FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 24.10.2013, 16^{15} Uhr

Hörsaal der LMU in Garching, Am Coulombwall 1
Treffen zum gemeinsamen Kaffee 16 Uhr

Dr. Nils Haag

(TU München, Physik-Department E15)

Experimental determination of the neutrino spectrum of the fission products of ^{238}U

In the last years, antineutrinos from nuclear reactors helped to determine the parameters in the neutrino mixing matrix, which describes flavour oscillations in the neutrino sector. To address this issue, the exact knowledge of the antineutrino spectrum emitted from a reactor core is crucial. This spectrum is composed of antineutrinos from beta decays of the fission products of the four main fuel isotopes. ^{238}U, that contributes about 8 - 10 % to the power of a standard pressurized water reactor, has significant part in the total antineutrino spectrum of a reactor core. The spectra of the other three main fuel isotopes (^{235}U, ^{239}Pu, ^{241}Pu) have already been measured several decades ago, but only now the one from ^{238}U could be determined in an experiment at the neutron source FRM2 in Garching.
The talk will introduce the experiment, a gamma suppressing beta telescope consisting of a plastic scintillator and a multiwire chamber, and will present the results in comparison to recently published predictions, which have initiated the discussion of active flavours possibly oscillating into sterile neutrinos.

gez. Peter Thirolf
Tel. 289-14064

gez. Norbert Kaiser
Tel. 289-12367