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## A review on neutrinoless double beta decay

The current status of the neutrinoless double beta decay ( $0\nu\beta\beta$ ) search is summarized, exploiting the up-to-date knowledge of the oscillation parameters and of the recent theoretical developments in the understanding of the  $0\nu\beta\beta$  process, especially those concerning the nuclear description and its limitations. This also allows to infer expectations and uncertainties for the experimental search for the  $0\nu\beta\beta$ .

The strong relevance of post-Planck cosmological analyses for the study of  $0\nu\beta\beta$  is pointed out. Several combinations of data probing different scales indicate very stringent bounds on the sum of the active neutrino masses,  $\Sigma$ . These developments have just become very relevant for numerous laboratory investigations including the ones for the  $0\nu\beta\beta$  search.

Finally, aiming at the neutrino mass hierarchy discrimination, the requirements in terms of exposure, background index and energy resolution for a next (or next-to-next) generation  $0\nu\beta\beta$  experiment are highlighted.

**Primary author:** DELL'ORO, Stefano (GSSI)

**Presenter:** DELL'ORO, Stefano (GSSI)