

## On the Interplay Between the 'Low' and 'High' Energy CP-Violation in Leptogenesis.

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We analyse within the “flavoured” leptogenesis scenario of baryon asymmetry generation, the interplay of the “low energy” CP-violation, originating from the PMNS neutrino mixing matrix  $U$ , and the “high energy” CP-violation which can be present in the matrix of neutrino Yukawa couplings,  $\lambda$ , and can manifest itself only in “high” energy scale processes. The type I see-saw model with three heavy right-handed Majorana neutrinos having hierarchical spectrum is considered. The “orthogonal” parametrisation of the matrix of neutrino Yukawa couplings, which involves a complex orthogonal matrix  $R$ , is employed. In this approach the matrix  $R$  is the source of “high energy” CP-violation. Results for normal hierarchical (NH) and inverted hierarchical (IH) light neutrino mass spectrum are derived in the case of decoupling of the heaviest RH Majorana neutrino. It is shown that taking into account the contribution to  $Y_B$  due to the CP-violating phases in the neutrino mixing matrix  $U$  can change drastically the predictions for  $Y_B$ , obtained assuming only “high energy” CP-violation from the  $R$ -matrix is operative in leptogenesis. In the case of IH spectrum, in particular, there exist significant regions in the corresponding parameter space where the purely “high energy” contribution in  $Y_B$  plays a subdominant role in the production of baryon asymmetry compatible with the observations.

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