

SFB 608

Einladung zum Kolloquium

- Ort:** Universität zu Köln
II. Physikalisches Institut, Seminarraum 201
- Zeit:** 16. November 2005, 14:30 Uhr
- Sprecher:** Dr. Alessandro Barla
IPCMS/GEMME
Strasbourg
- Thema:** Investigation of magnetic phase transitions in correlated systems using high pressure Nuclear Resonance Scattering

The study of magnetic transitions at high pressure at a microscopic level can only be performed by a limited number of techniques and one of these is Nuclear Forward Scattering of Synchrotron Radiation, the synchrotron analogue to conventional Mössbauer spectroscopy.

In this talk I will show selected examples of the use of Nuclear Forward Scattering to study magnetic phase transitions in Sm(4*f*) and U(5*f*) compounds. In the case of SmS, which is a divalent (and therefore non magnetic) semiconductor at ambient conditions, pressure induces first an isostructural transition to a semiconducting intermediate valent state, followed by the closure of the charge gap and the onset of long range magnetic order. On the contrary, in the Kondo insulator UNiSn, where the U(5*f*) moments are ordered at ambient conditions, pressure induces first a complete metallization (~9 GPa), followed by a collapse of the magnetic order (~18 GPa).

Gez. Prof. M. Abd-Elmeguid