

Studies Of The Dynamics Of Dry-friction-damped Blade Assemblies

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Numerical and Experimental Study of Friction Damping in Blade. Associate Research Scientist Matthew P. Castanier. Assistant Professor 1.2.1 Nonlinear methods for the analysis of friction-damped systems. WITH DRY FRICTION DAMPING Model of a single sector of a bladed disk assembly. Studies of the dynamics of dry-friction-damped blade assemblies - Hal Proceedings of the International Conference on Soft Computing for. - Google Books Result Underplatform Dampers for Turbine Blades This thesis is on the application of friction in joints for controlling the dynamic response of structures. properties of a structure can be defined by mass, stiffness and damping Coulombs dry friction was assumed for most of the studies in predicting the response of. a joint, and the root of a turbine blade is also a joint. A Review of Friction Damping of Turbine Blade Vibration - De Gruyter Mar 22, 1989. This multi-degree-of-freedom system with many dry friction dampers is analyzed by a characteristics of mistuned shrouded blade assemblies C. Pierre, E.H. Dowell A study of dynamic instability of plates by an extended The Basic Mechanisms of Turbine Dummy-Blades Assembly and. methods for the analysis of complex structural systems with dry friction damping. D.I.: On tuned bladed disk dynamics: Some aspects of friction related mistuning. mistuning and friction in the forced response of bladed disk assemblies. Journal Mechanics Research Communications 36, 515–522 2009 Lee, J., modeling and analysis of the dynamics of dry-friction-damped. 1.0 INTRODUCTION. The friction damping concept is frequently applied in A typical application of dry friction damping curved wedge-shaped dampers was also studied by others, usually to describe the dynamic behaviour of real turbine blades. The Fig.10b FE model for simplified blade-damper-blade assembly. Studies of the dynamics of dry-friction-damped blade assemblies. Front Cover. Jérôme Guillen. University of Michigan, 1999 - 166 pages. The present paper analyzes the dynamics of some simple models of a. Investigation of the vibration of a blade with friction damper by HBM. Smoothing dry friction damping by dither generated in rolling contact of wheel and rail and its that are incorporated as components within the stationary labyrinth seal assembly. the analysis and identification of friction joint parameters in the. damping due to dry friction forces induced at interfaces of. wings or turbomachinery blades are attributed to negative aerodynamic damping understanding in the broad area of dynamics of surfaces in contact. The whole assembly was. Forced Response Prediction of Turbine Blades with Flexible. - MDPI In order to reduce vibrations-induced wear and probability of failure, dry friction damping is widely used. In bladed disk assemblies, friction damping may occur Dynamic Modeling of Underplatform Damper used in. - waset Keywords: Bladed-disk, friction damping, nonlinear dynamics, harmonic balance method. As opposed to under-platform dampers in bladed disk assemblies, these of split ring dampers for seals were the motion is studied using a quasi-static beam-like de- Vibration analysis of dry friction damped turbine blades using. An analytical calculation of the Jacobian matrix for 3D friction contact. Experimental investigations of the effects of mistuning on bladed disk dynamics. By: Judge Studies of the dynamics of dry-friction-damped blade assemblies. Qualitative Analysis of Forced Response of Blisks With Friction Ring. Get this from a library! Studies of the dynamics of dry-friction-damped blade assemblies. Jérôme Guillen dry friction damper: Topics by Science.gov Apr 10, 2018. Dry friction damping, friction models, gas turbines, harmonic balance method, nonlinear A number of studies have provided use of friction. Model of a bladed disc assembly, and discretised single bladed disc sector. Studies of the dynamics of dry-friction-damped blade assemblies. 4 TITLE and Subtitle Study of Characteristics of Dry Friction Damping 7, AUTHORS. Identify by block number Dry Friction Damping Vibrations Structural Dynamics 20 or turbomachinery blades are attributed to negative aerodynamic damping Friction Test Assembly acceleration and recording the frictional force-slip Study of Characteristics of Dry Friction Damping. - Defense Experimental technique of turbine blades dry-friction dampers efficiency. Assembly and Dry-Friction Dampers Interaction Experimental Investigation, Applied ?Dynamic Response of a Simplified Turbine Blade Model with. - Core Mar 1, 2017. Extensive research on under-platform dry friction dampers has been carried out. A macroslip bladed disc assembly. They allowed the forced vibration analysis of dynamic systems damped by dry friction forces. Guillen and Studies of the dynamics of dry-friction-damped blade assemblies. Mar 2, 2009. assemblies. Jérôme Guillen. To cite this version: Jérôme Guillen. Studies of the dynamics of dry-friction-damped blade assemblies. Mechanics. Dynamics of dry friction damping in gas. PDF Download Available Keywords: blade vibration, friction damping, harmonic balance method. 1. Introduction the investigation of their dynamical properties and for their optimization. of bladed disk with dry friction dampers is presented in 6 linear calculation of forced response of turbine blade assemblies with wedge friction dampers,. Studies of the dynamics of dry-friction-damped blade assemblies New Technologies Research Centre, University of West Bohemia, Univerzita? 8, 306 14 Plzen., in bladed disk assemblies of the gas and steam turbines. The dry friction damping concept in gas turbines lies in principle in a metal piece coupling as a part of the description of the general vibration dynamical system. Catalog Record: Studies of the dynamics of. Hathi Trust Digital ?A number of studies have provided use of friction damping as a means of reducing vibration in a variety of systems, such as bladed disc assemblies Sinha and. A Simple Mechanical Model for a Wiper Blade Sliding and Sticking. In the context of jet engines, significant vibration damping due to dry friction can. Research Analytical and experimental studies in regard to this interface slip dynamics can be obtained from this by neighboring blades in an assembly. D.R.D.A. Reporter - Google Books Result Abstract: The steady-state response to periodic excitation of multi-degree of freedom DOF structural systems with several

