STEVENS Institute of Technology

Modern Mass Spectrometry

Chemistry 666 (3-credit graduate course), Fall 2008
Thursday Evenings (6:15 to 9:15 PM)
First day of class: August 28, 2008, Room: Babbio 304

Professor Athula Attygalle
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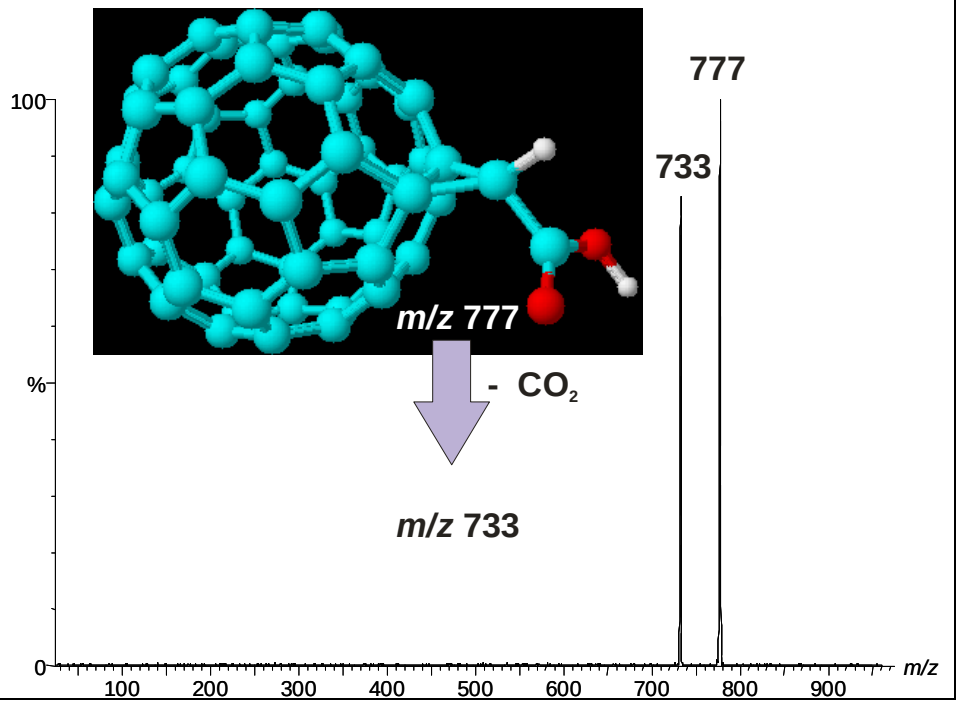
(http://www.stevens.edu/ses/chem-bio/MassSpectrometry/index.html)

Mass spectrometry is one of the leading techniques for detection and analysis of extremely complex and fragile biological molecules. Thus, a thorough awareness of modern mass spectroscopic techniques is an absolute prerequisite for bioanalytical chemists engaged in biomedical, pharmaceutical, flavors and fragrance, cosmetic, and environmental research.

Contact for Application: Office of Graduate Studies (201) 216-5234
Contact for Info: Dept of Chemistry & Chem Biol (201) 216-5528
(http://www.stevens.edu/registrar/forms/Graduate_Enrollment.pdf)



Course Description

A comprehensive hands-on course covering both fundamentals and modern aspects of mass spectrometry with emphasis on biological and biochemical applications. Topics include: contemporary methods of gas phase ion formation [electron ionization (EI), chemical ionization (CI), inductively coupled plasma (ICP), fast atom bombardment (FAB), electrospray (ESI, DESI, DART), atmospheric pressure chemical ionization (APCI), matrix assisted laser desorption ionization (MALDI), detection (electron and photomultipliers, array detectors), and mass analysis [magnetic deflection, quadrupole, ion trap (Orbitrap), time of flight (TOF), Fourier-transform (FTMS), ion mobility spectrometry (IMS)]. Detailed interpretation of organic mass spectra for structural information with special emphasis on even-electron-ion fragmentation. Qualitative and quantitative applications in environmental, biological, pharmacological, forensic, geochemical sciences. Imaging mass spectrometry. Prerequisites: Undergraduate organic and physical chemistry.