Supersonic jet expansion spectroscopy, Solvation, Hydrogen bonding); **Prof. Malcolm D. E. Forbes**, Director of CPAPS (Structure, Reactivity and dynamics of confined radicals and radical pairs); **Prof. Joseph C. Furgal** (Hybrid Materials, Photoresponsive Materials, Molecular Separations); **Prof. Jayaraman Sivaguru**, Assoc. Director of CPAPS (Organophotocatalysis, Assymmetric photochemistry, Supramolecular photochemistry); **Prof. Neocles B. Leontis** (Modeling of DNA, RNA and protein binding); **Prof. H. Peter Lu**, Ohio Eminent Scholar (Single molecule spectroscopy, Protein dynamics); **Prof. Massimo Olivucci** (Computational chemistry and biology, Energy conversion in photoreceptors); **Prof. Alexis D. Ostrowski** (Inorganic polymers, Photoresponsive materials, Tissue engineering, Drug delivery); **Prof. Farida Selim** (Positron Annihilation spectroscopy Materials, Spintronics); **Prof. Liangfeng Sun** (Nano-structured materials, Bio-imaging, Solar cells); **Prof. Alexander N. Tarnovsky** (Ultrafast spectroscopy, Roaming reactions); **Prof. R. Marshall Wilson** (Photo-triggered drug release, Photoaffinity labeling); **Prof. Mikhail Zamkov** (Electronic and optical properties of materials, Quantum dots, Solar cells); **Prof. Alexey T. Zayak** (Quantum mechanical calculations of materials, Raman spectroscopy).

**Admission requirements** are a bachelor's degree in Chemistry or a related major from an accredited college or university, with a grade point average (GPA) of at least 3.0 based on a 4.0 scale. Students with GPAs between 2.8 and 3.0 may also be admitted provided there are other indicators of likely success in the program, such as high grades in upper-level chemistry courses and research experience.

Three letters of recommendation, including one from an undergraduate research advisor, are weighted heavily in consideration for admission.

The language of instruction is English and students must speak English to be admitted. While for the overseas applicants the TOEFL examination is highly desired, in special circumstances (please, inquire!) the exam could be waived. The minimum TOEFL score required is 80 on the Internet-based test and 550 on the paper-based test. A minimum score of 7.0 will be accepted on the IELTS exam.

For more admission information visit: [bgsu.edu/graduate/admissions](http://bgsu.edu/graduate/admissions) or contact Ms. Hilda Miranda at [hmirand@bgsu.edu](mailto:hmirand@bgsu.edu)

**PhD program.** The study toward the PhD takes 4-5 years to finish. During this time, students take 6 classes, for example organic spectroscopy, quantum chemistry, reaction mechanisms, photochemistry, photophysics, etc. During the study, the student must maintain a GPA of 3.0 or higher.

**Stipend.** Every student receives stipend of \$21,000 per year. Students in the CPAPS doctoral program do not pay tuition. In the first two years students are typically supported as Teaching Assistants. This means that the student helps in teaching of undergraduate students, for example, assisting them in the laboratory training. Later years research assistantship by research advisor.

**After PhD program.** Our graduates enjoy diverse careers, for example in industrial R&D laboratories, they often continue their education as postdoctoral associates (a common pathway to academic jobs such as professorship) or join National laboratories.

**Summer internships.** In addition to PhD program, the Center (CPAPS) offers summer internship positions that take ~2-4 months. Please, inquire about this program at [pavel@bgsu.edu](mailto:pavel@bgsu.edu).