

Large arrays of metallic magnetic calorimeters for ECHo

The ECHo experiment aims to determine the electron neutrino mass via the analysis of the calorimetrically measured electron capture spectrum of ^{163}Ho . The detector technology is based on large arrays of metallic magnetic calorimeters (MMC). Implantation of ^{163}Ho has been selected as method to enclose the source in the detectors. We present the design of the ECHo-1k chip which has been developed for the first phase of the ECHo experiment and discuss the optimization of the single pixel.

The large number of pixels required for the ECHo experiment implies the use of a multiplexed readout scheme. To keep the excellent performance of MMCs, the microwave SQUID multiplexing represents the best choice. In recent experiments we have obtained very promising results in terms of energy and time resolution for multiplexed detectors.

Characterization of ECHo-1k chips and of the multiplexed readout will be presented and discussed with respect to the requirements of the ECHo experiment.

Authorship annotation

for the ECHo Collaboration

Session and Location

Monday Session, Poster Wall #23 (Robert-Schumann-Room)

Poster included in proceedings:

no

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Track Classification: Poster (not participating in poster prize competition)