

Resonances and SSF singularities for a magnetic Schrödinger operator

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We consider the Hamiltonian H of a 3D spinless non-relativistic quantum particle subject to parallel constant magnetic and non-constant electric field. The operator H has infinitely many eigenvalues of infinite multiplicity embedded in its continuous spectrum. We perturb H by appropriate scalar potentials V and investigate the transformation of these embedded eigenvalues into resonances. Moreover, in the case where V decays fast enough at infinity and is of definite sign, we introduce the Krein spectral shift function for the operator pair $(H + V, H)$, and study its singularities at the energies which coincide with eigenvalues of infinite multiplicity of the unperturbed operator H .

This is a joint work with M. A. Astaburuaga, Ph. Briet, V. Bruneau, and C. Fernández.