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论文

用快速自适应组合网格方法 (FAC) 求解二阶椭圆型偏微分方程

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摘要:

用快速自适应组合网格方法 (FAC) 求解二阶椭圆型偏微分方程彭志健, 林振宝, 石济民 (香港理工学院应用数学系) ON THE COMPUTATIONAL ASPECTS OF THE FAST ADAPTIVE COMPOSITE GRID METHOD FOR SOLVING SECOND ORDER ELLIPTIC EQUATIONS...

关键词:

ON THE COMPUTATIONAL ASPECTS OF THE FAST ADAPTIVE COMPOSITE GRID METHOD FOR SOLVING SECOND ORDER ELLIPTIC EQUATIONS

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Abstract:

Abstract In engineering and Scientific computation, the local grid refinement method is often used to increase the accuracy of the approximate solution at some particular points. The Fast Adaptive Composite Grid Method (FAC) is a simple and effective local grid refinement method. Its major idea is to design a set of multilevel locally refined grids, and then solve the composite grid (union of coarse and fine levels) problem using solvers on uniform grids. In this paper, we have applied the FAC method to solve several second-order elliptic boundary value problems. The comparison of the method with the finite element method having uniform grid, shows that with the same order of accuracy, the FAC method requires much less CPU time and computer storage.

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