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The Electron Capture in ^{163}Ho Experiment

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The Electron Capture in ^{163}Ho (**ECHo**) experiment is designed to investigate the electron neutrino mass m_{ν_e} with sub-eV sensitivity by the analysis of the electron capture (**EC**) energy spectrum of ^{163}Ho.
The sensitivity on the electron neutrino mass is crucially related to the energy available for the decay Q_{EC} = $2833(30\text{stat})(15\text{sys})\,eV$, which has been precisely determined by the ECHo collaboration.
Accordingly, a sensitivity below $10\,eV$ is expected to be attained at the end of the present phase of the experiment, ECHo-1k.
In this phase, about $1\,kBq$ of high purity ^{163}Ho is going to be implanted in multiplexed arrays of low temperature metallic magnetic calorimeters which are operated in a reduced background environment.
The goals of ECHo-1k are the precise characterization of the parameters describing the spectrum, optimizing the implantation process of ^{163}Ho into the detector arrays, optimization of detector production and identification and reduction of the background in the experimental setup.
The results will pave the way to a future phase of the experiment, where activities of the order of MBq ^{163}Ho will be used.
This second phase aims to approach sub-eV sensitivity on the electron neutrino mass.
Furthermore, the high statistics and high resolution measurement of the ^{163}Ho electron capture spectrum will allow the investigation of the existence of eV and keV-scale sterile neutrinos.
In this contribution, a general overview of the ECHo experiment is presented and the current status as well as the future perspectives are discussed.

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