Contribution ID: **54** Type: **not specified**

Assessing the Viability of A4, S4 and A5 Flavour Symmetries for Description of Neutrino Mixing

Thursday 5 July 2018 11:30 (30 minutes)

We consider the A_4, S_4 and A_5
discrete lepton flavour symmetries
in the case of 3-neutrino mixing,
broken down to non-trivial residual symmetries in
the charged lepton and neutrino sectors in such a way that
at least one of them is a Z_2.
Such symmetry breaking patterns lead to predictions
for some of the three neutrino mixing angles and/or
the leptonic Dirac CP violation phase δ
of the neutrino mixing matrix.
We assess the viability of these predictions by
performing a statistical analysis
which uses as an input the latest
global data on the neutrino mixing parameters.
We find 14 phenomenologically viable cases
providing distinct predictions for some of the mixing angles
and/or the Dirac phase δ.
Employing the current best fit values of the
three neutrino mixing angles,
we perform a statistical analysis of these cases
taking into account the prospective uncertainties
in the determination of the mixing angles,
planned to be achieved in currently running (Daya Bay)
and the next generation (JUNO, T2HK, DUNE) of neutrino oscillation experiments.
We find that only six cases would be compatible with these prospective data.
We show that this number is likely to be further reduced
by a precision measurement of δ.

Authors: Dr TITOV, Arsenii (IPPP, Durham University, UK); PETCOV, Serguey (SISSA/INFN, Trieste, Italy)

Presenter: Dr TITOV, Arsenii (IPPP, Durham University, UK)

Session Classification: Morning Session II