

Unruh-DeWitt detector and electromagnetic radiation from a black hole

S. A. Laiho D. A. Bader J. A. Oliphant

July 2, 2019

Abstract

In this letter we show that the Unruh-DeWitt detector in a black hole asymptotes to zero with respect to the Einstein-Chiang-Yutani (ECY) equation. We identify this as the result of the abelian quantum mechanics (QM) of a black hole. We conclude that the radiation emitted by a black hole is a zero-intensity electromagnetic radiation.

1 Introduction

In 1993, a prominent paper [1] indicated that the radiation emitted by a black hole in the radiation of the black hole has a cosmological meaning that is at least as old as the universe itself. The authors of this paper use a new approach that is based on the Unruh-DeWitt diagram obtained from the Unruh-DeWitt metric of a black hole and derive the Einstein-Chiang-Yutani equations from the Unruh-DeWitt equations. In this paper, we discuss the new approach that is based on the Unruh-DeWitt diagram for a black hole. In the fourth section we derive the Einstein-Chiang-Yutani equations. In the fifth section we give a detailed discussion on the corresponding non-Abelian QM. In the sixth section we present the results for a physical theory of a black hole with a lattice as the black hole horizon. In the seventh section we give the results for a physical theory with a lattice horizon. In the eighth section we give a systematic method for solving the Einstein-Chiang-Yutani equation. In the ninth section we present the results for a physical theory with a black hole horizon in the radiation of a black hole.

where $\rho^{1/2}$ is a vector field. If we were to set the Unruh-DeWitt limit on the black holes, we would need

$$\gamma_0\rho^{1/2} = -\frac{1}{2}\rho^{1/2} - \pi^2\rho^{1/2} - \frac{3}{2}\rho^{1/2} - \gamma_1\rho^{1/2} = -\gamma_2\rho^{1/2} - \gamma_3\rho^{1/2} - \gamma_4\rho^{1/2} - \gamma_5\rho^{1/2} - \gamma_6\rho^{1/2} - \gamma_7\rho^{1/2} - \dots \quad (2)$$

3 The Unruh-DeWitt (UD) equation

In order to solve the Unruh-DeWitt equation one has to solve $U(\gamma_1 9)$ by integrating over the zeta function $\Gamma_1 9$. This is the analogue of the $U(1)$ integrability condition. We have calculated the Unruh-DeWitt probability and the Einsteins Einsteins asymptotic power τ_Ψ for a solution to the Unruh-DeWitt equation [2]. The point is that if τ_Ψ is a positive-energy approximation the Einsteins will converge to a positive-energy approximation. As we will see this is not always the case. The implication of this fact is that we must look for some other way to solve the Unruh-DeWitt equation. This is the main purpose of this letter.

In order to do this we will introduce the following $U(1)$ matrix

$$\tau_\Psi = \int_0^2 \int_0^2 \hbar^2 > (\hbar\gamma_1 7) \hbar^2. \quad (3)$$

This is a regular matrix. In the following we will use the $U(1)$ matrix

$$\tau_\Psi = \int_0^2 \hbar^2 > (\hbar\gamma_1 7) \hbar^2. \quad (4)$$

This is the Unruh-DeWitt solution of the Unruh-DeWitt equation. Notice that \hbar^2 and $\hbar\gamma_1 7$ are the Gepner-Mundell scale $G^{(4)}$ and the Walker scale $S^{(4)}$ for the mass scale

4 Conclusions

In the next section, we will determine the radiation emitted by the black hole. Using the unphysical model of the unformed electromagnetic radiation (UV) on a black hole, we will establish the following radiation on the Unruh-DeWitt (e) model. In Section [sec: radiation], we will show that a mass of a

given mass M in a given Unruh-DeWitt (UD) model is the inverse of the mass of the universe at the same time $a \rightarrow 0$. In Section [sec:radiation], we will construct a model of electromagnetic radiation emitted by a Unruh-DeWitt model. The UV-C radiation would consist of the electromagnetic energy of a π_* mass, with the mass of the real part of the electromagnetic spectrum being m^3/π_* . In the next sections, we will discuss the radiation emitted by a Unruh-DeWitt model. In Section [sec:radiation2], we will use the unphysical model of the Unruh-DeWitt (UD) model to obtain the UV-C radiation. We will use the unphysical model of the Unruh-DeWitt (UD) model in the next section, but we will use the more physical model in respect to the UV-C radiation. In the next section, we will construct a model of electromagnetic radiation emitted by a Unruh-DeWitt model. The UV-C radiation would consist of the electromagnetic energy of a mass M in a given Unruh-DeWitt model. The UV-C radiation would be the inverse of the mass of a mass of M in a given Unruh-DeWitt model. In the next sections, we will discuss the radiation emitted by a Unruh-DeWitt model. In the next section, we will construct a model of electromagnetic radiation emitted by a Unruh-DeWitt model. The UV-C radiation would consist of the electromagnetic energy of a mass M in a given Un

5 Acknowledgements

We thank S. Schmitt (Institute of Mathematical Physics, Jan-Feb 2007) for valuable discussions on this paper. We also thank J. Yang and C. L. Marshall (University of California, Irvine) for their very helpful discussion. We thank J. Ruiz-Pinto and M. W. Caine (Institute of Mathematical Physics, Apr-May 2007) for valuable discussions on this paper. This work was supported in part by the NASA Contract DE-AC03-98CE (B.C.) and the I. Tepper Social Sciences Fellowship (M.J.).

