



General Relativity and Quantum Cosmology

Homogeneous Solutions of Quadratic Gravity

Daniel Müller

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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 $S^1 \times S^1$ diagonal case. The 3- curvature can be understood as a generalized potential, and the Bianchi $S^1 \times S^1$ 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 $S^1 \times S^1$ case could shed some light into the general Bianchi case.

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