

General Relativity and Quantum Cosmology

The Jebesen-Birkhoff theorem in alternative gravity

Valerio Faraoni (Bishop's University)

(Submitted on 13 Jan 2010)

We discuss the validity, or lack thereof, of the Jebesen-Birkhoff theorem in scalar-tensor theories by generalizing it and regarding the Brans-Dicke-like scalar as effective matter. Both the Jordan and Einstein frames are discussed and an apparent contradiction between static spherical solutions of scalar-tensor gravity and Hawking's theorem on Brans-Dicke black holes is clarified. The results are applied to metric and Palatini $f(R)$ gravity.

Comments: 10 pages, no figures, to appear in Phys. Rev. D

Subjects: **General Relativity and Quantum Cosmology (gr-qc)**; Cosmology and Extragalactic Astrophysics (astro-ph.CO); High Energy Physics - Theory (hep-th)

Cite as: [arXiv:1001.2287v1](https://arxiv.org/abs/1001.2287v1) [gr-qc]

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