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Superradiance in Einstein-Gauss-Bonnet gravity with Born-Infeld electrodynamics

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In string theory, a natural low energy effective action is the Einstein-Gauss-Bonnet gravity, in which a Gauss-Bonnet term accompanies the usual Einstein-Hilbert action. Born-Infeld electrodynamics arises when considering an Abelian gauge field coupled to the open bosonic string or open superstring. We will analyze the superradiant behavior of a massive, charged scalar field coupled to a spherically symmetric, charged black hole solution within this modified theory of gravity, and compare with the classical Reissner-Nordström solution. To do so, we will compute the cross-section and the quasinormal-modes (QNMs) spectrum, analyzing how this modification of Einsteinian gravity affects the possible observables.

Field of Research/Work

Cosmology, Astrophysics, and Gravitation

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