

News about the ECHo Experiment

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In the ECHo experiment large arrays of low temperature metallic magnetic calorimeters (MMCs) enclosing Ho-163 are used for the high resolution measurement of the electron capture spectrum. The goal of the experiment is to achieve the sensitivity to detect an extremely small spectral shape distortion in the end point region due to a finite neutrino mass.

Thanks to the modular construction of the experiment, several phases have been foreseen. The first phase, ECHo-1K was designed to test the properties and reproducibility of MMCs with implanted Ho-163. With a small scale experiment a sensitivity on the effective electron neutrino mass 10 times better than the present limit of $150 \text{ eV}/c^2$ at 90% C.L. can be achieved.

At the same time, the preparation of large detector arrays and multiplexed readout for the ECHo-100k phase is on-going. Important milestones for detector fabrication, in particular related to Ho-163 implantation on wafer scale, have been reached. We present the status of ECHo-100k and discuss our perspectives for achieving a sensitivity at the $1 \text{ eV}/c^2$ level and below for the effective electron neutrino mass.

Poster prize

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