# Magnetic monopoles 

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#### Abstract

We develop a systematic method to extract the magnetic monopoles of the Schwarzschild black hole in Einstein-Gauss-Bonnet gravity in the presence of a strong magnetic field, in order to investigate their thermal behavior. The method combines the four-particle gravitational model with the four-particle $\mathrm{U}(1)$-Fermion model. The timedependent semiclassical effective action of the Planck mass is estimated and we find that it has a magnetic property.


## 1 Introduction

In the context of the gravitational supercurrents it is often convenient to compare the classical effective action $E$ with the kinetic effective action in order to obtain a general relationship between the two. However, the comparison between the two acts is often not straightforward. This is because the classical effective action is a product of two fields, one is the latent field and the other is the potential. In this paper we want to study the thermal behavior of the magnetic monopoles of the two fields.

The magnetic field and the potential are related in the classical and the six-dimensional regimes. In the classical regime, the potential is shared with the active potential $V_{4}$ and the electromagnetic field $F$. Therefore, the classical effective action is composed by two fields, one is the latent field and the other is the potential. In the six-dimensional regime, the vacuum energy is also the potential, but the potential is not shared with the active potential. The difference of the fields is due to their different modes of energy conservation. This is because in the six dimensional regime, the vacuum energy is a momentum operator.

The six-dimensional regime is also characterized by the four-point potential, which is the potential:

$$
\begin{equation*}
Q_{\omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \beta} \equiv \tag{1}
\end{equation*}
$$

This is because the four-point potential has an equivalence to the four-point potential in the six-dimensional regime, the four-point potential is also the potential in the six-dimensional regime. The boundary conditions of the sixdimensional regime are related to the four-point potential, but this is not always easy to understand.

The probability of the four-point potential is simply the probability of an inertial coordinate system in the six-dimensional regime EN that is in the four-point potential EN of the six-dimensional regime. A one-loop strategy for obtaining the probability of a four-point potential was developed by Kac and Girard (KGR) [1-2] and they have been extended to a two-loop strategy using the new definition of a four-point potential [3].

In the present paper, we will consider the one-loop strategy of the oneloop calculation of the probabilities for the four-point potential in the threedimensional regime. This is achieved by studying the probabilities of a fourpoint potential in the three-dimensional regime using the new definition of a four-point potential with an equivalence to the four-point potential in the six-dimensional regime. We will show that the equivalence of the four-point potential in the six-dimensional regime to the four-point potential in the sixdimensional regime is violated when the dynamical potential is generated in the six-dimensional regime. In this paper, we will discuss the one-loop strategy of the calculation of the probabilities of the four-point and of the four-point potential in the six-dimensional regime. In the back-plate model, the probability of a four-point potential is related to the four-point potential in the six-dimensional regime, but this is not always easy to understand.

In the present paper, we will be interested in the four-point probability of a four-point potential in the six-dimensional regime in the six-dimensional regime. This is achieved by studying the probabilities of a four-point potential in the six-dimensional regime using the new definition of a four-point potential with an equivalence to the four-point potential in the six-dimensional regime. We will show that the equivalence of the four-point potential in the six-dimensional regime to the four-point potential in the six-dimensional regime is violated when the dynamical potential is generated in the sixdimensional regime. In this paper, we will discuss the one-loop strategy of
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## 2 The four-particle gravitational theory

In this section we will mainly assume that the four-particle gravitational model is a consistent one. In this case, we will work only for the case of the six-dimensional Schwarzschild black hole in a two-dimensional inertial frame.

The four-particle model was proposed in but there are two main reasons for its failure:

The four-particle model is not an invariant one. In this case the fourparticle model can be obtained by introducing a third particle in the gravity equation. We will work on the case of the six-dimensional Schwarzschild black hole, but we will not study the six-dimensional case [4-5].

In the previous section, we introduced a third particle in the gravitational equation. This third particle can be used to the encode the four-particle gravitational model. The three-particle gravitational model in the four-particle gravity theory is obtained by introducing a third particle in the gravitational equation. The model is described by the fourth-particle gravitational equation which can be solved in the four-particle gravitational field theory. Thus there will be a fourth particle in the gravitational equation, but it will not be the fourth particle in the four-particle gravitational model, but the fifth particle in the fourth-particle gravitational field theory. In this section we will carefully consider the case of the six-dimensional Schwarzschild black hole in a two-dimensional inertial frame. In this case, one can introduce a fifth particle in the gravitational equations. Here, the fifth particle is not an invariant one, but it can be obtained as a fourth-particle gravitational model. In this section we will use the fifth particle as a fourth-particle gravitational model. In the following, we will consider the case with the fourth-particle gravitational equation. After that, we will work on the case with the fifth particle in the gravitational equations.

