

عنوان مقاله:

Simulation of Body Force Field Effects on Airfoil Separation Control and Optimizations of Plasma Actuator

محل انتشار:

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خلاصه مقاله:

Among All Active flow control methods, EHD, MHD and EMHD are the only methods which operate on the basis of body force induction on flow field. The EHD plasma actuator is the proper method which has been used in various separation control applications recently. In this paper, we have studied the effects of different body forces which acting on different domain of flow field for separation control on NACA 0021. The airflow velocity was 35 m/s at a post-stall angle of attack of 23 degree. The governing equations were 2-D steady Reynolds averaged Navier-Stokes (RANS) equations for incompressible flow. Three different domains have been used as body force field acting domains. The body forces were different in strength and direction. By the simulation, it has been found that which body force field in its acting domain has given the best result in controlling of separation flow. These results have been used to optimize the electric field by manipulating the electrodes configuration.

کلمات کلیدی:

EHD, Plasma Actuator, MHD, Body Force, Separation Control

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