International Journal of Geometric Methods in Modern Physics Vol. 20, No. 5 (2023) 2350081 (12 pages) © World Scientific Publishing Company DOI: 10.1142/S0219887823500810



Gamma ray bursters and black holes in gravity's rainbow

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> Received 23 September 2022 Accepted 16 November 2022 Published 30 January 2023

In this paper, we analyze the modification to the thermodynamics of a Schwarzschild black hole and a Kerr black hole due to gravity's rainbow. The metric for these black holes will be made energy dependent. This will be done by using rainbow functions motivated from the hard spectra from gamma-ray bursters at cosmological distances. This modification of the metric by these rainbow functions will in turn modify the temperature and entropy of these black holes. We will also discuss how this affects the formation of virtual black holes.

Keywords: Kerr black hole; virtual black hole; entropy; information paradox.

It is known that the string theory can be investigated using the formalism of a twodimensional conformal field theory. In this approach, the metric in the target space can be viewed as a matrix of coupling constants for the conformal field theory. Now it will be possible for these coupling constants to flow because of the renormalization group flow associated with the quantum field theory describing the world-sheet of a string [1],2]. This flow would make the target space metric depend on the scale at which it is being probed. However, the scale at which the metric is probed will depend on the energy of the probe, and so it is expected that the spacetime metric will become energy dependent. A theory, where the metric depends on the

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