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Title:	Lepton Mixing, Discrete Symmetry Models and Quark Lepton Complementarity
Authors:	PK, Vishnu (/jspui/browse?type=author&value=PK%2C+Vishnu)
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Abstract:	By analyzing the Quark mixing and the Lepton mixing one can find an empirical relation that exists between the solar mixing angle (θ_{12}) and the Cabibbo angle (θ_C), which is $\theta_{12} + \theta_C = 45^\circ$, called Quark-Lepton complementarity (QLC). QLC suggests a possible existence of Quark-Lepton unification. In literature, it has already been shown that such an empirical relation can be obtained from the Grand unified theories. We discuss an alternative approach in which such a relation emerges only from the group theoretical consideration of the lepton mixing. We assume that the lepton mixing are dominantly given by Bi-maximal mixing and then the corrections from the charged leptons will generate a QLC like relation. Such corrections are also assumed to be fixed by group theoretical constraints. After scanning several discrete subgroups of $SU(3)$ (of order < 2000) we find that the corrections from the charged leptons sector must be in terms of more than one angle to get a viable PMNS matrix. As one of the consequences of the exercise, we find that $\theta_{13} > 4^\circ$, which can be confirmed or ruled out from the currently ongoing experiments.
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