INSTITUT FÜR ISOTOPENFORSCHUNG UND KERNPHYSIK
DER UNIVERSITÄT WIEN

E I N L A D U N G
zum
I N S T I T U T S S E M I N A R
von

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Biological Engineering Division
Massachusetts Institute of Technology, Cambridge, USA

BEAMS Lab: A high-throughput AMS facility (A tale of two interfaces…)

The Biological Engineering Accelerator Mass Spectrometry [BEAMS] Lab at the Massachusetts Institute of Technology was established to be a high-throughput facility for biomedical applications of AMS such as pharmacokinetics, metabolite profiling, toxicology, and microdosing.

Our current AMS instrument incorporates an exceptionally compact 1 MV particle accelerator and was designed to be a two-isotope instrument for analysis of ^{14}C- or ^{3}H-labeled compounds. It is equipped with a gas-accepting ion source to facilitate continuous sampling. Proprietary interfaces for on-line sample gasification are coupled to the AMS instrument to allow rapid introduction and analysis of samples in liquid or other form.

Non-volatile carbon samples are analyzed by a laser-induced combustion interface that is the result of an evolution in the design that ultimately gave way to a very good combination of reproducibility, accuracy and precision. Volatile carbon samples are handled by means of a gas chromatograph, whose effluent may be split between the AMS instrument and a quadrupole mass spectrometer. This way, not only ^{14}C but also ^{13}C can be analyzed simultaneously, and information about the compound composition can be obtained.

This presentation will show how the evolution in the interface designs converted our BEAMS Lab into a high-throughput AMS facility. This will lead to the biological and pharmacological applications of AMS at our laboratory and how the advantages of our sample-handling procedures are beneficial for biomedical research.

Donnerstag, 20. April 2006, 16:30 Uhr

**1090 Wien, Währingerstr. 17, "Kavalierstrakt",
1. Stock, Seminarraum von VERA**

R. Golser W. Kutschera