

Status of the WITCH experiment

Wednesday 19 December 2012 11:30 (20 minutes)

One of the goals of precision measurements in nuclear beta-decay is searching for deviations from the Standard Model that could point to new physics. The primary aim of WITCH experiment [1] at the ISOLDE/CERN facility is the search for a scalar interaction in beta-decay by a precise (0.5%) determination of the beta-neutrino angular correlation coefficient, a , which would constrain a possible scalar contribution to less than 10%. For that purpose, a scattering-free source made of two Penning traps is combined with a MAC-E filter to probe the energy of recoiling daughter nuclei. First daughter recoil spectrum was obtained in June 2011 in the decay of ^{35}Ar , allowing for a first albeit still crude determination of a . In this talk, subsequent upgrades of the system and the results of the latest online run (November 2012) will be presented.

[1] M. Beck et al., Eur. Phys. J. A47(2011) 15

Primary author: POROBIC, Tomica (Katholieke Universiteit Leuven (BE))

Co-authors: KNECHT, Andreas (CERN); WEINHEIMER, Christian (Westfaelische Wilhelms-Universitaet Muenster (DE)); COURATIN, Claire (LPC Caen); ZAKOUCKY, Dalibor (Acad. of Sciences of the Czech Rep. (CZ)); LIÉNARD, Etienne (LPC Caen); GLÜCK, Ferenc (KIT); SOTI, Gergelj (Katholieke Universiteit Leuven (BE)); BAN, Gilles (LPC Caen); BECK, Marcus (Universität Mainz); BREITENFELDT, Martin (Katholieke Universiteit Leuven (BE)); TANDECKI, Michael (Inst. voor Kern- en Stralingsfysica - Katholieke Universiteit Le); SEVERIJNS, Nathal (Katholieke Universiteit Leuven (BE)); FINLAY, Paul (Katholieke Universiteit Leuven (BE)); FRIEDAG, Peter (Westfaelische Wilhelms-Universitaet Muenster (DE)); VAN GORP, Simon (Inst. of Physical and Chemical Res. (JP)); KOZLOV, Valentin (KIT - Karlsruhe Institute of Technology (DE)); FABIAN, Xavier (LPC Caen); FLÉCHARD, Xavier (LPC Caen)

Presenter: POROBIC, Tomica (Katholieke Universiteit Leuven (BE))

Session Classification: New techniques