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## The Electron Capture in Ho-163 experiment

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The Electron Capture in Ho-163 (ECHO) experiment is designed to investigate the electron neutrino mass with sub-eV sensitivity by the analysis of the electron capture energy spectrum of Ho-163. The sensitivity on the electron neutrino mass is crucially related to the energy available for the decay  $Q = 2833(30)(15)$  eV, which has been precisely determined by the ECHO collaboration. Accordingly, a sensitivity below 10 eV at the end of the present phase of the experiment, ECHO-1k, is expected. During this phase about 1 kBq of high purity Ho-163 source will be implanted in arrays of low temperature metallic magnetic calorimeters operated in a reduced background environment.

The goals of the current phase are the precise characterization of the parameters describing the spectrum, optimization of the processes needed to enclose high purity Ho-163 into the pixels of the detector arrays as well as the identification and reduction of the background.

These results will pave the way to a future phase of the experiment, where activities of the order of MBq will be used. With this second phase we could approach sub-eV sensitivity on the electron neutrino mass. Furthermore, the high statistics and high resolution measurement of the Ho-163 electron capture spectrum will allow for the investigation of the existence of eV sterile neutrinos and keV-scale sterile neutrinos up to a masses close to the  $Q$ -value energy. 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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