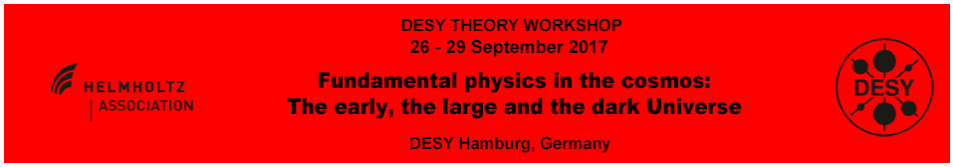

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Leptogenesis via Weinberg operator

Wednesday 27 September 2017 16:22 (17 minutes)

The simplest description of Majorana neutrino masses is the dimension-5 lepton-number-violating Weinberg operator. It automatically provides out-of-equilibrium dynamics in the early Universe due to the suppression of neutrino masses. Three Sakharov conditions are satisfied if there is a CP-violating phase transition. The latter is strongly motivated by the breaking of some underlying symmetries, such as the B-L symmetry and flavour symmetries. During the phase transition, the coupling of Weinberg operator is time-dependent, and the lepton asymmetry is generated by the interference of Weinberg operator at different times. This mechanism differs from classical leptogenesis as a specific seesaw model, and its UV completion, need not be specified.

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