

## **Doctor of Philosophy Degree in Chemical Physics**

The curriculum requirements for the PhD in Chemical Physics meld those of Chemistry with those of Physics. The curriculum has more emphasis on chemical synthesis than the core program in Physics and more electricity and magnetism than the core program in Chemistry. These greater core requirements are balanced with a greater flexibility in the elective courses. The core program consists of seven graduate-level classroom courses at least three of which must be Chemistry courses and three must be Physics courses. These are to be completed by the fourth semester in residence and include:

### **Core courses**

- Two semesters of quantum/structure consisting of either Chemistry 133 or Physics 163 and either Chemistry 136 or Physics 164.
- One semester of electricity and magnetism consisting of Physics 145 .
- One semester of statistical-thermodynamics consisting of either Chemistry 131 or Physics 153.
- One course on structure/bonding, to be chosen from among Chemistry 150 (intermediate organic), 151 (physical organic), 152 (advanced organic synthesis), 161 (advanced inorganic), and 162 (transition metals).

### **Elective courses**

- Two additional courses from among Chemistry 132 (kinetics), 151 (physical organic), or 162 (transition metals) or Physics 131 (Classical Mechanics), 146 (Classical Electromagnetic Theory II), 173 (solid state) or 174 (solid state). Other appropriate courses may be substituted with the approval of the student's advisory committee.

Two oral presentations are required: a public seminar by the end of the fourth semester and a presentation to the student's research committee in the fifth semester. The seminar is based on current literature, can be presented in either department and is evaluated by the research committee. The topic for the presentation to the committee is chosen by the student in consultation with the research committee. This presentation maybe waived for students having at least a 3.3 average in the core courses. In addition, the student must prepare a written, original research proposal by the end of the eighth semester. This proposal shall be somewhat distinct from the thesis work and defended orally before the advisory committee.