Scattering formalism using Q-invariants

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The existence of invariant quantities in systems which are completely decomposable in local parity (LP) symmetric domains facilitates the reformulation of scattering under a new perspective, allowing for a significant compactification of information. Particularly, we exploit the symmetry to get information for the wave function (or any wave field) which are unaccessible otherwise. Finally, we extend the formalism to systems which have losses and show that also in this case there exist LP symmetry induced invariants.