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二维非结构网格的一个TVD型有限体积方法

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TVD-STYLE FINITE VOLUME METHOD ON UNSTRUCTURED MESHES IN TWO DIMENSIONS

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摘要

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摘要 考虑双曲型守恒律方程,对二维非结构三角形网格给出一种 TVD型有限体积方法,主要思想是在一阶单调格式的基础上,在每一个单元上对变量作单调线性重构函数,时间离散采用二阶 Runge-Kutta方法。通过计算分析了该方法的精度,对平面激波反射和空穴流动的计算结果表明该方法是成功的

关键词: 非结构网格 有限体积方法 TVD格式 空穴流动

Abstract: A new finite volume scheme, based on the first order monotone scheme and limited linear reconstruction, is constructed for unstructured mesh in two dimensions, which satisfies the maximum principle and approximates the flux with second order accuracy for scalar hyperbolic conservation laws. Numerical results for plate shock wave reflection and Mach 4.0 flow over a circular cylinder are presented.

Keywords: unstructured mesh finite volume method TVD scheme cavity flow

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