Abstract

Project Code : MRG6180003

Project Title : Spherically Symmetric Solutions in Minimal Massive Gravity Theory

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In this work, properties of black string solution in dRGT massive gravity are investigated. It is well known that the Hawking radiation can be emitted from the black string. The greybody factor is a part from the Hawking radiation supposed to account for the transmission amplitude of the radiation observed by one at asymptotically flat spacetime. By analyzing the potential obtained from the black string solution, the behavior of the greybody factor are characterized by using the rigorous bound method. The results show that the greybody factor crucially depends on the shape of the potential characterized by model parameters. The results agree with ones in quantum mechanics, the higher the potential, the harder it is for the waves to penetrate and also lower the bound for the rigorous bounds. The rotating solution is one of important solutions since the astronomical objects are found to be rotating ones. In this work, the rotating black string solutions are also derived and the thermodynamics properties are investigated. It is found that there is possible to obtain the Hawking-Page phase transition depending on the additional structure of the graviton mass. By analyzing the free energy, it is also found that the stable rotating black string is bigger than the non-rotating one.

Keywords : 3-5 words

Black string solution, dRGT massive gravity, Greybody factor, Rotating black string

Final report content:

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