

论文

A NEWTON MULTIGRID METHOD FOR QUASILINEAR PARABOLIC EQUATIONS

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摘要 A combination of the classical Newton Method and the

multigrid method, i.e., a Newton multigrid method is given for

solving quasilinear parabolic equations discretized by finite

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one step Newton iteration per level. The asymptotically

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关键词 [Quasilinear parabolic equation, finite e](#)

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Abstract A combination of the classical Newton Method and the multigrid method, i.e., a Newton multigrid method is given for solving quasilinear parabolic equations discretized by finite elements. The convergence of the algorithm is obtained for only one step Newton iteration per level. The asymptotically computational cost for quasilinear parabolic problems is $O(NN_k)$ similar to multigrid method for linear parabolic problems.

Key words [Quasilinear parabolic equation](#) [finite element discretization](#) [Newton multigrid method](#) [convergence](#)

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