



General Relativity and Quantum Cosmology

# Weak-field limit of Kaluza-Klein models with spherical compactification: problematic aspects

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(Submitted on 18 Jul 2011 (v1), last revised 9 Feb 2012 (this version, v3))

We investigate classical gravitational tests for the Kaluza-Klein model with spherical compactification of the internal two-dimensional space. In the case of the absence of a multidimensional bare cosmological constant, the only matter which corresponds to the proposed metric ansatz is a perfect fluid with the vacuum equation of state in the external space and the dust-like equation of state in the internal space. We perturb this background by a compact massive source with the dust-like equation of state in both external and internal spaces (e.g., a point-like mass), and obtain the metric coefficients in the weak-field approximation. It enables to calculate the parameterized post-Newtonian parameter  $\gamma$ . We demonstrate that  $\gamma=1/3$  which strongly contradicts the observations.

Comments: 15 pages, no figures, extended version

Subjects: **General Relativity and Quantum Cosmology (gr-qc)**; High Energy Astrophysical Phenomena (astro-ph.HE); High Energy Physics - Theory (hep-th)

Cite as: [arXiv:1107.3387 \[gr-qc\]](#)  
(or [arXiv:1107.3387v3 \[gr-qc\]](#) for this version)

## Submission history

From: Alexander Zhuk [[view email](#)]

[v1] Mon, 18 Jul 2011 09:43:47 GMT (14kb)

[v2] Thu, 10 Nov 2011 20:59:23 GMT (12kb)

[v3] Thu, 9 Feb 2012 17:00:17 GMT (14kb)

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