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Relation between the PMNS phase and proton decay in SUSY SO(10) models

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The accurate measurements of the neutrino oscillation parameters including a CP phase are one of the important issues to understand the fermion mass hierarchy in unification picture.

It is expected that all the elements in the neutrino mass matrix can be obtained (up to Majorana phases) after the accurate measurements.

Before the measurements of θ_{13} -mixing and the CP phase, it was not ready to argue if the (1,2) element is hierarchically smaller

than the (1,3) element of the neutrino mass matrix.

Currently, the (1,2) element is consistent to be zero up to experimental errors.

In grand unified theories, the size of the elements can be related to the one in the charged fermion Yukawa matrices,

and thus, it is related to the size of proton decay amplitudes in SUSY GUT models.

We discuss the relation between the CP phase and the proton decay amplitudes in SUSY SO(10) models, and provide a prediction of the CP phase from the proton decay suppression.

Primary author: MIMURA, Yukihiro (National Taiwan University)

Presenter: MIMURA, Yukihiro (National Taiwan University)

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