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Predictive linear seesaw model with $\Delta(27)$ family symmetry.

This work aimed to create a model where the smallness of the neutrino masses has been considered. To achieve this, we have chosen to extend the symmetry group of the SM, which is based on the group $SU(3)_C \times SU(2)_L \times U(1)_Y$, by adding an extra symmetry based on the discrete group $\Delta(27)$, due to the success that this group has presented in the literature and because it is the smallest group that has as irreducible representation a triplet and anti-triplet. In addition to extending the symmetry of the SM to generate the masses of the particles, a Linear Seesaw mechanism was applied, which allows us to generate masses for the neutrinos due to the insertion of a heavy exotic neutrino, which explains the smallness of the masses of the active light neutrinos. The model is predictive in the leptonic sector and allows obtaining correlations between observables in the neutrino sector, predicting an effective mass for neutrinoless double beta decay (m_{ee}) less than 2.35 [meV]. In addition, the model provides restrictions to processes that violate the leptonic flavor, such as the $\mu \to e\gamma$ process, obtaining values below the experimental limit.

Authors: Dr CÁRCAMO HERNÁNDEZ, Antonio (Universidad Técnica Federico Santa María); Dr DE MEDEIROS VARZIELAS, Ivo (Universidade de Lisboa); MARCHANT GONZALEZ, juan manuel (Universidad Técnica Federico Santa María)

Presenter: MARCHANT GONZALEZ, juan manuel (Universidad Técnica Federico Santa María)

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