Linear and Nonlinear Dynamic Analysis of Redundant Load Path Bearingless Rotor Systems (Paperback)

By National Aeronautics and Space Adm Nasa

Independently Published, United States, 2018. Paperback. Condition: New. Language: English. Brand new Book. The goal of this research is to develop the transfer matrix method to treat nonlinear autonomous boundary value problems with multiple branches. The application is the complete nonlinear aeroelastic analysis of multiple-branched rotor blades. Once the development is complete, it can be incorporated into the existing transfer matrix analyses. There are several difficulties to be overcome in reaching this objective. The conventional transfer matrix method is limited in that it is applicable only to linear branch chain-like structures, but consideration of multiple branch modeling is important for bearingless rotors. Also, hingeless and bearingless rotor blade dynamic characteristics (particularly their aeroelasticity problems) are inherently nonlinear. The nonlinear equations of motion and the multiple-branched boundary value problem are treated together using a direct transfer matrix method. First, the formulation is applied to a nonlinear single-branch blade to validate the nonlinear portion of the formulation. The nonlinear system of equations is iteratively solved using a form of Newton-Raphson iteration scheme developed for differential equations of continuous systems. The formulation is then applied to determine the nonlinear steady state trim and aeroelastic stability of a rotor blade in hover with two...

READ ONLINE
[8.26 MB]

Reviews

This ebook can be worthy of a read, and much better than other. I have read and i am certain that i am going to planning to go through again once again in the future. You may like just how the writer compose this book.
-- Mr. Grant Stanton PhD

A whole new eBook with an all new standpoint. It is actually rally fascinating throgh reading through time period. You wont truly feel monotony at anytime of your own time (that's what catalogues are for relating to when you request me).
-- Claire Bartell

DMCA Notice | Terms