ID de Contribution: **41** Type: **Non spécifié**

Implications of A_4 modular symmetry on neutrino mass, mixing and leptogenesis with linear seesaw

jeudi 16 février 2023 11:40 (30 minutes)

Motivated by the crucial role played by the discrete flavour symmetry groups in explaining the observed neutrino oscillation data, we consider the application A_4 modular symmetry in the linear seesaw framework. The basic idea behind using the modular symmetry is to minimize the necessity of the inclusion of extra flavon fields having specific vacuum expectation value (VEV) alignments. The breaking of flavor symmetry takes place when the complex modulus τ acquires VEV. The main issue of the perplexing vacuum alignment is avoided, the only requirement is a certain kind of mechanism which can fix the modulus τ. Linear seesaw in this framework is realized with six heavy $SU(2)_L$ singlet fermion superfields and a weighton in a supersymmetric framework. The non-trivial transformation of Yukawa couplings under the A_4 modular symmetry helps to explore the neutrino phenomenology with a specific flavor structure of the mass matrix. We discuss the phenomena of neutrino mixing and show that the obtained mixing angles and CP violating phase in this framework are compatible with the observed 3σ range of the current oscillation data. In addition, we also investigate the non-zero CP asymmetry from the decay of lightest heavy fermion superfield to explain the preferred phenomena of baryogenesis through leptogenesis including flavor effects.

Orateur: MOHANTA, Rukmani (University of Hyderabad)

Classification de Session: Theory