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## Implications of the Dark LMA solution and Fourth Sterile Neutrino for Neutrino-less Double Beta Decay

We analyze the effect of the Dark-large mixing angle (DLMA) solution on the effective Majorana mass  $(m_{\beta\beta})$  governing neutrino-less double beta decay  $(0\nu\beta\beta)$  in the presence of a sterile neutrino. We consider the 3+1 picture, comprising of one additional sterile neutrino. We have checked that the MSW resonance in the sun can take place in the DLMA parameter space in this scenario. Next we investigate how the values of the solar mixing angle  $\theta_{12}$  corresponding to the DLMA region alter the predictions of  $m_{\beta\beta}$  by including a sterile neutrino in the analysis. We also compare our results with three generation cases for both standard large mixing angle (LMA) and DLMA. Additionally, we evaluate the discovery sensitivity of the future  ${}^{136}Xe$  experiments in this context.

## **Mini-abstract**

Here we analyze the implication of DLMA solution for neutrino-less double beta decay in 3+1 scheme.

## **Experiment/Collaboration**

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