

See-saw mechanism in models with Higgs triplet and sterile neutrino with Yukawa alignment.

A see-saw mechanism for the masses of the light active neutrinos and their mixing angles is proposed in the context of an extension of the particle spectrum of the standard model. By adding one right-handed sterile neutrino and a Higgs triplet, we generate a neutrino mass matrix that depends from the sterile neutrino and Higgs triplet Yukawa couplings. By aligning the Yukawa triplet coupling as the product of the Yukawa sterile coupling, we obtain exact massless neutrinos. When this alignment condition is slightly disturbed, small masses for the light active neutrinos can be generated, and mixing angles can be predicted. By giving specific shapes to the parameter that generates the disturbance, it is observed that bimaximal and tribimaximal mass matrices arise in a natural way, allowing the mixing angles and the squares of the mass differences to be calculated with few free parameters.

Session and Location

Wednesday Session, Poster Wall #145 (Hölderlin-Room)

Poster included in proceedings:

yes

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