

Abstract Submitted
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Resonant frequencies of a Schwarzschild black hole with a global monopole in $f(R)$ gravity¹ HORACIO VIEIRA², Institute of Cosmology, Department of Physics and Astronomy, Tufts University, Medford, Massachusetts 02155, USA, JOAO GRACCA³, Instituto de Física, Universidade Federal da Paraná, Curitiba, PR, Brazil, VALDIR BEZERRA, Departamento de Física, Universidade Federal da Paraíba, Caixa Postal 5008, CEP 58051-970, João Pessoa, PB, Brazil — We obtain an exact solution for both angular and radial parts of the covariant Klein-Gordon equation for a massive scalar field in a Schwarzschild black hole with a global monopole in $f(R)$ gravity. This solution is given in terms of the general Heun function. We investigated some processes associated with scalar fields in the background under consideration, in special, the existence of resonant frequencies. From this analytic solution, corresponding to the radial part, we obtained the resonant frequencies which are a complex number and its imaginary component tells us how quickly the oscillation will die away.

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