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Modeling and Optimization for Morphing Wing Concept Generation II: Part 1, Morphing Wing Modeling and Structural Sizing Techniques

By -

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 48 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. This report documents a series of investigations to develop an approach for structural sizing of various morphing wing concepts. For the purposes of this report, a morphing wing is one whose planform can make significant shape changes in flight - increasing wing area by 50 or more from the lowest possible area, changing sweep 30 or more, and/or increasing aspect ratio by as much as 200 from the lowest possible value. These significant changes in geometry mean that the underlying load-bearing structure changes geometry. While most finite element analysis packages provide some sort of structural optimization capability, these codes are not amenable to making significant changes in the stiffness matrix to reflect the large morphing wing planform changes. The investigations presented here use a finite element code capable of aeroelastic analysis in three different optimization approaches - a simultaneous analysis approach, a sequential approach, and an aggregate approach. This item ships from La Vergne, TN. Paperback.



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