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FINITE DIFFERENCE METHOD WITH NONUNIFORM MESHES FOR QUASILINEAR PARABOLIC SYSTEMS

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摘要
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FINITE DIFFERENCE METHOD WITH NONUNIFORM MESHES FOR QUASILINEAR PARABOLIC SYSTEMS

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Abstract The analysis of the finite difference schemes with nonuniform meshes for the problems of partial differential equations is extremely rare even for very simple problems and even for the method of fully heuristic character. In the present work the boundary value problem for quasilinear parabolic system is solved by the finite difference method with nonuniform meshes. By using of the interpolation formulas for the spaces of discrete functions with unequal meshsteps and the method of a priori estimation for the discrete solutions of finite difference schemes with nonuniform meshes, the absolute and relative convergence of the discrete solutions of the finite defference scheme are proved. The limiting vector function is just the unique generalized solution of the original problem for the parabolic system.

Key words

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