

## General Relativity and Quantum Cosmology

# LambdaCDM epoch reconstruction from F (R,G) and modified Gauss-Bonnet gravities

Emilio Elizalde, Ratbay Myrzakulov, Valery V. Obukhov, Diego Sáez-Gómez

(Submitted on 20 Jan 2010)

Dark energy cosmology is considered in a modified Gauss-Bonnet model of gravity with and without a scalar field. It is shown that these generalizations of General Relativity endow it with a very rich cosmological structure: it may naturally lead to an effective cosmological constant, quintessence or phantom cosmic acceleration, with the possibility to describe the transition from a decelerating to an accelerating phase explicitly. It is demonstrated here that these modified GB and scalar-GB theories are perfectly viable as cosmological models. They can describe the LambdaCDM cosmological era without any need for a cosmological constant. Specific properties of these theories of gravity in different particular cases, such as the de Sitter one, are studied.

Comments: 14 pages

Subjects: **General Relativity and Quantum Cosmology (gr-qc)**

Cite as: [arXiv:1001.3636v1](#) [gr-qc]

## Submission history

From: Diego Sáez-Gómez [[view email](#)]

[v1] Wed, 20 Jan 2010 16:57:21 GMT (12kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

## Download:

- [PostScript](#)
- [PDF](#)
- [Other formats](#)

Current browse context:

gr-qc

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1001](#)

## References & Citations

- [SLAC-SPIRES HEP](#)  
([refers to](#) | [cited by](#))
- [CiteBase](#)

## Bookmark([what is this?](#))

[CiteULike logo](#)

[Connotea logo](#)

[BibSonomy logo](#)

[Mendeley logo](#)

[Facebook logo](#)

[del.icio.us logo](#)

[Digg logo](#)

[Reddit logo](#)