



MASSIVE AND CHARGED SCALAR FIELD IN KERR-NEWMAN SPACETIME: ABSORPTION AND SUPERRADIANCE

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We consider the propagation of a generic scalar field around a rotating and charged black hole. Using the partial wave method, we find, numerically, the total and partial absorption cross sections for different incidence angles. We investigate the low- and high-frequency limits, finding semi-analytical approximations for the absorption cross section, which we compare with our numerical results. Finally, we consider the superradiant regime, showing that, for charged fields, planar waves can be superradiantly scattered.