Entropic Force Scenarios and Eternal Inflation

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(Submitted on 6 Jul 2011 (v1), last revised 8 Feb 2012 (this version, v2))

We examine various entropic inflation scenarios, under the light of eternality. After describing the inflation realization and the normal condition for inflation to last at the background level, we investigate the conditions for eternal inflation with the effect of thermal fluctuations produced from standard radiation and from the holographic screen. Furthermore, we incorporate stochastic quantum fluctuations through a phenomenological, Langevin analysis, studying whether they can affect the inflation eternality. In single-holographic-screen scenarios eternality can be easily obtained, while in double-screen considerations inflation is eternal only in the high-energy regime. Thus, from the cosmological point of view, one should take these into account before he can consider entropic gravity as a candidate for the description of nature. However, form the string theory point of view, inflation eternality may form the background for the "Landscape" of string/M theory vacua, leading to new perspectives in entropy gravity.

Comments:	13 pages, no figure
Subjects:	**High Energy Physics - Theory (hep-th)**; Cosmology and Extragalactic Astrophysics (astro-ph.CO); General Relativity and Quantum Cosmology (gr-qc); High Energy Physics - Phenomenology (hep-ph)
Journal reference:	Phys. Rev. D 85, 043504 (2012)
DOI:	10.1103/PhysRevD.85.043504
Cite as:	**arXiv:1107.1013 [hep-th]**
	(or **arXiv:1107.1013v2 [hep-th]** for this version)

Submission history

From: Taotao Qiu [view email]
[v1] Wed, 6 Jul 2011 02:47:48 GMT (22kb)
[v2] Wed, 8 Feb 2012 05:05:56 GMT (24kb)

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