

# INDIANA UNIVERSITY

University Graduate School  
2005-2006  
Academic Bulletin

## Chemical Physics

College of Arts and Sciences  
Bloomington

Departmental E-mail  
gradphys@indiana.edu

Departmental URL  
www.chemphys.indiana.edu

**Co-Directors**  
Associate Professors David Baxter\* (Physics), Romualdo de Souza\* (Chemistry)

**Graduate Faculty**  
(An asterisk [\*] denotes membership in the University Graduate School faculty with the endorsement to direct doctoral dissertations.)

**Chancellors' Professor**  
George Ewing\* (Emeritus, Chemistry)

**Distinguished Professors**  
Gary Hieftje\* (Chemistry), Peter Ortoleva\* (Chemistry), Charles Parmenter\* (Chemistry), Victor Viola\* (Chemistry)

**Robert and Marjorie Mann Chair**  
Gary Hieftje\* (Chemistry)

**Professors**  
Adam Allerhand\* (Emeritus, Chemistry), David Baxter\* (Physics), Russell Bonham\* (Emeritus, Chemistry), David Clemmer\* (Chemistry), Stanley Hagstrom\* (Emeritus, Chemistry, Computer Science), Larry Kesmodel\* (Physics), Lawrence Montgomery\* (Chemistry), James Reilly\* (Chemistry), William Schaich\* (Physics), Romualdo de Souza\* (Chemistry), James Swihart\* (Emeritus, Physics)

**Associate Professors**  
John Carini\* (Physics),

**Assistant Professors**  
Bogdan Dragnea (Chemistry), Dobrin Bossev (Physics)

**Graduate Advisors**  
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## **Degree Offered**

Doctor of Philosophy. A student may also qualify for the Master of Science degree in chemistry or physics.

## **Special Program Requirements**

See also general University Graduate School requirements.

## **Doctor of Philosophy Degree**

### **Admission Requirements**

Undergraduate degree in chemistry, physics, or mathematics. Students who have interests in the physical sciences with undergraduate degrees in other fields, such as engineering, are also encouraged to apply; they will be considered on an individual basis. Admission to the program requires that the student first be admitted to the graduate program in chemistry or physics.

### **Grades**

B (3.0) average or higher must be maintained.

### **Course Requirements**

These requirements are flexible and are planned and approved by the Chemical Physics Committee and the individual student. The guidelines in planning the curriculum are that the student in the program should acquire a knowledge of condensed-matter physics, electricity and magnetism, molecular structure, kinetics, atomic and molecular spectroscopy, quantum mechanics, and statistical mechanics. The formal requirements are either those of a major in physical chemistry with a minor in physics, or of a major in physics with a minor in chemistry.

### **Minor**

For a minor in physics, 9 credit hours in physics courses at the P501 level or higher are required. For a minor in chemistry, 6 credit hours are required, chosen from the following: C561-C562, C566, C567-C568, C668. Occasionally, courses other than those listed here may be accepted, but such substitutions require approval of the Chemical Physics Committee.

### **Major**

See Ph.D. program descriptions listed under chemistry or physics.

### **Qualifying Examination**

See requirements of the major department, found elsewhere in this bulletin.

### **Dissertation**

Under the direction of a graduate faculty member of the Department of Chemistry or the Department of Physics.

### **Final Examination**

Usually oral, covering dissertation, major, and minor(s).