

Baryogenesis and black holes from the chiral gravitational anomaly

We propose studying the inflationary model presented in [2001.08220], which is able to produce a significant population of primordial black holes, together with a CP-violating coupling between the inflaton and the Riemann tensor, as in [hep-th/0403069]. This would potentially allow us to explain both dark matter and baryogenesis from a minimal setup involving only the addition of single-field inflation to the Standard Model. Moreover, the spectrum of perturbations to the baryon asymmetry studied in [2309.14993] could change significantly, potentially leading to observable effects.

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Project Category

B4. Theory of Elementary Particles

Special Qualifications

basic knowledge about differential geometry and GR, as well as techniques for solving differential equations

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