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Asymptotics of solutions to crack–type and mixed problems

Crack–type and mixed boundary value problems (BVPs) lead to (boundary) pseudodifferential equations (BPsDEs) on the open surface; solutions to BVPs are represented by layer potentials with densities which are solutions to BPsDEs (potential method).
Applying the Wiener–Hopf method complete asymptotic expansion of solutions to BPsDEs on arbitrary smooth manifold with smooth boundary is found with precise formulae for xponents and logarithmic entries. Results are pplied to BPsDEs on boundary sureface and the result is nserted into layer potentials. The complete asymptotics of solutions to original BVPs are written. Precise connections between coefficients of the leading terms on the surface and spatial asymptotics (so called "stress intensity factors") are found.