

## Probing the Standard Model via $^{35}\text{Ar}$ beta decay with the WITCH spectrometer

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High-precision measurements of weak-interaction observables offer a powerful probe of physics beyond the Standard Model complementary to that provided by direct searches at colliders like the LHC. In particular, beta-decay kinematic correlation measurements can be sensitive to the presence of scalar and tensor current interactions, which are assumed to be absent in the standard electroweak model.

The WITCH spectrometer is a unique apparatus designed to determine the beta-neutrino angular correlation coefficient via the shape of the recoil-ion energy distribution. It consists of a double Penning trap system for the preparation and storage of a scattering-free source, coupled with a MAC-E type retardation spectrometer and large position-sensitive MCP detector to detect the recoiling daughter ions.

The commissioning phase of the apparatus has come to a close and the first physics results for the beta-neutrino angular correlation coefficient in the decay of  $^{35}\text{Ar}$  have been obtained at the end of 2011. Many upgrades to the system have been implemented in the interim, culminating in the first high-statistics data taking run, which was performed in November 2012. Details of the analysis of this new data set, including preliminary results, will be presented.

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