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Black holes in an effective field theory extension of general relativity

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Effective field theory methods suggest that some rather-general extensions of General Relativity include higher-order curvature corrections, with small coupling constants. In this talk, we discuss black hole solutions in such a framework. First, we construct spherically symmetric black hole solutions and study gravitational perturbation around them. Despite the higher-order operators of the theory, we show that linearized field equations obey second-order differential equations. We also study slowly rotating solutions around spherically symmetric black hole solutions and show that the spacetimes do not have Z_2 symmetry due to the parity violating term.

Summary

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