

Abstract

We provide a new mechanism for leptogenesis which satisfies all three Sakharov conditions from one common thread, gravitational waves. We consider the covariant coupling of chiral fermions to gravity within the natural inflation model. Elliptically polarized gravity waves generated during inflation would then result in the chiral anomaly, and this anomaly yields CP and fermion number violation. The out of equilibrium condition comes naturally since the gravity waves which re-enter the horizon after inflation are not in equilibrium with the other matter content in the horizon. Using the expression for the chiral anomaly we find a relation among the Baryon number, scale of inflation and the amplitude of the gravity waves. This enables us to impose bounds on the scale of inflation and relate our result to the amplitude of tensor perturbations.