Computational Analysis of Adaptable Winglets for Improved Morphing Aircraft Performance

Authors : Erdogan Kaygan, Alvin Gatto

Abstract : An investigation of adaptable winglets for enhancing morphing aircraft performance is described in this paper. The concepts investigated consist of various winglet configurations fundamentally centered on a baseline swept wing. The impetus for the work was to identify and optimize winglets to enhance the aerodynamic efficiency of a morphing aircraft. All computations were performed with Athena Vortex Lattice modelling with varying degrees of twist and cant angle considered. The results from this work indicate that if adaptable winglets were employed on aircraft's improvements in aircraft performance could be achieved.