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JOHANNES GUTENBERG
UNIVERSITÄT MAINZ



THEP Journal Club

Dec. 8, 2017 at 12:30 p.m.
THEP Social Room

Pizza & Physics at Lunchtime

Note: THEP Social Room

Sven Baumholzer
JGU Mainz

A new production mechanism for sterile neutrinos

In this talk, I will give an overview of the work I have done so far for my master thesis. I will present a new model for production of sterile neutrinos. In fact it is based on the Scotogenic model which enhances the SM with a second Higgs Doublet and three neutrinos which are singlets under the SM gauge group. Additionally a Z_2 symmetry is proposed which stabilizes the lightest neutrino and prevents mixing between the two Higgs doublets.

The mass of the lightest neutrino is chosen to be $O(\text{keV})$ to have a candidate for WDM, while the masses of the other neutrinos and the new scalars are around TeV scale. With this configuration it is possible to explain not only DM relic density via a Freeze In of the lightest neutrino, but also the masses of the active neutrino sector via a radiative mass generation.

Further more I will briefly discuss some possible extensions of our model which we want to explore in the near future.

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