Specific solutions to Quadratic Gravity

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ABSTRACT

One of the extensions of Einstein's theory is the Quadratic Gravity, where the action contains additional terms that are quadratic combinations of Riemann tensor and its contractions [1], [2]. A metric that admits a non-expanding, non-twisting and shear-free null geodesic congruence is called the Kundt metric [3]. Its definition is purely geometrical and it does not depend on the field equations; inserting the Kundt metric into Quadratic Gravity field equations then gives us restrictions on the metric [4]. We focus on the vacuum solutions with a cosmological constant. We study specific subcases of the Kundt metric in Quadratic Gravity, such as the pp-waves and VSI spacetimes, and look for their geometrical and physical interpretation.

References

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