

uncertain. An international effort is made to estimate the strength of STE and its impact on tropospheric chemistry.

The two cosmogenic radioisotopes of beryllium, ^{10}Be and ^7Be have very different half-lives of 1.51 Ma and 53.4 d, respectively. The combination of production rates, half-lives and different residence times in the stratosphere and troposphere, respectively, results in $^{10}\text{Be}/^7\text{Be}$ isotope ratios which can be used as fingerprints for STE. This ratio helps to give a much improved estimate of STE. However, only few ^{10}Be measurements exist, because its detection requires the rather elaborate method of accelerator mass spectrometry (AMS).

At the AMS facility VERA we are now measuring the ^{10}Be content of air filters from the high-alpine stations 'Hoher Sonnblick', Austria, and 'Zugspitze', Germany. The ^7Be content is measured separately by decay counting. In this presentation, we want to describe the method of measuring ^{10}Be with AMS, and to discuss the results of first $^{10}\text{Be}/^7\text{Be}$ ratios.

PH72 Heavy-ion Accelerator Mass Spectrometry with a "small" accelerator

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VERA, the Vienna Environmental Research Accelerator, is based on a 3-MV Pelletron tandem accelerator and is designed to allow the transport of ions of all elements, from the lightest to the heaviest. The VERA heavy ion program tries to establish measurement methods which work for the long-lived radionuclides where suppression of isobars is not required. Among these are ^{129}I , ^{210}Pb , ^{236}U , and all heavier ions where no stable isobars exist.

To suppress neighboring masses, the resolution of VERA was increased, both by improving the ion optics of existing elements and by installing a new electrostatic separator after the analyzing magnet. Interfering ions which pass all beam filters are identified with a high-resolution time-of-flight system, using a $0.5 \mu\text{g}/\text{cm}^2$ DLC (Diamond-Like Carbon) foil in the start detector, which substantially reduces beam straggling.

Compared to heavy ion AMS at large tandem accelerators ($TV \geq 8 \text{ MV}$) and for cases where stable isobar interference is absent, it is possible to offset the

AT0400153



disadvantage of lower ion energy. Moreover, the more compact facilities like VERA achieve higher stability and reliability and provide advanced computer control. This promises even higher precision and sensitivity for a larger number of samples, which is a prerequisite for research on natural-occurring heavy radioisotopes at environmental levels. First results on the measurement of ^{210}Pb (half-life 22 a) and ^{236}U (23 Ma) encourages us to push towards even heavier radionuclides (e.g. ^{244}Pu , 81 Ma).

PH73 **Der neue Layout der 0.5 MW/10Hz – Version von AUSTRON**

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Ermutigt durch die internationale "user community" wurde 1998 das Konzept des AUSTRON-Beschleunigers durch einen Speicherring erweitert, der eine 10 Hz-Variante mit 50kJ pro Puls erlaubt, wodurch man mit geringen Mehrkosten nahe an den Spitzenfluss der ESS heranrueckt. Dazu muss das "Rapid Cycling Synchrotron" auf einer "single bunch" - Variante umgearbeitet werden, was zu kritischen longitudinalen Aspekten fuehrt. Ferner wird das "lattice" der Transfert - Strahlfuehrung vom Synchrotron zum Speicherring diskutiert.

PH74 **AUSTRON and its notable new features**

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The 10Hz/0.5MW AUSTRON neutron spallation source is dedicated for high resolution structural and dynamical investigations of condensed matter and for new fundamental research with neutrons. New magnetic focussing and bunching systems are under development which create additional intensity gain factors of 10 - 20. Clean room conditions including vibration, temperature and humidity control will improve the standard of neutron optical and neutron reflectometry experiments considerably. Narrow band neutron perfect crystal resonators and storage systems are foreseen for a novel beam tailoring. A dedicated new ultra-cold neutron station will open a new horizon for experiments in the sub-neV region. Recently the project got additional support of the Austrian governmental Board for Research and Technological Development which recommended the forced continuation of the project,