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Data Reduction Algorithms for the ECHo Experiment

The goal of the Electron Capture in Ho-163 (ECHo) experiment is the determination of the electron neutrino mass by analyzing the electron capture (EC) spectrum of Ho-163. Metallic magnetic calorimeters operated at low temperatures, in which the Ho-163 has been implanted, have been selected to conduct a high resolution, high statistics, and low background calorimetric measurement of the Ho-163 EC spectrum.

In order to reliably infer the energy of Ho-163 events and discard triggered noise or pile-up events, fast and robust analysis algorithms are required. We present the results obtained by applying the analysis algorithms to different data files affected in a different manner by noise sources. Based on these results, we then discuss the present structure for data reduction algorithms to be applied for the analysis of the ECHo-1k high statistics data.

Mini-abstract

Advanced data reduction algorithms allow for a reliable identification of Ho-163 signals

Experiment/Collaboration

ECHo Collaboration

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