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Thermodynamics of graviton condensate

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In this work, we present the thermodynamic study of amodel that considers the black hole as a condensate of gravitons. In this model, the spacetime is not asymptotically flat because of a topological defect that introduces an angle deficit in the spacetime like in Global Monopole solutions. We have obtained a correction to the Hawking temperature plus a negative pressure associated with the black hole of mass M. In this way, the graviton condensate, which is assumed to be at the critical point defined by the condition μch = 0, has well-defined thermodynamic quantities P, V, Th, S, and U as any other Bose–Einstein condensate (BEC). In addition, we present a formal equivalence between the Letelier spacetime and the line element that describes the graviton condensate. We also discuss the Kiselev black hole, which can parametrize the most well-known spherically symmetric black holes. Finally, we present a new metric, which we will call the BEC–Kiselev solution, that allows us to extend the graviton condensate to the case of solutions with different matter contents.

Is this abstract from experiment?

No

Name of experiment and experimental site

N/A

Is the speaker for that presentation defined?

No

Details

N/A

Internet talk

Yes

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