论文

# TVD格式数值模拟斜腔内旋涡运动

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# NUMERICALSIMULATION OF VORTE4XFLOW IN AN OBLIQUE CAVITY USING TVD SCHEME

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摘要 采用ＴＶＤ有限体积格式,通过求解非定常可压缩Ｎ－Ｓ方程,对恒定出入口压力比驱动下的斜腔内部流动进行了数值模拟。计算后得到清晰的流场涡系结构及其发展过程;显示了空腔流动中的自维持振荡现象;并分析了剪切层不稳定对周期性振荡的作用机制。

关键词: TVD格式　旋涡　空腔流　自激振荡

Abstract： The time dependent axisymmetric Navier Stokes equations are solved by a TVD fi-nite volume scheme to simulate viscous flow in an oblique cavity driven by a constant pressure ratio $p_e/p_0=0.318$.The numerical results demonstrate the formation and evolution of the complex vortexes structure in detail.self-sustained flow oscillation in the cavity is observed,and the interaction between shear-layer instability and oscillation is discussed.

Keywords： TVD schemes　vortices　cavity flow　self oscillation

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