论文

二维可压湍流边界层改进的积分方法

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AN IMPROVED INTEGRAL METHOD FOR TWO-DIMENSIONAL COMPRESSIBLETURBULENT BOUNDARY-LAYER

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摘要	参考文献	相关文章

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摘要 采用含高阶项的边界层动量积分方程,同时对常规边界层卷吸方程及延迟方程进行相应的高阶影响修正,得到改进的边界层积分方程组。应用此方程组对多种高亚音速及跨音速翼型边界层流动作了计算,并与一阶Ｇ ｒ ｅ ｅ ｎ方法计算结果及实验结果作了比较。结果表明,在边界层积分方程中保留法向压力梯度项及雷诺法向应力项,明显改进了翼面边界层接近分离区域处参数的计算精度。

关键词： 湍流边界层 积分方程 压力梯度 雷诺应力 掺混

Abstract： The boundary layer momentum integral equation including higher-order effects,those associated with normal pressure gradient s, Reynolds normal pressure gradients and Reynolds normal stresses,is adopted,and the conventional entrainment equation and lag equation are cor-rected to contain those effects correspondingly So the improved integral equations can be ob-tained and are used to calculate the boundary flows over aerofoils at high subsonic and transonic speeds.It is shown that tlie inclusion of high-order tenn leads to much better agreement with ex-periment of flow with separation obviously.

Keywords： turbulent boundary layer integral equation pressure gradient Reynolds stressentrainment

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