

## Maximizing the lift coefficient of a jet-blown contour

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### Abstract

The modeling of a jet blow by a point source for maximizing the lift coefficient of a jet-blown contour and to find the exact upper estimate for the lift coefficient of wing profiles was discussed. The approach to solve this problem is based on the theory of inverse boundary value problems of aerodynamics. The problem is reduced to the isoperimetric variational problem, which is solved numerically. It is necessary that the solvability conditions be valid for a closed contour to be obtained and in order that the given velocity at infinity coincide with the velocity determined in the process of solution. The problem should be reduced to the optimization problem for a function of many variables by means of representing the desired function as a finite Fourier series. The results show that, in the presence of a point source of the jet blow, the maximum value of the lift coefficient is not attained on the circular shape, as occurred in the case of the takeoff.

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