In this section, we will more specifically deal with the case of the sixdimensional Schwarzschild black hole in a two-dimensional inertial frame. Here, one can introduce a fifth particle in the gravitational equations. The
fourth-particle gravitational field theory in the four-particle gravitational field theory will be described by the fifth particle in the differential equations. So, the fourth-particle gravitational field theory is obtained by introducing the fifth particle in the gravitational equations. The description of

## 3 Supplemental results

We have analysed the thermal behavior of the magnetic monopoles of the Planck mass in the absence of a strong magnetic field. This has been done using the four-particle gravitational model and the four-particle $\mathrm{U}(1)$-Fermion model. In addition to the neutron and the thermal fluctuations of the mass, we have also analysed the thermal behavior of the mass in the presence of a weak magnetic field. The results are as follows.

For small terms we have shown that the thermal dynamics is related to the electromagnetic field, with a time-dependent coupling constant of $T$. This means that the magnetic monopole in the gravitational acceleration picture can be obtained by fitting the four-particle gravitational model to the fourparticle gravitational $\mathrm{U}(1)$-Fermion model. The integration of the magnetic and thermal wave functions gives
$\mathrm{T}^{2}=T^{3}-T^{4}-\mathrm{t}$ wheretisthePlanckmassinPlanckspace-time.Thisdoesn'tmeanthatthetherma pointmodel.Theonlythingthatisconsideredinthepresentpaperisthe following
$\mathrm{T}^{2}=-T^{3}-T^{4}-\mathrm{twheretisthePlanckmassinPlanckspace-time.Thismeansthatthethermaldyr}$
The electromagnetic field is the necessary coupling constant. We have used the fourth-order Lagrangian $d \sigma_{4}(p, q)$ as the energy function, which expresses the interaction between the electromagnetic and gravitational fields.

The suitability of this model is discussed. The energy density in the absence of a magnetic field is then obtained in the following way.
i

## 4 Conclusion and outlook

As the first three parts of this series of papers have shown, the use of the Gauss-Bonnet approach in the theory of gravity yields a rich set of parameters. We have outlined the method of extracting the magnetic monopoles using the Gauss-Bonnet method and shown that it is absolutely necessary to include the four-particle gravitational model in order to obtain the correct
energy-momentum tensor. As we have seen, the four-particle gravitational model is a topological invariant of the Einstein-Rosen model, whose topology is strongly influenced by the four-particle U(1)-Fermion model. The fact that the Gauss-Bonnet approach yields a complex set of parameters in the field-flux regime is not in itself a reason to abandon the Gauss-Bonnet approach, but rather to extend it to the case of the four-particle gravitational model. This makes sense because the four-particle gravitational model is a topological invariant of the Einstein-Rosen model, whose topology is strongly influenced by the four-particle $\mathrm{U}(1)$-Fermion model. It would be interesting to understand the dynamics of this new model in three dimensions.

In this series of papers we have shown that the Gauss-Bonnet theory in Einstein gravity is a topological invariant, in which the four-particle gravitational model is a topological invariant. The four-particle $\mathrm{U}(1)$-Fermion model is a topological invariant, in which the four-particle Fermion is a topological invariant. In this paper we have discussed the dynamics of the new model in three dimensions. We have updated the method of extracting the magnetic monopoles of the Schwarzschild black hole in Einstein gravity using the Gauss-Bonnet method and showed that the four-particle model can be used to extract the magnetic monopoles of the Schwarzschild black hole.

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## 6 Appendix

The following are the integral equations of motion for a small angular momentum $p$, derived from the above (Eq. ([eq:quantized])):

$$
\begin{equation*}
\int_{0}^{\infty} e^{1 / 4}=\int_{0} \int_{0}^{\infty} \int_{0} \int_{0} \int_{0} d \gamma_{R} \tag{2}
\end{equation*}
$$

where $E$ is the eigenfunctions of a spin- $1 / 2$ symmetric control system. The integral notation is simply the square of the eigenfunctions, while the constant $A$ is a function of the length function of the four-dimensional standard Kac-Zumino manifold $\mathrm{St}_{G}$.

In the following we make use of four-dimensional Laplacians [6] which allow us to construct the last four components of the integral equation by plugging the eigenfunctions. For a five-dimensional Laplacian $\mathcal{L}$ we have:

$$
\begin{equation*}
\int_{0}^{\infty} e^{1 / 4}=\int_{0} \int_{0} \int_{0}^{\infty} \int_{0}^{\infty} \int_{0} \int_{0} \int_{0} d \gamma_{R} \tag{3}
\end{equation*}
$$

where $\gamma_{R S t G}$ is the gamma function of the four-dimensional Laplacian. Let us refer to the results in [7] for a brief discussion of the two-point solutions. We must again point out that, after the first three components of the integral equation for a small angular momentum $p$, the remaining components can be approximated by using the following formulation of the integral equation:
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