

Self-adjoint extension procedure for nonrelativistic scattering problems

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It is shown, that for inverse square attractive potentials at the origin in the Scrodinger equation it is necessary to keep so called additional solutions and therefore to carry out self-adjoint procedure for scattering problems. It is also shown, that physical quantities – energy, scattering length, effective scattering radios, cross section is depended on the self-adjoint parameter and therefore the physical picture is different then in usual quantum mechanics. In particular it is shown, that introduction of self-adjoint parameter can change the nature of the potential. Also for valence electron model is modified Rutherford formula.

References

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