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The behavior of the Universe after a Big Rip in GRT and PAP geometry

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Abstract

A new model of the Universe has been presented using a special class of Riemann-Cartan geometry: the parameterized absolute parallelism geometry. This model is oscillating from expansion and contraction at different stages. It behaves normally as the conventional Big Bang model till the first half-age, at a Big Rip then reverses its behavior up to the Big Crunch. This model the same physical behaviorism at each of its beginning and ending stages, while at its first half-age of the universe and the second half-age it is beginning with a singular stage and ends with a non-singular stage. The first half-age of the age of the universe, of our model covers the linearly varying deceleration parameter model, also covers the law of Berman. Our model corresponds to the periodic universe with varying deceleration parameter of the second degree in Riemannian geometry. The effect of the torsion term on the proposed model has been studied and discussed. In this article we have presented a new model to explain the evolution of the universe by using the Riemannian geometry and the Parameterized absolute parallelism geometry. The proposed model predicts the future of the universe after a Big Rip moment. The result obtained in this article is matching with recent cosmological observations

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