

WITCH, a Penning Trap Experiment for Weak Interaction Studies

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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 argon-35, allowing for a first albeit still crude determination of a . A subsequent online run, in November, resulted in data of much higher quality. Presently, this dataset is being analyzed for systematic effects. This presentation will focus on recent results and outlook of the WITCH experiment.

[1] M. Beck et al., Eur. Phys. J. A 47 (2011) 15

Primary author: Mr POROBIC, Tomica (IKS, KU Leuven)

Presenter: Mr POROBIC, Tomica (IKS, KU Leuven)

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