

General Relativity and Quantum Cosmology

On supersymmetric Einstein-Weyl spaces

P. Meessen, T. Ortín, A. Palomo-Lozano

(Submitted on 5 Jul 2011 (v1), last revised 28 Oct 2011 (this version, v3))

We consider weighted parallel spinors in Lorentzian Weyl geometry in arbitrary dimensions, choosing the weight such that the integrability condition for the existence of such a spinor, implies the geometry to be Einstein-Weyl. We then use techniques developed for the classification of supersymmetric solutions to supergravity theories to characterise those Lorentzian EW geometries that allow for a weighted parallel spinor, calling the resulting geometries supersymmetric. The overall result is that they are either conformally related to ordinary geometries admitting parallel spinors (w.r.t. the Levi-Civita connection) or are conformally related to certain Kundt spacetimes. A full characterisation is obtained for the 4 and 6 dimensional cases.

Comments: 17 pages, version to be published in JGP

Subjects: **General Relativity and Quantum Cosmology (gr-qc)**; High Energy Physics - Theory (hep-th); Differential Geometry (math.DG)

Journal reference: J. Geom. Phys. 62(2012), 301

DOI: [10.1016/j.geomphys.2011.10.017](https://doi.org/10.1016/j.geomphys.2011.10.017)

Report number: FPAUO-11/01; IFT-UAM/CSIC-11-37

Cite as: [arXiv:1107.0937](https://arxiv.org/abs/1107.0937) [gr-qc](or [arXiv:1107.0937v3](https://arxiv.org/abs/1107.0937v3) [gr-qc] for this version)

Submission history

From: Patrick Meessen [[view email](#)][\[v1\]](#) Tue, 5 Jul 2011 18:37:06 GMT (24kb)[\[v2\]](#) Mon, 11 Jul 2011 17:06:03 GMT (24kb)[\[v3\]](#) Fri, 28 Oct 2011 17:01:46 GMT (25kb)[Which authors of this paper are endorsers?](#)

Download:

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

Current browse context:

gr-qc

[< prev](#) | [next >](#)[new](#) | [recent](#) | [1107](#)

Change to browse by:

[hep-th](#)[math](#)[math.DG](#)

References & Citations

- [INSPIRE HEP](#)
([refers to](#) | [cited by](#))
- [NASA ADS](#)

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

Science
WISE