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Structure Monitoring and Evaluation using Vibro-acoustic Method Supported by the Wigner-Ville Distribution

Florin Constantin BERINDE,

Universitatea "Eftimie Murgu" din Reșița,

P-ta Traian Vuia 1-4, 320085 Reșița, f.berinde@uem.ro

Gilbert-Rainer GILLICH,

Universitatea "Eftimie Murgu" din Reșița,

P-ta Traian Vuia 1-4, 320085 Reșița, raini@uem.ro

Cristian Paul CHIONCEL

Universitatea "Eftimie Murgu" din Reșița,

P-ta Traian Vuia 1-4, 320085 Reșița, c.chioncel@uem.ro

Monitoring of vibrations produced by industrial sources aims on one side to have information about the source's behavior, and to identify changes in physical properties of the possible damaged structures, such as loss of stiffness, on the other side. Tools for evaluation of signals are numerous. The Fourier Transform is often used because it contains information regarding frequency content, but it can not resolve the exact start of changes for this frequencies. Spectrograms are better able to resolve temporal evolution of frequency content. An accurate analysis allow time-frequency transformations like the Wigner-Ville Distribution, which permit instantaneous frequency estimation at each data point, for temporal resolution of fractions of a second. The authors have developed a program in the SCILAB environment, able to identify dangerous frequencies for industrial vibration sources and changes in exposed building structures as well.

The Parameters of Dynamic Behavior of the Box of the Sieves to Machine of Sorted Self-Propelled KT 45/18/13

Gavril AXINTI

Universitatea " Dunarea de Jos " Galati, Facultatea de Inginerie Braila,

Calea Calarasilor nr.29; gaxinti@ugal.ro

Adrian Sorin AXINTI

Universitatea " Dunarea de Jos " Galati, Facultatea de Inginerie Braila,

Calea Calarasilor nr.29; axinti@ugal.ro

In his work studied machine of sorted self-propelled KT 45/18/13. This is a made in product brand name Romania S. C. RALLY-BM. Com. Srl and is used-up for the assortment through material vibrations of grain miscellaneous (in the gravel chief and residues of marmora) achieved the theoretical study of the dynamics of the box of the sieve, establishing the dynamic features ale this motion the and in chief the localization of the resonance phenomenon.

Method for the Study of the Influence of Complex Axial Forces upon the Structural Vibrations

Valentin CEAUȘU

*Department of Mechanics, University "Politehnica" of Bucharest
ceausu@cat.mec.pub.ro*

Nicolae ENESCU

*Department of Mechanics, University "Politehnica" of Bucharest
enescu.nae@cat.mec.pub.ro, nae_enscu@yahoo.com*

Andrei CRAIFALEANU

*Department of Mechanics, University "Politehnica" of Bucharest
craifaleanu@cat.mec.pub.ro, ycrai@yahoo.com*

Cristian DRAGOMIRESCU

*Department of Mechanics, University "Politehnica" of Bucharest
dragom@cat.mec.pub.ro, cristian_dragomirescu@yahoo.com*

The paper analyses the vibrations of systems acted upon by complex axial forces. The transfer matrix method is used for different cases of axial force loading, of a constant or variable cross-section beam.

On the Carbon Nanotubes Dynamics

Petre P. TEODORESCU

*University of Bucharest, Str. Academiei, nr. 14, Bucharest,
e-mail: petre_teodorescu@hotmail.com*

Veturia CHIROIU

*Institute of Solid Mechanics, Romanian Academy, Str. Ctin Mille, nr. 15,
Bucharest 010141, e-mail: veturiachiroiu@yahoo.com*

Dan DUMITRIU

*Institute of Solid Mechanics, Romanian Academy, Str. Ctin Mille, nr. 15,
Bucharest 010141, e-mail: dumitri04@yahoo.com*

Călin CHIROIU

*UniTeam, Cso Massimo d'Azeglio 112, Torino 10141,
e-mail: calinchiroiu@yahoo.com*

A nonlocal beam model within the framework of single wall carbon nanotubes dynamics is investigated. The paper discusses the bridging length scales from continuum theory, which does not admit the size dependence in elastic solutions, to the nanolength scales, where the size effect is relevant. An application to carbon nanotubes bending is illustrated. The scale effect is clearly observed on the vibration modes of carbon nanotubes.

