Data analysis and systematic studies for the He-6 experiment[1]

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— The He-6 experiment at the University of Washington aims to precisely measure the beta-neutrino angular correlation ($a_{\beta\nu}$) in the beta decay of He-6, a parameter that is particularly sensitive to tensor-like currents in the electroweak interaction. The experiment is based on a coincidence detection of the beta and recoil ion emitted from laser trapped He-6 and seeks to ultimately measure $a_{\beta\nu}$ to the 0.1% level. Monte-carlo simulations of the decay and detection scheme are essential to analyze the data and have been extensively used to quantify the effects of systematic uncertainties. Major efforts have been put in to limit their contributions to less than 1% of $a_{\beta\nu}$, the first goal of the experiment. This set of data will guide further improvements of the experiment towards the 0.1% level measurement of $a_{\beta\nu}$. The data analysis procedures and the current status of the experiment, including the achieved and projected systematic and statistical uncertainties, will be presented.

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