



Linflux-Ae: A Turbomachinery Aeroelastic Code Based on a 3-D Linearized Euler Solver

By -

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 46 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. This report describes the development and validation of LINFLUX-AE, a turbomachinery aeroelastic code based on the linearized unsteady 3-D Euler solver, LINFLUX. A helical fan with flat plate geometry is selected as the test case for numerical validation. The steady solution required by LINFLUX is obtained from the nonlinear EulerNavier Stokes solver TURBO-AE. The report briefly describes the salient features of LINFLUX and the details of the aeroelastic extension. The aeroelastic formulation is based on a modal approach. An eigenvalue formulation is used for flutter analysis. The unsteady aerodynamic forces required for flutter are obtained by running LINFLUX for each mode, interblade phase angle and frequency of interest. The unsteady aerodynamic forces for forced response analysis are obtained from LINFLUX for the prescribed excitation, interblade phase angle, and frequency. The forced response amplitude is calculated from the modal summation of the generalized displacements. The unsteady pressures, work done per cycle, eigenvalues and forced response amplitudes obtained from LINFLUX are compared with those obtained from LINSUB, TURBO-AE, ASTROP2, and ANSYS. This item ships from La Vergne, TN. Paperback.



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