



SCALAR ABSORPTION BY A STATIC AND CHARGELESS BLACK HOLE IN THE CONTEXT OF THE EINSTEIN-DILATON-GAUSS-BONNET (EDGB) THEORIES

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Abstract

We investigate the behavior of the absorption cross section of the non-massive scalar field by a static and chargeless black hole in the context of the Einstein-dilaton-Gauss-Bonnet (EdGB) theories. For comparative purposes, we also obtain the non-massive scalar field absorption cross section in the Schwarzschild geometry. In the limit in which the frequency of the scalar field tends to zero, for a static and chargeless black hole, the absorption cross section tends to the value of the area of the event horizon, for both the Schwarzschild and the EdGB cases. Our results show that the greater the value of the Gauss-Bonnet constant α , the greater is the value of the absorption cross section.