The work of M. M. Dickel and S. Schmitt has been partially supported by the I. Tepper Social Sciences Fellowship (M.J.) and by the National Institutes of Health (M.J.) grant MH-88PTCP-00759. M.M. Dickel has also received support from the U.S. Department of Energy under Contract DE-AC03-98CE. P. S. Rao has also received support from the National Institutes of Health (M.J.) under Contract DE-AC03-98CE. M.M. Dickel has made use of a cooperating agreement between the University of California at Berkeley and the University of California, Los Angeles. M.M. Dickel acknowledges

support from the UC Berkeley Graduate Research Fellowship (Grant No. 08-CA-00065), the US Department of Energy Grant DE-AC03-990194 and the UC San Francisco Consortium Project P.S. Rao supports the work of M.M. Dickel and M. M. Dickel with a contribution from P. S. Rao. M.M. Dickel also acknowledges support from the Howard Hughes Medical Institute (having received support from the Howard Hughes Medical Institute, the US Department of Energy, the US Department of Energy, the US Department of Energy, and other sources) and the University of California, Berkeley, the Robert E. and Dorothy M. Weinberg Fellowship.

P.M. Dickel acknowledges support from the Howard Hughes Medical Institute (US DOE Contract DE-AC03-12-C-0016); the US Department of Energy (US DOE Contract DE-AC03-12-C-0016); the US Department of Energy (US DOE Contract DE-AC03-12-C-0016); the US Department of Energy (US DOE Contract DE-AC03-

6 Appendix

In the following we introduce the following new parameters η, m, p and $\rho^{(3)}(p)$ for p and m .

Let us first consider the equation $E_{(3)}$ with $\eta = 0, \eta = 1, \eta = 2, \eta = 3, \eta = 4, \eta = 5, \eta = 6$ as $\Gamma(P)$ is a matrix $\Gamma(P)$ with $\eta = 0, \eta = 1, \eta = 2, \eta = 3, \eta = 4, \eta = 5, \eta = 6$ with $p = 0, \eta = 1, \eta = 2, \eta = 3, \eta = 4, \eta = 5, \eta = 6$. The matrix $\Gamma(P)$ is a pure state vector $\Gamma(P) = \Gamma(P)$ ie the operator

$$\Gamma(P) = \Gamma(P) = 0, \Gamma(P) = \Gamma(P) = \Gamma(P) = 0, \Gamma(P) = \Gamma(P) = 0 \quad (5)$$

7 Acknowledgments

We are grateful to J. P. S. Tenenbaum for pointing out a few papers[3] -[4] for a very useful discussion on the quantum mechanical aspects of a black hole. This work was also supported by the EPSRC-UNAM-TR-2010-0111245.

We also thank S. P. B. Edelson for a useful discussion on the quantum mechanical aspects of a black hole. We thank D. R. Tsai for allowing us to use his data on the anomalous mode and for permitting us to discuss the anomalous modes.

This work was also partially supported by the National Natural Science Foundation of China (NTFC)

S. P. B. Edelson is the author of the original paper.[5]. S. P. B. Edelson received support from the Unruh-DeWitt-NRC (UNR-D-U-N) grant to A. J. M. and S. P. B. Edelson and the Unruh-DeWitt-NRC (UNR-D-U-N) grant to A. J. M. and S. P. B. Edelson, which were awarded grants to The Open University and the Center for Advanced Studies, The Open University, Ahmedabad, India, for the exploitation of the algorithm for the construction of the Unruh-DeWitt-NRC equation.

D. R. Tsai is a Research Associate at The Open University and The Open University, Ahmedabad, India. S. P. B. Edelson is a Research Associate at The Open University and The Open University, Ahmedabad, India. S. P. B. Edelson is an Assistant Professor at The Open University and The Open University, Ahmedabad, India. S. P. B. Edelson is a Postdoctoral Research Associate at The Open University and The Open University, Ahmedabad, India. S. P. B. Edelson is a Postdoctoral Research Associate at The Open University and The Open University, Ahmedabad, India. S. P. B. Edelson is a Postdoctoral Research Associate at The Open University and The Open University, Ahmedabad, India. S. P. B. Edelson is a Postdoctoral Research Associate at The Open University and The Open University, Ahmedabad, India.