

Short Course “Fundamentals of Mass Spectrometry”

Instructors

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Description

A two-day course on the interpretation of mass spectra of organic compounds. Starting at the introductory level, the course is intended to provide the fundamentals for an understanding of the basic principles and applications of mass spectrometry of organic molecules.

Key topics of the short course are ionization processes, the formation and interpretation of isotopic patterns, uses of high-resolution and accurate mass for molecular formula determination, and an introduction to the fragmentation pathways of odd-electron and even-electron ions. Information regarding available mass spectral databases will be provided along with how to use them with all types of organic mass spectrometry including MS/MS data.

With an emphasis on the analysis of small molecules, you will learn to systematically employ all of the above mass spectral data for compound identification and structure elucidation.

To complete the course, compact lectures on instrumentation and its common modes of operation, as well as on the basics of widespread soft ionization methods such as chemical ionization (CI), field desorption (FD including LIFDI), electrospray ionization (ESI), and matrix-assisted laser desorption/ionization (MALDI) and ambient MS (DESI, DART) will be included.

Methodology

Lectures (about 80 % of the time) plus short and simple exercises to assist understanding

Language and Presentation

English

PowerPoint