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Determination of optimal parameters of a moving wall on airfoil

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Abstract

A problem is posed and solved on determining the optimal parameters of a moving wall installed on the airfoil surface to prevent the boundary layer separation. As the wall parameters, its initial and final position and motion velocity are taken. To solve the problem, the optimization methods with penalty functions are used. The conclusions were drawn on selecting the efficient parameters of the moving wall in terms of the minimum of energy expenditure and friction drag. © 2012 Allerton Press, Inc.

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Keywords

active control, moving wall, turbulent boundary layer, viscous incompressible fluid