[Nufunsym-I]

Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

Implications of Higgs Universality for neutrinos GERARD STEPHENSON, The University of New Mexico, T. GOLDMAN, Los Alamos National Laboratory and UNM — Higgs Universality means that the right-chiral Weyl spinors of each charge type couple universally to the Higgs doublet-left-chiral Weyl spinor weak singlets for quarks in the current basis,so the quark mass matrices are of the pairing form. We have shown that the known quark masses and weak current mixing can be recovered by invoking perturbative BSM corrections. The application to the charged leptons is immediate. Assuming the charged fermion-like mass terms for the neutrinos have a similar structure, but that Majorana mass terms for the sterile right-chiral spinors (which qualify as dark matter) must also be included, we show that the ratios of the resulting sterile neutrino masses vary as the square of the ratios of the charged fermion masses. The results are consistent with short-baseline neutrino oscillation experiments. Using that scale, we predict sterile neutrinos at masses of several keV/c^2 and some tens of MeV/c^2, which may decay to a photon and a lighter neutrino.

Gerard Stephenson
The University of New Mexico

Date submitted: 29 Jun 2017 Electronic form version 1.4