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The aSPECT Experiment - an overview and latest results

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The aSPECT retardation spectrometer measures the beta–neutrino angular correlation coefficient a in free neutron-decay. This measurement can be used to determine the ratio gA/gV of the weak coupling constants, as well as to search for physics beyond the Standard Model.
In 2013 aSPECT had a successful beam time at the Institut Laue-Langevin. The goal of this beam time is to improve the current uncertainty of a from Delta a/a = ˜5% to about ˜1%. The data analysis is being finalized and the quantitative determination of the uncertainties is ongoing. This is includes systematic tests and measurements of a using different experimental settings during the beam time, additional offline measurements, e.g. of the work-function fluctuations of the electrodes, and field and tracking simulations.
In this talk an overview of the analysis and the systematic uncertainties is presented. Preliminary estimates for the uncertainties will be given where available.

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