

Static, spherically symmetric solutions to quadratic gravity

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It can be shown that all static, spherically symmetric metrics are conformal to direct-product Kundt spacetimes. Quadratic gravity corrections to Einstein gravity can be expressed in terms of the Bach tensor, which is conformally well-behaved. Consequently, the conformal-to-Kundt ansatz leads to a remarkable simplification of vacuum field equations of general four-dimensional quadratic gravity. We discuss resulting classes of static, spherically symmetric solutions, including the Schwarzschild-Bach black hole.

References:

- [1] Švarc, Podolský, Pravda, Pravdová, Phys. Rev. Lett. 121, 231104 (2018)
- [2] Podolský, Švarc, Pravda, Pravdová, Phys. Rev. D 98, 0215029 (rapid comm.) (2018)
- [3] Pravda, Pravdová, Podolský, Švarc, in preparation (2019)