

Approximate method of designing a two-element airfoil

Abzalilov D., Mardanov R.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

An approximate method is proposed for designing a two-element airfoil. The method is based on reducing an inverse boundary-value problem in a doubly connected domain to a problem in a singly connected domain located on a multisheet Riemann surface. The essence of the method is replacement of channels between the airfoil elements by channels of flow suction and blowing. The shape of these channels asymptotically tends to the annular shape of channels passing to infinity on the second sheet of the Riemann surface. The proposed method can be extended to designing multielement airfoils. © 2011 Pleiades Publishing, Ltd.

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Keywords

inverse boundary-value problem of aerohydrodynamics, two-element airfoil