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## Nonlinear Simulation of Defected Rotor-Bearing Systems

By Athanasios Chasalevris

LAP Lambert Acad. Publ. Jun 2011, 2011. Taschenbuch. Book Condition: Neu. 220x150x18 mm. This item is printed on demand - Print on Demand Neuware - The current work focuses into two main directions of rotor dynamics object: the simulation of a rotor-bearing system and the detection of defects that are commonly appeared in rotating systems. The transverse breathing crack in a rotor and the radially extended wear in a bearing are the defects presented in the simulations. The persuasion is initially to make a proposal in rotor-bearing system nonlinear simulation and secondly to suggest methods able to detect the transverse breathing rotor crack and the bearing wear. Time-frequency analysis is performed using continuous wavelet transform in numerical and experimental time histories in order to extract the variable coupling phenomenon exclusively due to the breathing crack from the other two main reasons of coupling, the bearings and the shaft. The main speculations are that both defects have to be detected in an early growth and without the demand of interrupting the operation of the system since this cannot be always feasible in real rotating machinery. The growths of the defects have to be at least of 10% of rotor radius for the crack, and 20% of bearing radial clearance for bearing wear. 300 pp. Englisch.



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