

Lepton Flavour Violation in Models with A4 Flavour Symmetry.

Friday, July 17, 2009 4:30 PM (20 minutes)

I discuss lepton flavour violating transitions, leptonic magnetic dipole moments (MDMs) and electric dipole moments (EDMs) in a class of models characterized by the flavour symmetry $A_4 \times Z_3 \times U(1)_{FN}$. I present the relevant low-energy effective Lagrangian where these effects are dominated by dimension six operators, suppressed by the scale M of new physics. All the flavour breaking effects are universally described by the vacuum expectation values $\langle \Phi \rangle$ of a set of spurions. I separately analyze both a supersymmetric and a general case. While the observed discrepancy δa_μ in the anomalous MDM of the muon suggests M of order of a few TeV, several data require M above 10 TeV, in particular the limit on EDM of the electron. In the general case also the present limit on $BR(\mu \rightarrow e \gamma)$ requires $M > 10$ TeV, at least. The branching ratios for $\mu \rightarrow e \gamma$, $\tau \rightarrow \mu \gamma$ and $\tau \rightarrow e \gamma$ are all expected to be of the same order. In the supersymmetric case the constraint from $\mu \rightarrow e \gamma$ is softened and it can be satisfied by a smaller scale M . In this case both the observed δa_μ and the current bound on $BR(\mu \rightarrow e \gamma)$ can be satisfied, at the price of a rather small value for $|\langle \Phi \rangle|$, of the order of a few percents, that reflects on a similar value for θ_{13} .

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Session Classification: I. Neutrino Physics

Track Classification: Neutrino Physics