

THE ANALYTIC PROPERTIES OF THE S -MATRIX
FOR ARBITRARY INTERACTIONS WHICH PASS
EXTERNALLY INTO THE CENTRIFUGAL
AND RAPIDLY DECREASING POTENTIALS

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S u m m a r y

The analytic structure of non-relativistic unitary and non-unitary S -matrices is reviewed for the cases of arbitrary interactions (and may be, with the unspecified equations of motion) inside a sphere of radius $r \leq a$ which pass outside it (at $r > a$) into the centrifugal and decreasing (exponentially, by the Yukawa law, or more rapidly) potentials on the base of the author's papers from 1961 till 2006. The one-channel case and special examples of many-channel cases are considered. Some kinds of the symmetry conditions are imposed. The Schrödinger equation for $r > a$ for the particle motion and the condition of completeness of the corresponding wave functions are assumed. Finally, a scientific program of the future research is presented as a clear continuation and an extension of the obtained results.