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## Power-series expansion of the multi-channel Jost matrix

For the Jost-matrix that describes the multi-channel scattering, the energy dependence at all the branching points on the Riemann surface is factorized analytically. The remaining single-valued matrix functions of the energy are expanded in the power-series near an arbitrary point in the complex energy plane. A systematic and accurate procedure has been developed for calculating the expansion coefficients. This makes it possible to obtain an analytic expression for the S-matrix near an arbitrary point on the Riemann surface and thus to locate the spectral points (bound and resonant states) as the S-matrix poles.

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