The Experimental Study of Sound Transmission Through an Industrial Hall

Mihai TOADER

*Polytechnic University of Timișoara, Department of Mechanics and Vibration,
1 Bd.M.Viteazu, 300222 Timișoara, Romania,
toader@mec.utt.ro*

Vasile BACRIA

*Polytechnic University of Timișoara, Department of Mechanics and Vibration,
1 Bd.M.Viteazu, 300222 Timișoara, Romania,
bacria@mec.utt.ro*

Cristina BASARABĂ-OPRIȚESCU

*Polytechnic University of Timișoara, Department of Mechanics and Vibration,
1 Bd.M.Viteazu, 300222 Timișoara*

For short: In the industrial environment various installations function, aggregates or equipments differenced by a high level of noise and a complex spectrum. The noise generated by these has noxious effects over the activity and health of the workers. In the work are investigated the sources of noise from an industrial hall, the levels of sound characteristic to these, the harmful effects, allowable limits, the way of propagation and the results of the experimental measurements and the display of cut-off methods will be presented.

On the Model of the Mechanical Wave and Oscillations Produced Through Shock

Gheorghe OPROESCU

*Facultatea de Inginerie din Braila
Calea Calarasilor Nr. 29, 810017 Braila
e-mail: oproescu.gheorghe@ugal.ro*

Ghiorghe CAUTES

*Facultatea de Inginerie din Braila
Calea Calarasilor Nr. 29, 810017 Braila
e-mail: cautes.ghiorghe@ugal.ro*

The work presents the model of the mechanical wave and oscillations produced through a very short mechanical impact between two bodies, respectively through shock. All real bodies have an elastically behaviour and for this reason the mechanical impact has a finite length, sure not zero, dependent from the elastically properties of the bodies. The shock is mostly characterised as a phenomenon their length trends to zero and the impact forces have an infinite or a very great value. Our model shows that the elastically properties of the bodies, respectively their movement before the impact determine the length of the impact, the aspect and the values of the forces on the during of the impact and, finally, the form of the wave through the bodies.

A Nonlinear Wave Propagation Model

Ovidiu VASILE

*University POLITEHNICA of Bucharest, Department of Mechanics
Splaiul Independenței, nr. 313, Bucharest, Romania, vasile@cat.mec.pub.ro*

Mihai BUGARU

*University POLITEHNICA of Bucharest, Department of Mechanics
Splaiul Independenței, nr. 313, Bucharest, Romania, bugarum@yahoo.com*

The extended mild slope equation has been solved numerically to simulate wave propagation. Refraction, diffraction, shoaling, reflection, bottom friction, breaking energy dissipation and resonance with nonlinear wave celerity and group velocity have been considered. Mac Cormack Method and Point Gauss Seidel Method are applied together on an irregular mesh. In the predictor step, forward finite difference approximations are applied to first order derivatives and central finite difference approximations are applied to second order derivatives. In the corrector step, backward finite difference approximations are used for first order derivatives and central finite difference approximations are applied to second order derivatives. The developed numerical model has been applied to the Fethiye Bay located in the Mediterranean coast of Turkey.

Dynamical Analysis of the Technological Equipment Foundation Which Work With Shocks And Vibrations

Adrian LEOPA

Universitatea “Dunarea de Jos” din Galati

Calea Calarasilor nr. 29, Braila, leopa.adrian@ugal.ro

This paper presents a dynamical analyze on the foundation of machine when are apply stresses such the beat (percussion). In this way can be evaluate dynamical response of the structure, in our case foundation of machines, as in time both in frequency.

The Equivalent Source Method To Compute The Interior Sound Field

Constantin ONESCU

University of Pitești, Targu din Vale street, no.1, code zip 110040, Pitești

Viorel BROASCĂ

ICECON Bucharest, Pantelimon street, no.226, Bucharest

The equation of the equivalent sources method with mixed boundary condition is presented. The acoustic impedance is used in this case to estimate an interior sound field. Several positioning scheme to compute the interior radiated field for a simple radiator are presented.