

Zee Model with Minimal Flavour Violation

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We discuss a simple model for tiny neutrino masses which are generated at one-loop level without right-handed neutrinos.

The scalar sector is extended to have 2 Higgs doublets and a charged singlet field.

This model has been known as the Zee model, where its original version was already excluded as it cannot reproduce current neutrino mixing data.

We thus extend the Zee model by introducing a global $U(1)$ symmetry which plays a role not only to forbid dangerous FCNCs in the quark sector, but also provides sufficient degrees of freedom to reproduce the current neutrino mixing data.

We show that there are regions of parameter space to explain neutrino data, lepton flavour violation data and LHC data. We then discuss expected collider signatures.

Primary authors: YAGYU, Kei (Seikei University); NOMURA, Takaaki (Korea Institute for Advanced Study)

Presenter: YAGYU, Kei (Seikei University)