Contents

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EDITORIAL

ARTICLES

Mufflers in Rapid Gas Flow

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The paper presents the problems concerning passive reactive mufflers in rapid gas flow. These mufflers are mounted on the exhaust pipe of engines, boilers, fans etc reducing the radiated in atmosphere noise. In the paper is presented the calculus of the attenuation produced by muffler considering the Mach number, the ratio between flow speed versus sound speed. The method of transfere matrices is utilized, and the attenuation is calculated by transmission loss criterion (TL). The results of the calculus are presented by diagrams of TL versus frequency.

New Techniques Used for Structural Life Time Estimation Using Probabilistic Techniques

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Modern structures are pushed to their limits especially in high competition industries such as aeronautics, nuclear energy, military applications. The consequence is that the safety margins are reduced for classical materials. Also new materials are used for which fatigue behavior is less studied. Statistical methods for structural life estimation are based on some experimental and numerical data concerning the stress intensity at particular locations in the structure, which are more likely to fail. In this sense is oriented this paper, emphasizing the importance of early detection of cracks by ultrasonic means. In some cases the simple presence of cracks is not a sufficient reason to stop normal use of the structure. Once detected and characterized, these cracks can serve as input for statistical life time calculations for the investigated structure and only after this stage a decision can be made.

The Exact Analitical Solutions for Problems Concerning Free Vibrations of the Elastic Systems

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The work presents some method in order to solve differential equations of the linear or non-linear vibrations. The solutions result on analytical way only and have an exactly form. These solutions can be used later for the exactly research of the dynamics of he mechanical systems.

Aspects Regarding the Inertial Vibrating Screen's Running Kinematics

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This paper is analyzing the inertial vibrating screen's kinematic behaviour, determining, in a theoretical way, this outfit's working parameters, as well as the trajectory's shape described during its running.
The real behaviour of this vibrating screen kind is analyzed „in situ" on a 7,5 m^2 inclined inertial vibrating screen having two sieves. The tests done, experimentally confirmed the theoretical results previous presented and, further more, the movable frame's elliptical trajectory fitting with the theoretical one. The measured parameters „in situ" were processed on computer using a specialized soft.

Dynamical Analysis of the Technological Equipment Foundation which Work with Shocks and Vibrations on Nonlinear Rigidity of the Viscous-Elastic Elements Hypothesis

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This paper presents a dynamical analyze on the foundation of machine when are apply stresses such the beat (percussion) in nonlinear behavior of the viscous-elastic elements hypothesis. In this way can be evaluate (more realistic) the influence of this particularities on the dynamical behavior of the technological equipment foundation.

About Kinematic Excitation Induced of the Dislevelments Bed Bearer to the Wheel of Self-Propelled Equipments

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Is caused the kinematic answer of bed bearer about the equipment of the in on the move modeled as a mechanic system with a freedom degree. The excitation kinematics considered harmonica formally produces to the organ axle of run a resistant moment characterized of a amplification factor what can touch very big values. The work analysis the way in which an kinematics excitation influences a dynamic behavior of draft of a system self - propelled equipment.

Acoustic Wave's Diffraction in Case of Sound-absorbent and Sound Insulating Shields

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The equivalent source method is a relatively new numerical method in acoustics and in this paper is used for the calculus of the sound diffracted by the upper edge of a sound barrier. The basic idea of the method is to replace the vibrating structure by a distribution of simple source located within the envelope of the structure. Starting from prescribed boundary conditions, the main calculus problem of the equivalent source method is represented by the numerical instabilities that are translated through a bad conditioning of the used matrix in evaluating the interior sources strengths. The numerical solution of the problem applies to regularization techniques like singular value decomposition (SVD), Tichonov method or method of conjugate gradients (LSQR). The applicability of the equivalent source method to a barrier problem is demonstrated for a rectangular geometry and for rigid boundary conditions. Compared to the boundary element method which remains probably the most used technique for sound field computation, the equivalent source method offers some advantages because it does not suffer from the problems of singularities or uniqueness.

Some Aspects Concerning the Wheel Flat/Rail Interaction

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The flat is a fault of the rolling surface of the railway wheel, which occurs when the wheel is blocked during braking process. When a wheel having a flat fault is rolling on the rail, a periodic impact force occurs, which is soliciting the rail and generates impact noise. The present work studies the interaction between a wheel having this particular fault and the rail, using a model in which the rail is considered to be a continuous supported beam on two elastic layers. The wheel is taken as a simple mass driven by the stationary load. The Green's functions method is applied in order to solve the equations of motion. The influences of the speed, flat geometry and wheel mass upon the maximal impact force are studied.