

INSTITUT FÜR ISOTOPENFORSCHUNG UND KERNPHYSIK
DER UNIVERSITÄT WIEN

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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**Presolar grains in meteorites:
isotopic composition of trace elements**

Primitive, largely unprocessed meteorites contain small amounts of presolar matter: mineral grains that formed from stellar winds or from the ejecta of exploding stars. The classical method for isolating these grains for detailed analysis is dissolving the main mass of the meteorite with acids. Among the presolar grains that survive this process are nanodiamonds, graphite, silicon carbide, silicon nitride and various acid-resistant oxides. Presolar silicates, which do not survive this isolation process, have been found only recently.

The isotopic composition of the presolar grains allows to draw conclusions regarding their stellar source as well as details of nucleosynthesis processes in their parent stars. Trace elements like Kr, Xe, Sr and Ba in SiC grains, e.g., allow defining the physical properties for the s-process (slow neutron capture) in Red Giant stars during the AGB stage. In contrast, the origin of elements like Te and Xe in the diamonds is less clear. Partly responsible for this situation are the low concentration of trace elements and the small size of the diamonds (corresponding to typically 1000 atoms only), which does not allow analysis of single grains, even for the main element carbon. Accelerator mass spectrometry (in competition with RIMS) may provide valuable contributions to the study of the isotopic composition of rare elements in these nanodiamonds.

Donnerstag, 27. Mai 2004, 16:30 Uhr

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

P. Hille

W. Kutschera