Resonances and
the Complex Absorbing Potential method

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The Complex Absorbing Potential (CAP) method is widely used to approximate resonances, both for nonrelativistic and relativistic Hamiltonians. We provide an introduction to the method and, in the semiclassical limit $\hbar \to 0$ we consider resonances near the real axis and we establish the CAP method rigorously for the perturbed Dirac operator by proving that individual resonances are perturbed eigenvalues of the non-Hermitian CAP Hamiltonian, and vice versa.