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This dissertation is concerned with various aspects of the
spectral theory of differential and pseudodifferential operators.
It consists of two chapters.

In the first chapter we compare spectral properties of self-adjoint Schrodinger operators on finite and infinite intervals. It is natural to expect the spectral characteristics of the problem on the finite interval to approximate the corresponding characteristics of the singular (infinite) problem as the interval gets larger. The main objects considered are so-called spectral shift functions which reflect the transformation of the spectra of self-adjoint operators under a suitable perturbation. Since the nature of the spectrum of a half-line Schrodinger operator and that of the corresponding finite-interval Schrodinger operator are substantially different, convergence of spectral characteristics is only possible in some average sense. Specifically, we prove that an ergodic limit of the finite-interval spectral shift functions coincides with the spectral shift function associated with the problem on the half-line.

In the second chapter, we study the behavior of a family of symmetrically truncated convolution operators with a rational symbol as the cut-off parameter approaches infinity. We prove that, in the resolvent convergence sense, this family possesses an attractor of a limit-circle type. This study is motivated by the close connection between integral operators of convolution type with meromorphic symbols and the quantum-mechanical three-body problem with short-range forces, where the phenomenon known as the Efimov effect is known to arise. Such integral operators are also related to the three-body problem with point-like interactions and the so-called ``fall to the center'' phenomenon.