

论文

无穷凹角区域椭圆边值问题的重叠型区域分解算法

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摘要:

许多科学和工程计算问题都可归结为无界区域上的偏微分方程边值问题,数值求解无界

关键词:

AN OVERLAPPING DOMAIN DECOMPOSITION ALGORITHM FOR ELLIPTIC BOUNDARY VALUE PROBLEMS OVER AN INFINITE DOMAIN WITH CONCAVE ANGLES

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Abstract:

In this paper, we investigate an overlapping domain decomposition algorithm for elliptic boundary value problems over an infinite domain with concave angles. The algorithm is constructed, and its convergence is discussed. The finite element method and natural boundary element are alternatively applied to solve a bounded subdomain and a typical unbounded subdomain. It has overcome the difficulty met in standard domain decomposition method for problems with unbounded domains. The convergence rate is analysed in details for a typical domain. Finally some numerical examples are presented to show effectiveness of our method.

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