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Four new lepton-mixing textures

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We present four new types of constraints on the lepton mass matrices that can be derived through adequate symmetries imposed on renormalizable models. The models are based on the type-I seesaw mechanism and have three right-handed neutrinos. Each texture leads to a Majorana neutrino mass matrix with only five independent rephasing-invariant parameters to predict nine observables. The predictive power of the models has been studied for various neutrino mass observables and for the CP-violating phase delta, especially taking into account the correlations between delta and the mixing angle theta_23. Each model has three versions, depending on the identification of the charged leptons. We have found that, out of the 24 possibilities, five models agree with the phenomenological data at the 1 sigma level when the neutrino-mass ordering is normal, and two models agree with the data for an inverted ordering.

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