
POINTWISE SPECTRAL ASYMPTOTICS OUT OF THE DIAGONAL

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We establish semiclassical asymptotics or estimates for the Schwartz kernel $e_h(x, y; \tau)$ of spectral projector for a second order elliptic operator on a manifold with a boundary. While such asymptotics for its restriction to the diagonal $e_h(x, x, \tau)$ and, especially, for its trace $N_h(\tau) = \int e_h(x, x, \tau) dx$ are well-known, the out-of-diagonal asymptotics are much less explored.

Our main tools: improved successive approximations and geometric optics.

Our results would also lead to *classical* asymptotics of $e_h(x, y, \tau)$ for fixed h (say, $h = 1$) and $\tau \rightarrow \infty$.