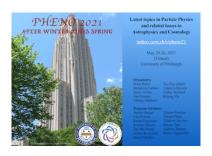
Phenomenology 2021 Symposium



Contribution ID: 1161 Type: Neutrinos

A scotogenic model for realistic neutrino mixing with S3 symmetry

Wednesday 26 May 2021 14:45 (15 minutes)

[This is based on Phys.Rev. D100 (2019) no.3, 035009 by Soumita Pramanick]

In this model, realistic neutrino mixing is obtained radiatively using $S_3 \times Z_2$

symmetry at one-loop level. The two right-handed neutrinos present in the model when maximally mixed can yield the structure of the left-handed Majorana neutrino mass matrix corresponding to

 $\theta_{13}=0,\,\theta_{23}=\pi/4$ and any value of θ_{12}^0 specific to the Tribimaximal (TBM), Bimaximal (BM) and Golden Ratio (GR) or some other mixings.

Non-zero θ_{13} , deviation of θ_{23} from $\pi/4$ and

small corrections to the solar mixing angle θ_{12} can be achieved in a single stroke by shifting from this maximal mixing in the right-handed neutrino sector by a small amount.

In this scotogenic model where non-zero θ_{13} was obtained by deviating from maximal mixing in the right-handed neutrino sector, two Z_2 odd inert $SU(2)_L$ doublet scalars were also present, the lightest of which can be a dark matter candidate.

Summary

In this model, realistic neutrino mixing is obtained radiatively using $S_3 \times Z_2$

symmetry at one-loop level. The two right-handed neutrinos present in the model when maximally mixed can yield the structure of the left-handed Majorana neutrino mass matrix corresponding to

 $\theta_{13}=0,\,\theta_{23}=\pi/4$ and any value of θ_{12}^0 specific to the Tribimaximal (TBM), Bimaximal (BM) and Golden Ratio (GR) or some other mixings.

Non-zero θ_{13} , deviation of θ_{23} from $\pi/4$ and

small corrections to the solar mixing angle θ_{12} can be achieved in a single stroke by shifting from this maximal mixing in the right-handed neutrino sector by a small amount.

In this scotogenic model where non-zero θ_{13} was obtained by deviating from maximal mixing in the right-handed neutrino sector, two Z_2 odd inert $SU(2)_L$ doublet scalars were also present, the lightest of which can be a dark matter candidate.

Primary author: PRAMANICK, Soumita (National Centre for Nuclear Research (NCBJ), Warsaw, Poland)

Presenter: PRAMANICK, Soumita (National Centre for Nuclear Research (NCBJ), Warsaw, Poland)

Session Classification: Neutrino II