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Gauged B-L symmetry and leptogenesis from axion inflation

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In the context of axion inflation, inflaton can couple to gauge fields through the Chern-Simons coupling. This coupling gives rise to an instability of helical U(1) gauge fields. If the B-L symmetry in the Standard Model is gauged, at the end of inflation through the chiral anomaly we have helical B-L magnetic fields and B-L asymmetry in the visible and sterile sector, while the total B-L asymmetry vanishes. It may be often the case that all the asymmetry finally cancels out in the thermal history of the Universe after inflation. But we succeeded in constructing a scenario where the present baryon asymmetry can be explained through the B-L genesis in this model. In this talk, I explain the essence for this scenario to be successful.

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