



E I N L A D U N G

zum

V E R A - S E M I N A R

von

**Karin Hain**

Fakultät für Physik – Isotopenforschung und Kernphysik  
Universität Wien

## **Source identification by isotopic analysis of actinides with AMS and its application to environmental waters**

The isotopic plutonium ratio  $^{240}\text{Pu}/^{239}\text{Pu}$  has proven to be very useful to study the transport of Pu attributed to different types of fallout in the water column of the Pacific Ocean. For the identification of a recent entry of Pu as by the Fukushima accident, the relatively short-lived  $^{241}\text{Pu}$  ( $T_{1/2} = 14.325$  a) is a well-suited indicator, since  $^{241}\text{Pu}$  from fallout of weapon tests has already significantly decayed. The isotopic ratios  $^{240}\text{Pu}/^{239}\text{Pu}$  and  $^{241}\text{Pu}/^{239}\text{Pu}$  were determined by accelerator mass spectrometry (AMS) in Pacific Ocean water samples collected in late 2012.  $^{241}\text{Am}$ , which causes isobaric background on  $^{241}\text{Pu}$  in mass-spectrometric measurements, was separated by extraction chromatography. The results of ocean water samples measured at the Vienna Environmental Research Accelerator (VERA) will be discussed in the first part of the talk.

In order to trace environmental waters, soluble elements like U are preferable. VERA has recently increased its detection efficiency such that it is now capable to detect the U ratio  $^{233}\text{U}/^{236}\text{U}$  in environmental samples. First results of  $^{233}\text{U}/^{236}\text{U}$  in different sample materials will be presented.

**Donnerstag, 20. Oktober 2016, 16:30 Uhr**

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