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**The Effect of Amplitude of Traveling Wave Actuations on Flow Control over an Airfoil** UCHENNA OGUNKA, AMIR AKBARZADEH, IMAN BORAZJANI, Texas AM University, College Station, ANTHONY OLIVETT, AMIN KARAMI, University at Buffalo, SUNY — This study numerically investigates the effect of amplitude of surface morphing over the suction side of an airfoil on flow control. A NACA-0018 airfoil at an angle of attack 15 degrees, with a low Reynolds number ( $Re=50,000$ ), is simulated using large eddy simulations (LES) curvilinear immersed boundary method (CURVIB). The numerical simulations are performed for low amplitude backward traveling waves with the focus on both a low varying amplitude starting from the leading edge and a low constant amplitude. In addition, an investigation of how the location of the oscillations of the backward traveling wave on the suction side of the airfoil could influence its aerodynamic performance is carried out. This work is supported by National Science Foundation (NSF) grant CBET 1905355, and the computational resources are provided by High Performance Computing (HPRC) group at Texas A&M University.

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