



EINLADUNG

zum

VERA - SEMINAR

von

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The AMS Isotope Uranium-236

Over the last years, the Vienna Environmental Research Accelerator (VERA) was continuously extended to optimize the detection of the long-lived radioisotope uranium-236. It is now the first AMS system reaching the abundance sensitivity to address the expected typical natural isotopic ratios on the order U-236/U-238 less than 10^{-13} , while the improved detection limit of a few thousand U-236 atoms significantly reduces the necessary size of anthropogenic samples. Stripping with helium to the 3+ charge state at 1.65 MV terminal voltage improved the yield by a factor of four, while a recently installed additional 90° magnet in the analyzer suppresses the background caused by U-235 hydrides by several orders of magnitude.

These developments allow measuring several hundred samples of U-236 and other actinides per year in a comprehensive application program. Since U-236 is ubiquitous in the environment, samples originate from freshwater, ocean water, corals, deep sea sediments, soil, peat, air filters, and the biosphere. The fields of applications are mainly environmental tracing, nuclear forensics, and radiation protection. First results on materials expected to be unaffected by anthropogenic U-236 suggest that anthropogenic contamination is more widespread, and that improved chemical procedures have to be developed to fully exploit the instrumental limit.

We will detail the VERA AMS system and present new results on U-236 from the Fukushima exclusion zone, from a sediment-buried peat bog considered unaffected by anthropogenic influence, and of nuclear parameters of astrophysical relevance.

Donnerstag, 10. April 2014, 16:30 Uhr

**1090 Wien, Währinger Str. 17, "Kavalierstrakt",
1. Stock, Victor-Franz-Hess-Hörsaal**