Model T1-3-B-α = 0 - scalar2g

Fermionic Dark Matter

Neutrino masses have a mild dependence on the Scalar Masses.
The neutrino masses decrease linearly with the scalar masses.
Neutrino masses set by the lightest scalar.

Neutrino masses have a small dependence on the fermion masses.
They grow with the fermion masses.
Neutrino masses set by $(k M_\Psi + M_{\psi\psi'})$ [k~0.5]

Neutrino masses have a strong dependence on the λ_6 coupling.
The masses of the neutrinos scale linearly with the coupling to the scalar that is stronger.
Neutrino masses set by $\left((\lambda_6{}^1)^2 + (\lambda_6{}^2)^2\right)$

Neutrino masses have a strong dependence on the λ_4 and λ_5 coupling.
They grow grow exponentially with the couplings except for a region with a dip.
The position of the dip depends on other parameters. It appears for small λ_4 and for large λ_5.
Neutrino masses set by $(\lambda_4(\lambda_5 + k))$ [k~0.34]

Scalar Dark Matter

Neutrino masses have a null dependence on the Scalar Masses.
The neutrino masses follow $\left(-\left(M_{\phi_1}{}^2 + M_{\phi_2}{}^2\right)\right)$

Neutrino masses have a mild dependence on the Fermion Masses. Their mass decreases with the fermion masses.
The neutrino masses follow $(-(M_\Psi + k)\, M_{\psi\psi'})$ [k~0.5]

Neutrino masses have a strong dependence on the λ_6 coupling. The masses of the neutrinos scale linearly with the coupling to the scalar that is stronger.
Neutrino masses set by $\left((\lambda_6{}^1)^2 + (\lambda_6{}^2)^2\right)$

Neutrino masses have a strong dependence on the λ_4 and λ_5 coupling.
They grow grow exponentially with the couplings except for a region with a dip.
The position of the dip depends on other parameters. It appears for small λ_4 and for large λ_5.
Neutrino masses set by $\left|\lambda_4{}^2 - k\lambda_5{}^2\right|$ [k~0.5]

General Results

The mass of the neutrinos have a strong dependence on the mass of the heaviest extra particle, both in the Fermionic and in the Scalar DM realization.

The mass of the lighter extra particle, which plays the role of the DM have very small effect on the neutrino masses.

In both cases neutrino masses have a strong dependence on the λ_6 coupling.
The masses of the neutrinos scale linearly with the coupling to the scalar that is stronger.

In both cases neutrino masses have a strong dependence on the couplings λ_4 and λ_5.
Neutrino masses grow exponentially with those couplings, except for the presence of a dip which position depends on the other parameters.
The dip in the λ_4 coupling tends to appear for small couplings, while the dip in the λ_5 coupling tends to appear for large couplings.
This is more true in the case of Fermionic DM, while the two dips are closer in the case of Scalar DM.