应用数学学报
Acta Mathematicae Applicatae Sinica (Chinese Series)
ISSN 0254-3079
CN 11-2040/O1
应用数学学报 英文版

求解二次Lagrangian有限元方程的代数两水平方法

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Algebraic Two Level Method for a Quadratic Lagrangian Finite Element Equation

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- 摘要
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全文: PDF (356 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 基于矩阵图集的粗化算法, 构造一种新的插值算子, 提出了瀑布型代数两重网格法; 然后结合部分几何信息, 提出了求解二次Lagrangian 有限元方程的代数两水平方法. 数值实验表明该算法稳健性强、计算量更少.

关键词: 二次Lagrangian有限元方程 插值算子 瀑布型代数两重网格法 代数两水平方法

Abstract: A new interpolation operator is proposed by using the coarsening method only based on the graph of the matrix. Then a new cascadic algebraic two grid method is presented by using the new interpolation operator. And a new algebraic two level method for the quadratic Lagrangian finite element equation is given by combining the cascadic algebraic two grid method and some geometric information of the grids. The numerical experiment results show that the new methods are more efficient and robust.

Key words: quadratic Lagrangian finite element equation interpolation operator cascadic algebraic two grid method algebraic two level method

收稿日期: 2011-01-09;

基金资助:国家自然科学基金(11161014);云南省科技厅青年(2012FD054)和红河学院硕博(XJ1S0925)资助项目.

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引用本文:

李明,李郴良,崔向照. 求解二次Lagrangian有限元方程的代数两水平方法[J]. 应用数学学报, 2013, 36(5): 862-869.

LI Ming,LI Chenliang,CUI Xiangzhao. Algebraic Two Level Method for a Quadratic Lagrangian Finite Element Equation[J]. Acta Mathematicae Applicatae Sinica, 2013, 36(5): 862-869.

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