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Leptogenesis via varying Weinberg operator

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I will talk about a totally new mechanism of leptogenesis. It requires only a time-varying Weinberg operator. The Weinberg operator is well-known for the motivation of generating light neutrino masses. It violates lepton number and can provide non-equilibrium dynamics in the early universe due to the suppression of tiny neutrino masses. A lot of underlying symmetries, e.g., B-L symmetry and flavour symmetries, have been proposed in the lepton sector. These symmetries strongly motivate the existence of phase transitions at high scales. During the phase transition, the coupling of the Weinberg operator is time-dependent, and the lepton asymmetry is generated by the interference of the Weinberg operator at different times. Any heavy BSM particles, e.g., right-handed neutrinos, are not necessary in this mechanism.

Experimental Collaboration

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