

## AIRCRAFT PERFORMANCE IMPROVEMENTS BY USING NEW CONCEPT OF ADAPTIVE WING

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**Abstract:** The paper is presenting a new design concept for the adaptive wing structural frame. Latest concepts imply the use of piezoelectric material to create deformations of the structures, limited by the reduced strength of the structure. The new proposed concept joins the advantages of piezoelectric materials with the advantages gained by using a rigid deformable mechanical structure for the wing. Even that the new structure is heavier and more complicated than the classic structure, the performances of the aircraft in flight will increase, resulting a reduction of fuel consumption and costs. The higher performances are based on the active deformation of the structure in order to obtain optimum profiles and geometry of the wing.

**Key words:** adaptive wing, aircraft performances, wing structure.