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Title:

Nonlinear on-board rotordynamics

Abstract:

Unperfect balancing, pedestal motion, rotor-stator interaction, multi-field physics coupling, are capable of triggering nonlinear phenomena that can threaten the integrity of rotating machines. It is therefore essential to predict their nonlinear dynamic behavior in order to be able to avoid the occurrence of such phenomena. The presentation focuses on theoretical and experimental investigations for establishing Finite Element models as reliable as possible. A particular attention is paid on a 6-DOF shaker, unique in the French university, which permits carrying out the tests. The illustrations address several industrial applications dealing mainly with on-board rotors subject to multi-excitations.

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