

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Connecting Fermion Masses and Mixings to BSM Physics – Leptons GERARD J. STEPHENSON, JR.¹, University of New Mexico, TERRENCE GOLDMAN², Los Alamos National Laboratory — The universality of the Weak Interaction suggests that the structure of the Dirac mass matrix for neutrinos should be the same as that for the charged fermions. Thus, it must be true that there are at least three Majorana fermions, not necessarily mass eigenstates, which are sterile under the weak and electromagnetic interactions, and that three of these couple to the Higgs. We show that specific models of the sterile Majorana mass matrix exist for which the resulting effective active neutrino Majorana mass matrix is nearly diagonal in the current basis, with small but finite masses. Combined with the structure of the mass matrix for the charged leptons, this leads to a PMNS matrix for the lepton mixing that is nearly, but not exactly, tri-bi-maximal.

¹Alt email:gjs@phys.unm.edu

²See also: Connecting Fermion Masses and Mixings to BSM Physics – Quarks : Alt email:tgoldman@lanl.gov

Terrence Goldman
Los Alamos National Laboratory

Date submitted: 29 Jun 2015

Electronic form version 1.4