A Solution of the Boundary Integral Equation of the Theory of the Infinite Span Airfoil in Subsonic Flow with Linear Boundary Elements

Luminiţa GRECU

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Abstract : In the present paper a solution with linear boundary elements is given to the boundary integral equation obtained as a result of the application of the indirect boundary element method to the theory of the infinite span airfoil in subsonic flow, when the airfoil is modeled by source distributions on the boundary. In the incompressible case the solution for the circular body is compared with the exact solution, and with the one that uses constant boundary elements. Comparisons between calculated and analytical values of the pressure coefficient show very good agreement, and as aspected better results are obtained using linear boundary elements.

Key words and phrases : boundary integral equation, linear boundary element, boundary element method

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