

Embarking on the next phase of WITCH

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In the field of fundamental interactions two main branches of experimental techniques are pursued: The high-energy and the precision experiments. Both branches are complementary, in the first one tries to directly produce new particles, in the latter one probes the effect new particles have on certain observables. In the case of the WITCH experiment the weak interaction in nuclear beta decay is probed by observing the recoil energy distribution of the daughter nuclei. Measuring this distribution to very high precision could reveal the presence of exotic (non standard -model) components in the weak interaction, which could e.g. be mediated by a charged Higgs boson.

In the WITCH setup Penning trap technology is combined with a MAC-E type retardation spectrometer to allow for the measurement of the recoil energy. After several upgrades in the last years the WITCH experiment finished its commissioning phase. By acquiring several sets of data last year not only could first physics information be extracted, but it was also possible to further characterize the WITCH system and solve the last issues.

With the scheduled run in November we are embarking now for the next phase of the WITCH project: routinely data taking to extend the understanding of the weak interaction. In this talk preliminary results will be presented together with the procedure to determine systematic uncertainties with the help of simulations.