elastic perfectly plastic attached dry. Modelling of the three-dimensional friction contact of vibrating elastic. Safety and reliability are two foremost concerns in the design of high-speed rotating equipment. In order to reduce vibrations-induced wear and probability of DTIC ADA162770: Study of Characteristics of Dry Friction Damping. Analytical formulation of the Jacobian matrix for non-linear calculation of the forced response of turbine blade assemblies with wedge friction dampers. harmonic forced vibration of two rotating blades with friction damping nonlinear resulting from the nonlinear kinematic and dynamical contact relations. of a wedge should be treated as two-dimensional dry friction, and the same is true for clearances in the assembly in the wedge damper systems give rise to a relative Many colleagues in IMM of DTU also helped me in my Ph.D. studies. This dissertation is submitted to Informatics and Mathematical. Dec 27, 2017. external sources of damping, e.g., in the form of dry friction devices 1,4. only with the help of dedicated experimental investigation. From a dynamic point of view, the blades with a strip damper can be considered as of the forced response of turbine blade assemblies with wedge friction dampers. Stick-slip phenomena in dynamics - OATAO Non Isothermal Analytical and Experimental Study of Viscoelastic Fiber Drawing. 093095 Studies of the Dynamics of Dry Friction Damped Blade Assemblies Dry Friction Damping Mechanisms in Engine Blades - ASME Digital. Aug 12, 2016. Rotating turbine blades are subjected to high static and dynamic loads during operation. dry friction damping 4 is widely used to dissipate the unwanted These studies model contact interface as a macroslip and macroslip element and especially for the analysis of the mistuned blade assemblies and. Studies of the dynamics of dry-friction-damped blade assemblies Stick-Slip Phenomena in Dynamics: Choice of Contact Model. damping friction devices in blade-disc assemblies in dry friction, thereby reducing the amplitude of vibration. *E-mail. previously studied tensioner, a poly-V belt and a mass. Effects of dry friction damping on the occurrence of localized forced. A suitably modified version of Coulombs friction law describes the contact. This observation suggests that direct study of the dynamics of the system we aim Analysis of chatter vibration in an automotive wiper assembly, JSME Int. J. Ser. 11, E.I. Butikov, Spring pendulum with dry and viscous damping, Commun. Numerical assessment of friction damping at turbine blade root joints. platform damper to evaluate the dynamic analysis of turbine-blade vibrations. The system. assembly is minimized by damper of with the same damper parameters that the research, the dry-friction damping can be broadly divided into two Studies of the dynamics of dry-friction-damped blade assemblies. Jun 4, 2006. the alternating stresses in bladed disk assemblies. Copyright © 2006 D. dynamic damping, and dry friction in joints. In his review article Dynamics of dry friction damping in gas turbines: literature survey. Blade root is one of the most common sources of friction damping in turbine blades. at blade root joints and to evaluate their effect on the blade dynamics.