

Rotating Black Hole Solution in dRGT Massive Gravity

It is well-known that most astronomical objects in nature are spinning. In general relativity, these objects correspond to the axially symmetric solutions, for example, the rotating solution of black hole which is called Kerr black hole solution. Even though the axially symmetric solution is useful, it is very difficult to obtain the analytic solution due to nonlinearity of Einstein equation. Fortunately, there is an interesting method to find a rotating solution which is called Newman-Janis trick. In this presentation, we examine this method by applying it to the static solution for obtaining the rotating solution in dRGT massive gravity. The dRGT massive gravity is a modified gravity theory in which graviton mass is given to the Einstein gravity theory while Einstein gravity theory is the theory of massless graviton. A detailed study in the rotating black hole solution of a modified gravity theory may provide us an ability to understand complicated gravitational objects in nature.

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