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General Relativity and Quantum Cosmology

Homogeneous Solutions of Quadratic Gravity

Daniel Müller

(Submitted on 18 Jul 2011)

It is believed that soon after the Planck time, Einstein's general relativity theory should be corrected to an effective quadratic theory. In this work we present the 3+1 decomposition for the zero vorticity case for arbitrary spatially homogenous spaces. We specialize for the particular Bianchi I diagonal case. The 3- curvature can be understood as a generalized potential, and the Bianchi I case is a limiting case where this potential is negligible to the dynamics. The spirit should be analogous, in some sense to the BKL solution. In this sense, a better understanding of the Bianchi I case could shed some light into the general Bianchi case.

Submission history

From: Daniel Müller [view email]

[v1] Mon, 18 Jul 2011 20:22:52 GMT (18kb)

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