

Relativistic collisionless gas in an isotropic universe within the framework of the Einstein-Cartan theory

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Abstract

Exact solutions of the self-consistent system-of Einstein-Cartan-Vlasov equations in nonrelativistic and ultrarelativistic limits are obtained for a spinless collisionless gas. The investigation is performed for different irreducible parts of the torsion tensor and different values of the cosmological constant. It is shown that torsion creates a curvature type effect. The solution is singular for $t = 0$. It is shown that the asymptotic of the scale factor $a(\eta)$ in the ultrarelativistic limit for the torsion expressed in terms of its trace can differ from the Friedman one. © 1989 Plenum Publishing Corporation.

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