

66-New Chaplygin Gas Model in Fractal Framework

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Abstract

A great number of investigations have been performed to implement the potential and dynamics of scalar field dark energy models by constructing a connection between the Ricci/holographic/ghost/new agegraphic/pilgrim energy density and a scalar field description. Because of complexity of the involved equations, in most of those studies, the exact form of the potential has not been obtained analytically in terms of the scalar field. On the other hand, finding a logical quantum gravity theory is one of the noteworthy puzzles in modern theoretical physics. The universe is described as a dimensional flow in most of the quantum gravity theories, that's why one can investigate whether and how these attractive features are connected with the ultraviolet-divergence problem. Such important points motivated us to investigate the correspondence between the holographic and Chaplygin scalar field dark energy models in the framework of fractal gravity. We reconstruct the potential and dynamics of the scalar field which describes the new Chaplygin cosmology according to the evolutionary behavior of the holographic dark energy.

Keywords: Dark energy, Intergalactic gas, cosmology, fractal geometry.

ACKNOWLEDGMENTS

This study was supported partly by the Research Fund of Mersin University in Turkey with project number: 2015-AP4-1231.

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