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Slowly damped quasinormal modes of the massive Dirac field in d-dimensional Schwarzschild-Tangherlini spacetimes

Abstract
We consider quasinormal modes of the massive Dirac field in the background of a Schwarzschild-Tangherlini black hole. Different dimensions of the spacetime are considered, from $d = 4$ to $d = 9$. The quasinormal modes are calculated using two independent methods: WKB and continued fraction. We obtain the spectrum of quasinormal modes for different values of the overtone number and angular quantum number. An analytical approximation of the spectrum valid in the case of large values of the angular quantum number and mass is calculated. Although we don't find unstable modes in the spectrum, we show that for large values of the mass, the quasinormal modes can become very slowly damped, giving rise to quasistationary perturbations.