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Search for light exotic fermions in double beta decay

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Double beta decay is predicted in the Standard Model with the emission of two active neutrinos. Models in which light exotic fermions are emitted, replacing one or both the neutrinos in the final state, could be tested through the search for spectral distortions in the electron spectrum with respect to the Standard Model expectations. In this contribution the discovery potential of a selection of neutrinoless double beta decay experiments will be presented, under two concrete scenarios: the single production of a light sterile neutrino in double beta decay and the pair production of light Z_2-odd fermions. It will be shown that future searches allow to test for the first time a new part of the parameter space at the MeV-mass scale, as discussed in [1].
[1] M. Agostini, E. Bossio, A. Ibarra, X. Marcano, arXiv:2012.09281 (2020)

Collaboration name

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