



EINLADUNG
zum
VERA - SEMINAR
von

Shawn Bishop

Physik Department der Technischen Universität München

**Discovery of Supernova-produced ^{60}Fe
in the Earth's Fossil Record**

Approximately 1.8 to 2.8 Myr before the present our planet was subjected to the debris of a supernova explosion. The terrestrial proxy for this event was the discovery of live atoms of ^{60}Fe in a deep-sea ferromanganese crust [1]. The signature of this supernova event should also reside in magnetite (Fe_3O_4) magnetofossils produced by magnetotactic bacteria [2], which live in the ocean sediments, extant at the time of the Earth-supernova interaction. We have conducted accelerator mass spectrometry (AMS) measurements, searching for live ^{60}Fe atoms in the magnetofossil component of Pacific Ocean sediment cores (ODP cores 848 and 851). We find a time-resolved ^{60}Fe signal in both sediment cores, above background, centered at approximately 2 Myr ago and spanning approximately 700 kyr duration (full width half maximum), which will require eventual astrophysical interpretation to understand.

This talk is designed to be accessible to a broad audience.

[1] Knie et al., ^{60}Fe anomaly in a deep-sea manganese crust and implications for a nearby supernova source, *Phys. Rev. Lett.* **93** (2004) 171103.

[2] S. Bishop and R. Egli, Discovery prospects for a supernova signature of biogenic origin, *Icarus* **212** (2011) 960.

Donnerstag, 3. Dezember 2015, 16:30 Uhr

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