CHEMISTRY4000

Fluorine Chemistry

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Syllabus

Fluorine is the most reactive element among all elements of the periodic table. Its compounds exhibit a large diversity of reactivities and geometries. The goal of this course is to cover the properties of a large range of fluorine compounds and their applications, with an emphasis on inorganic fluorine compounds. Topics that will be covered include (a) elemental fluorine, (b) HF and superacids, (c) covalent inorganic fluorides, e.g., noble-gas compounds, interhalogen compounds, (d) ionic fluorides, (e) organic fluorine compounds, (f) use of ^{19}F NMR and multiNMR spectroscopy in the characterization of fluorine compounds, (g) ^{18}F-PET. Depending on the audience, other fluorine-related topic can be added.

In this course, students will give oral presentations about general fluorine topics and current research publications.

Prerequisites

The prerequisite for this course is completion of Chem 2000 (General Chemistry II), Chem 2600 (Organic Chemistry II), and Chem 3830 (Inorganic Chemistry I), or permission of the Department.