INSTITUT FÜR ISOTOPENFORSCHUNG UND KERNPHYSIK
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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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Trace detection of ^{85}Kr by two-step excitation and field ionization in a fast atom beam

We have implemented a laser-based detection scheme for the rare krypton isotopes. Presently the scheme utilizes two-step excitation of metastable krypton atoms in a nearly perfect three-level system followed by field ionization. The detection scheme was realized experimentally with a mass-separated beam of natural krypton, which was slightly enriched with ^{85}Kr. The mass resolution of the mass separator was moderately low with an $R = m/\Delta m = 300$. The ^{85}Kr beam current was about 2000 ions/s. A total detection efficiency of about 10% is achieved experimentally. So far an ^{85}Kr concentration as low as a few parts in 10^{10} was detected and further improvements are possible by adding another laser step. Extensions of this technique to suitably chosen isotopes produced far off stability at the new radioactive beam facilities are under way.

Donnerstag, 28. September 2006, 16:30 Uhr

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

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