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Affleck-Dine leptogenesis with one loop neutrino masses and a solution to the strong CP problem

Tuesday 27 June 2023 15:00 (20 minutes)

We discuss a unified model that solves four major problems of the standard model i.e. neutrino masses the origin of matter the strong CP problem and dark matter by using the framework of the Affleck-Dine (AD) mechanism. The AD field is responsible for inflation the origin of matter and neutrino masses which arise at the one-loop level. Neutrino masses are therefore intimately connected to the baryon-to-photon ratio of the Universe. The dark matter in the model is the axion field used to solve the strong CP problem. The model has a near massless Majorana fermion which contributes to Delta N_eff?0.1 in the early Universe that can be tested in the upcoming CMB-S4 experiment.

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