

The main topic of the thesis is the design of a numerical algorithm which can solve 1st order linear partial differential equations using the method of characteristics. We will summarize the principle of theoretical calculations using the method of characteristics, construct a numerical algorithm and apply it with the help of the Matlab programming language. We will use numerical methods such as the Runge-Kutta method for solving ordinary differential equations, composite trapezoidal rule for approximation of integrals, or barycentric interpolation for an approximation of function values. Finally, we will use the algorithm on specific examples, analyze them and plot the approximate solutions in Paraview graphics software.