

## Characterizing black hole metrics in quadratic gravity

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The recent discovery of non-Schwarzschild black hole spacetimes has opened new directions of research in higher-derivative gravitational theories. However, despite intense analytical and numerical efforts, the link with the linearized theory is still poorly understood. In this work we address this point for the Einstein-Weyl Lagrangian, whose weak field limit is characterized by the standard massless graviton and a spin-2 ghost. We show that the strength of the Yukawa term at infinity determines the thermal properties of the black hole and the structure of the singularity near  $r = 0$ . Moreover, inspired by recent results in the Asymptotic Safety scenario we investigate the consequences of an imaginary ghost mass. In this case we find a countable set of solutions all characterized by spatial oscillations of typical wavelength determined by the mass of the spin-2 field.

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