Abstract Submitted
for the APR20 Meeting of
The American Physical Society

TeV-Scale Resonant Leptogenesis from A_4 Flavor Symmetry HACHEMI BENAOUM, University Of Sharjah — A new scaling ansatz in the neutrino Dirac mass matrix to explain the low energy neutrino oscillations data, baryon number asymmetry and neutrinoless double beta decay will be presented. A concrete model based on flavor A_4 symmetry will be considered to generate such a neutrino Dirac mass matrix and imposes a relation between the two scaling factors. In this model, the right-handed Heavy Majorana neutrino masses are quasi-degenerate at TeV mass scales. Extensive numerical analysis studies have been carried out to constrain the parameter space of the model from the low energy neutrino oscillations data. It is found that the parameter space of the Dirac mass matrix elements lies near or below the MeV. Furthermore, we examine the possibility for simultaneous explanation of both neutrino oscillations data and the observed baryon number asymmetry in the Universe. Such an analysis gives further restrictions on the parameter space of the model, thereby explaining the correct neutrino data as well as the baryon number asymmetry via a resonant leptogenesis scenario. Finally, we show that the allowed space for the effective Majorana neutrino mass is also constrained in order to account for the observed baryon asymmetry.

Hachemi Benaoum
University Of Sharjah

Date submitted: 27 Dec 2019 Electronic form version 1.4