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计算机翼跨音速绕流的加罚Galerkin有限元法

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A PENALTY-GALERKIN FINITE ELEMENT METHOD FOR CALCULATING TRANSONIC FLOW OVER WINGS

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摘要

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摘要

关键词: 超临界跨音速流 Galerkin有限元法 全速位方程

Abstract: An upwind technique is usually used in order to capture the shocks in the (Jalerkm full potential finite element method for calculating supercritical transonic flows. But it leads to the vibration of the equation of mass conservation. The present formulation extends the Galerkin finite element method by modifying it with penalty function to enforce the conservation of mass across the element interfaces, while allowing sudden changes in velocities and densities in 2-D transonic flows over airfoils. The algorithm is then extended to over three-dimensional wings.

Keywords: supercritical transonic flows Galerkin finite element method full potential equation

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