The authors present an efficient algorithm different from the previously known to construct the asymptotics of solutions of nonautonomous systems of ordinary differential equations with meromorphic matrix. Schrödinger equation, Dirac system, Lippman-Schwinger equation and other equations of quantum mechanics with spherically symmetric and meromorphic potentials may be reduced to such systems. The Schrödinger equation and the Dirac system describe the stationary states of an electron in a Coulomb field with a fixed point charge in the description of the relativistic and nonrelativistic hydrogen atom. The Lippman-Schwinger equation of scattering theory describes the results of collision and interaction of quantum-mechanical particles in mathematical language after these particles have already diverged a long way from one another and ceased to interact.

The observed algorithm supplements the known results and allows you to approach the analysis of the problems of this type with a fairly simple and at the same time, a universal point of view.

**Key words:** meromorphic matrix, Schrödinger equation, Dirac system, Lippman-Schwinger equation, quantum mechanics.

**References**


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