

INSTITUT FÜR ISOTOPENFORSCHUNG UND KERNPHYSIK
DER UNIVERSITÄT WIEN

EINLADUNG

zum

INSTITUTSSEMINAR

von

Philippe COLLON

Lamont Doherty Earth Observatory, Columbia University,
New York, USA

**RIA and AMS, a happy marriage
of rare isotope counting**

The proposed Rare Isotope Accelerator (RIA) will give nuclear physics the opportunity to answer some fundamental questions, concerning the origin of the heavy elements and energy generation in stars. By providing the means to investigate the properties of nuclei far from stability as well as by expanding the possibilities to quantitatively study both the astrophysical rapid neutron and proton capture processes, RIA will add in a major way to our understanding of nuclear astrophysics. However as we leave the region centred on the valley of stability to study these nuclear reactions with unstable nuclei, the low beam intensities coupled with problems with isobaric purity and/or extremely low cross sections will push our present investigational techniques to the limit.

The accompanying experimental challenges, their solutions and often the physics studied have profound analogies with Accelerator Mass Spectrometry (AMS) where the acceleration and analysis of ions of radioactive nuclei are well-known techniques that are applied to such field as trace element detection and environmental science. While the scientific goals of radioactive-ion beam physics and Accelerator Mass Spectrometry are very different, striking analogies exist between the technical and experimental challenges posed to the two fields. Hence, they can greatly benefit from one another as will be shown in this talk.

Freitag, 23. Mai 2003, 11:00 Uhr

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