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Unruh-Dewitt detectors and AdS Black Holes

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It is well-known that black holes emit Hawking radiation, which has a characteristic temperature; observers outside the black hole observe the emission of particles. We consider a conformally coupled scalar field around a black hole in an asymptotically AdS spacetime. By using a simple model of a particle detector, we can probe the spectral features of this radiation. We calculate the response of the detector with respect to its energy gap. Numerical simulations show that the radiation, while thermal, is not featureless; there are characteristic peaks at certain frequencies. We then provide evidence that these peaks are due to quasinormal resonances.

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