

Holographic Thermodynamics of Accelerating Black Holes

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Abstract

We will address a long-standing problem of describing the thermodynamics of an accelerating black hole, concentrating on the special case of slowly accelerating black holes in AdS. The key ingredient of consistent thermodynamics is to ensure that the system is not over-constrained by including the possibility of varying string tensions that are responsible for the acceleration of the black hole. The first law assumes the standard form, with the entropy given by one quarter of the horizon area and other quantities identified by standard methods. The dual energy-momentum tensor can be written as a three-dimensional perfect fluid plus a non-hydrodynamic contribution with a universal coefficient which is given in gauge theory variables. Based on [1] and [2].

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- [1] A. Anabalón, M. Appels, R. Gregory, D. Kubizňák, R. B. Mann, and A. Övgün, *Holographic Thermodynamics of Accelerating Black Holes*, *Phys. Rev.* **D98** (2018), no. 10 104038, [[arXiv:1805.02687](https://arxiv.org/abs/1805.02687)].
- [2] A. Anabalón, F. Gray, R. Gregory, D. Kubizňák, and R. B. Mann, *Thermodynamics of Charged, Rotating, and Accelerating Black Holes*, [arXiv:1811.04936](https://arxiv.org/abs/1811.04936).