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Comments:28 pages, LaTeX; v2: final version to appear in Journal of Noncommutative GeometrySubjects:Mathematical Physics (math-ph)Cite as:arXiv:1106.5473 [math-ph](or arXiv:1106.5473v2 [math-ph] for this version)

Coupling of gravity to matter, spectral

We consider a model of modified gravity based on the spectral action functional, for a cosmic

topology given by a spherical space form, and the associated slow-roll inflation scenario. We

consider then the coupling of gravity to matter determined by an almost commutative geometry over

power spectra for the density fluctuations and the gravitational waves, by a multiplicative factor equal to the total number of fermions in the matter sector of the model. We obtain the result by an explicit

the spherical space form. We show that this produces a multiplicative shift of the amplitude of the

nonperturbative computation, based on the Poisson summation formula and the spectra of twisted

Dirac operators on spherical space forms, as well as by a heat-kernel computation.

(Submitted on 27 Jun 2011 (v1), last revised 15 Oct 2012 (this version, v2))

action and cosmic topology

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## **Submission history**

From: Matilde Marcolli [view email] [v1] Mon, 27 Jun 2011 18:41:03 GMT (22kb) [v2] Mon, 15 Oct 2012 18:12:15 GMT (25kb)

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