

无穷凹角区域各向异性问题的重叠型区域分解算法

陈亚军¹, 杜其奎²

1. 上海海事大学高等技术学院, 上海 200136;
2. 南京师范大学数学科学学院, 南京 210046

An Overlapping Domain Decomposition Method for an Anisotropic Problem in an Infinite Domain with a Concave Angle

CHEN Yajun¹, DU Qikui²

1. School of Higher Technology, Shanghai Maritime University, Shanghai, 200136;
2. School of Mathematical Sciences, Nanjing Normal University, Nanjing, 210046

- 摘要
- 参考文献
- 相关文章

全文: [PDF \(410 KB\)](#) [HTML \(1 KB\)](#) 输出: [BibTeX](#) | [EndNote \(RIS\)](#) [背景资料](#)

摘要 本文以凹角椭圆外区域上调和问题的自然边界归化为基础, 提出了求解无穷凹角区域各向异性问题的重叠型区域分解算法, 并分析了算法的收敛性及收敛速度. 最后给出了数值例子, 以示方法的可行性和有效性.

关键词: 无穷凹角区域 各向异性问题 自然边界归化 区域分解算法

Abstract: In this paper, an overlapping domain decomposition method based on the natural boundary reduction on elliptical arc artificial boundary is presented for an anisotropic problem in an infinite domain with a concave angle. The convergence of this algorithm is given. The convergence rate is analysed in details for a typical domain. Finally, some numerical examples are presented to show effectiveness of our method.

Key words: infinite domain with a concave angle anisotropic problem natural boundary reduction domain decomposition method

收稿日期: 2010-08-26;

基金资助:

国家自然科学基金(10871100)及上海高校选拔培养优秀青年教师科研专项基金(shs10098)资助项目.

引用本文:

陈亚军, 杜其奎. 无穷凹角区域各向异性问题的重叠型区域分解算法[J]. 应用数学学报, 2012, (6): 1030-1043.

CHEN Yajun, DU Qikui. An Overlapping Domain Decomposition Method for an Anisotropic Problem in an Infinite Domain with a Concave Angle[J]. Mathematicae Applicatae Sinica, 2012, (6): 1030-1043.

服务


- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [E-mail Alert](#)
- ▶ [RSS](#)

作者相关文章

- ▶ [陈亚军](#)
- ▶ [杜其奎](#)

[1] Isidori A. Nonlinear Control Systems, Third Edition. Berlin: Springer-Verlag, 1995 

[2] Yu Dehao. Coupling Canonical Boundary Element Method with FEM to Solve Harmonic Problem over Cracked Domain. *Journal of Computational Mathematics*, 1983, 1: 52-62

[3] Dumas B. Dynamic Equilibrium and the Real Exchange Rate in a Spatially Separated World. *Review of Financial Studies*, 1992, 5: 15-180 

[4] 熊革, 郑绿洲. 线性时变微分代数系统的稳定性. 数学物理学报, 2003, 23(3): 280-286 (Xiong G, Zheng L Z. On the Stability of Linear Time-change Differential-algebraic System. *Acta Mathematica Scientia*, 2003, 23(3): 280-286)

[5] 陈伯山, 廖晓昕, 刘永清. 微分代数系统的标准型与分支. 应用数学学报, 2000, 23(3): 429-443 (Chen B S, Liao X X, Li Y Q. Normal Form and

[6] Yu Dehao. Natural Boundary Integral Method and Its Applications. Massachusetts: Kluwer Academic Publishers, 2002

[1] 陈亚军, 杜其奎. 无穷凹角区域各向异性问题的自然边界元与有限元耦合法[J]. 应用数学学报, 2010, 33(4): 758-768.

[2] 王寿城. 不重叠型Schwarz交替法的加速收敛[J]. 应用数学学报, 2004, 27(2): 237-245.

[3] 杜其奎, 余德浩. 关于二维双曲型初边值问题的自然积分方程[J]. 应用数学学报, 2001, 24(1): 17-026.