

Backgrounds in the ECHo-experiment

The absolute neutrino mass m_{ν_e} determination is still an open question in particle physics. The ECHo experiment will explore the endpoint of the ^{163}Ho electron capture spectrum which offers great potential to reach sub-eV sensitivity on m_{ν_e} . In order to better identify signatures of massive neutrinos, the control of background near the spectrum's endpoint is of utmost importance. We show results obtained using Monte Carlo simulation in which common naturally occurring radioactive nuclides have been positioned either in the detector itself or in its surrounding. Thereby, upper values allowed for the activity of these nuclides have been determined. Potential background caused by radionuclides in the set-up has been investigated by material screening. Hence, we confirm that the required background index can be achieved. We outline the status of the background determination related to cosmic muons and how it is planned to reduce the effect of this background source.

Authorship annotation

for the ECHo collaboration

Session and Location

Monday Session, Poster Wall #18 (Robert-Schumann-Room)

Poster included in proceedings:

yes

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