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ANALYSIS OF BOUNDARY LAYER SUPPRESSION IN UNSYMMETRICAL AIRFOIL USING PIEZO
ELECTRIC EFFECT

Abstract

Abstract: - The boundary layer is suppressed by using the piezo-electric material in the NACA 2421 unsymmetrical airfoil. Due to the suppression of the boundary layer the lift is increased and the drag reduced. The performance of the aircraft is increased. Boundary layer is suppressed mainly by the vibration of the piezo-electric material. The smoke-wire technique is a method of introducing smoke lines in flow. The suppression of the flow separation increase the performance of the aircraft i.e.,increase in specific impulse and smooth maneuvering is achieved. In this study, control of flow over an unsymmetrical NACA 2421 airfoil which experiences a flow separation at a subsonic flow of 0.5 and at a low Reynolds number will be investigated using piezo- electric effect in a low speed wind tunnel.