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BINGO: investigation of the Majorana nature of neutrinos at a few meV level of the neutrino mass scale

Wednesday 30 August 2023 17:45 (15 minutes)

BINGO is a project dedicated to explore new methods for background reduction in experiments searching for $0\nu 2\beta$ decay. It is based on bolometers, one of the most promising techniques to search for $0\nu 2\beta$.

BINGO technology aims at reducing the background index down to 10^{-5} counts/(keV kg yr) in the region of interest, thus boosting the sensitivity on the effective Majorana neutrino mass. This can be achieved by: (i) having a revolutionary detector assembly with a reduction of the passive materials facing the detector; (ii) increasing the light detector sensitivity thanks to Neganov-Luke amplification; (iii) using a cryogenic active shield, based on BGO scintillators with bolometric light detector readout surrounding the experimental volume. In this talk we will describe all the innovative approaches and the most recent results of the prototype tests will be present as well.

Submitted on behalf of a Collaboration?

Yes

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