



Contribution ID: 12

Type: Poster

## Neutron Bound Beta- Decay- BOB

*Tuesday, 12 October 2010 17:00 (0 minutes)*

S.Paul[1], M.Berger[1], R.Emmerich[1], R.Engels[2], .Faestermann[1],P.Fierlinger[3], M. Gabriel[1], F.J.Hartmann[1], R.Hertenberger[4], A.Röhrmoser[5], J.Schön[1], W.Schott[1],U.Schubert[1], A.Trautner[1],T.Udem[6]

1 Physik-Department,TUM,85748 Garching,Germany

2 Institut für Kernphysik, Forschungszentrum Jülich, 52425 Jülich, Germany 3Excellence Cluster Universe, TUM, 85748 Garching, Germany

4 Sektion Physik, LMU, 85748 Garching, Germany

5 FRM2, TUM, 85748 Garching, Germany

6 Max- Planck- Institut für Quantenphysik, 85748 Garching, Germany

The bound neutron  $\beta$ - decay( BOB) into a hydrogen atom and an electron antineutrino is investigated. The hyperfine-state population of the monoenergetic hydrogen atoms( 326.3 eV) yields the neutrino left-handedness or a possible right- handed admixture and possible small scalar and tensor contributions to the weak force. At a thermal neutron source the background can be suppressed using neutron and  $\gamma$ - ray absorbing traps after a beampipe going through the moderator tank, as MCNP4 and GEANT4 simulations for the FRM2 SR6 tube have shown. Preexperiments to measure the BOB H(2s) atoms have been done or are being set up using ionizer and RF discharge proton sources, a Wien filter, Cs and Ar cells, a spin filter, electric counter and accelerating fields, a double focusing magnet and an efficient channeltron type Lyman-  $\alpha$  photon detector.

**Primary author:** Dr SCHOTT, Wolfgang (Physik-Department der TUM E18, D-85748 Garching)

**Presenter:** Dr SCHOTT, Wolfgang (Physik-Department der TUM E18, D-85748 Garching)

**Session Classification:** Poster Session