Wang, Tongke

Alternating direction finite volume element methods for 2D parabolic partial differential equations. (English) [Zbl 1135.65037]


He gives three kinds of alternating direction methods, the first two are similar to Douglas schemes [Zbl 0239.65088] and [Zbl 1012.65095] in the finite element method and the finite difference method, the third is an extension of the locally one-dimensional finite difference scheme [Zbl 1012.65095] with second order accuracy. He obtains optimal error estimates in $L_2$ or $H^1$ semi-norms for these schemes and illustrates that in two numerical examples.

Reviewer: Dinh Nho Hao (Hanoi)

MSC:

65M60 Finite element, Rayleigh-Ritz and Galerkin methods for initial value and initial-boundary value problems involving PDEs

35K05 Heat equation

65M06 Finite difference methods for initial value and initial-boundary value problems involving PDEs

Keywords:

two dimensional parabolic partial differential equation; alternating direction method; finite volume element method; error estimate; finite element method; finite difference method; error estimates; numerical examples

Full Text: DOI

References:


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