



Contribution ID: 88

Type: Oral Presentation

Quasi-normal modes and absorption probabilities of spin-3/2 fields in D-dimensional Reissner-Nordstrom black hole spacetimes

Tuesday, 26 June 2018 12:20 (20 minutes)

In this talk we consider spin-3/2 fields in a D-dimensional Reissner-Nordstrom black hole spacetime. As these spacetimes are not Ricci-flat, it is necessary to modify the covariant derivative to the supercovariant derivative, by including terms related to the background electromagnetic fields, so as to maintain the gauge symmetry. Using this supercovariant derivative we arrive at the corresponding Rarita-Schwinger equation in a charged black hole background. As in our previous works, we exploit the spherical symmetry of the spacetime and use the eigenspinor-vectors on an N-sphere to derive the radial equations for both non-transverse-traceless modes and transverse-traceless modes. We then determine the quasi-normal mode and absorption probabilities of the associated gauge-invariant variables using the WKB approximation and the asymptotic iteration method. We then concentrate on how these quantities change with the charge of the black hole, especially when they reach the extremal limits.

Please confirm that you have carefully read the abstract submission instructions under the menu item "Call for Abstracts" (Yes / No)

Yes

Consideration for student awards
Choose one option from those below.
N/A
Hons
MSc
PhD

N/A

Supervisor details
If not a student, type N/A.
Student abstract submission requires supervisor permission: please give their name, institution and email address.

N/A

Primary author: Prof. CORNELL, Alan (NITheP)

Presenter: Prof. CORNELL, Alan (NITheP)

Session Classification: Theoretical and Computational Physics

Track Classification: Track G - Theoretical and Computational Physics