



General Relativity and Quantum Cosmology

Semi-Holographic Universe

Hongsheng Zhang, Xin-Zhou Li, Hyerim Noh

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By assuming that a dark component (dark energy) in the universe strictly obeys the holographic principle, that is, its entropy is one fourth of the apparent horizon, we find that the existence of the other dark component (dark matter) is compulsory, as a compensation of dark energy, based on the first law of thermodynamics. By using the method of dynamical system analysis, we find that there exists a stable dark energy-dark matter scaling solution at late time, which is helpful to solve the coincidence problem. For reasonable parameters, the deceleration parameter is well consistent with current observations.

Comments: 10 pages, 3 figs, comments are welcome

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