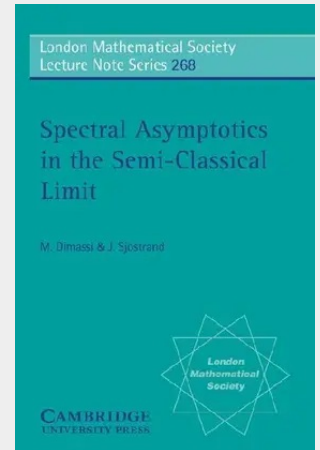


Spectral Asymptotics in the Semi-Classical Limit

Semiclassical approximation addresses the important relationship between quantum and classical mechanics. There has been a very strong development in the mathematical theory, mainly thanks to methods of microlocal analysis. This book develops the basic methods, including the WKB-method, stationary phase and h-pseudodifferential operators. The applications include results on the tunnel effect, the asymptotics of eigenvalues in relation to classical trajectories and normal forms, plus slow perturbations of periodic Schrödinger operators appearing in solid state physics. No previous specialized knowledge in quantum mechanics or microlocal analysis is assumed, and only general facts about spectral theory in Hilbert space, distributions, Fourier transforms and some differential geometry belong to the prerequisites. This book is addressed to researchers and graduate students in mathematical analysis, as well as physicists who are interested in rigorous results. A fairly large fraction can be (and has been) covered in a one semester course.

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