

Location and Weyl asymptotics for the eigenvalues of some non self-adjoint operators

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We study two problems related to scattering theory and connected to non self-adjoint operators. The first one concerns the eigenvalues of the generator of a semi-group describing the solutions of the wave equation and Maxwell system with dissipative boundary conditions. The second one concerns the interior transmission eigenvalues for the wave equation and Maxwell system. Our goal is to find eigenvalues-free regions in the complex plan and to prove Weyl asymptotics with remainder for the counting functions of eigenvalues. These two problems are closely related and a larger eigenvalues-free region yields a sharper bound of the remainder. The proofs are based on a semi-classical approach and to the estimates of the semi-classical Dirichlet-to-Neumann map.