

**ROMANIAN ACADEMY**  
**Department of Technical Sciences**

**ACADEMY OF TECHNICAL SCIENCES**

**COMMISSION OF ACOUSTICS  
OF ROMANIAN ACADEMY**



**THE ANNUAL SYMPOSIUM  
OF THE INSTITUTE OF SOLID MECHANICS  
SISOM 2012  
and  
SESSION OF THE COMMISSION OF ACOUSTICS**

**Bucharest, May 30-31, 2012**

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## *Session 1 – System dynamics and continuum mechanics*

- (1D) Polidor BRATU,  
*Duality of uncertainty-instability for dynamic systems functioning in resonance*
- (2D) Polidor BRATU, Ovidiu VASILE  
*Analysis of systemic compatibility of equipment with inertial vibrators powered by electric motors*
- (3D) Polidor BRATU, Carmen DEBELEAC, Ovidiu VASILE  
*Rheological models for dynamic systems of second order specific for compaction processes of road structures.*
- (4D) Marcel MIGDALOVICI  
*On the representation of null measure sets with applications*
- (5D) Nicolae CONSTANTIN, Ștefan SOROHAN, Marin SANDU  
*Evaluation of the mechanical behaviour of patch repaired Al panels under lateral pressure loading*
- (6D) Daniela BARAN, Nicolae APOSTOLESCU  
*Lyapunov exponents for dynamical systems modeling mechanical structures*
- (7D) Ion BULAC, Nicolae PANDREA  
*Vibrations of the tricardanic transmissions with elastic supports*
- (8D) Dan Alexandru IORDACHE, Viorica IORDACHE  
*Basic elements of a physical theory of information concerning the complex systems. Universe vs. multiverse*

- (9D) Ion APOSTOL, Dan Alexandru IORDACHE  
*Study of Vliegenthart's stability condition of the FD schemes simulating the KDV solitons propagation*
- (10D) Raluca Augusta GABOR, Alina Georgiana ILIE, Olguta CURCAN, Cristian Andi NICOLAE,  
Mona MIHAILESCU  
*Thermo-mechanical investigations of polymeric material used for holographic printing*
- (11D) Petre STAN, Marinică STAN  
*A spectral method for estimation of non-linear random vibration from measured response*
- (12D) Marinică STAN, Petre STAN  
*Modelling and estimation of differential equation in non-linear random excitations of the duffing oscillator*
- (13D) Fanel SCHEAUA, Florin NEDELCUT,  
*Hybrid system device for seismic isolation of structures*
- (14D) Felicia DRAGU, Amalia ȚÎRDEA, Cristina OPRÎȚESCU, Mihai Ilie TOADER  
*Perturbations of the structures due to inertial forces*
- (15D) Felicia DRAGU, Cristina OPRÎȚESCU, Amalia ȚÎRDEA, Mihai Ilie TOADER  
*Natural modes of vibrations to a complex structure*
- (16D) Dan N. DUMITRIU  
*Simplified PMP formulation for missile trajectory optimization*

- (17D) Viorel SERBAN, Madalina Angela ZAMFIR, George Alexandru CIOCAN, Marian ANDRONE, Laura Elena SERBAN, Liviu Dan POSTOLACHE, Viorela Maria POSTOLACHE  
*Efficient conversion of wave energy into electricity*
- (18D) Viorel SERBAN, Madalina Angela ZAMFIR, George Alexandru CIOCAN, Marian ANDRONE, Laura Elena SERBAN, Liviu Dan POSTOLACHE, Viorela Maria POSTOLACHE  
*New solutions for converting wind energy into electricity*
- (19D) Viorel SERBAN, Marian ANDRONE, Madalina Angela ZAMFIR, George Alexandru CIOCAN, Tudor SIRETEANU, Ana Maria MITU, Viorela Maria POSTOLACHE  
*Seismic qualification of electrical and I&C cabinets*
- (20D) Viorel SERBAN, Madalina Angela ZAMFIR, George Alexandru CIOCAN, Marian ANDRONE, Laura Elena SERBAN, Liviu Dan POSTOLACHE, Viorela Maria POSTOLACHE  
*Solar-wind micro power plant with possibilities to store power and to follow up the load curve*
- (21D) Camil CRACIUN, Ana-Maria MITU, Cătălin CRUCEANU, Tudor SIRETEANU  
*Modeling the buffers hysteretic behavior for evaluation of longitudinal dynamic in train forces*
- (22D) Eugen CORDUNEANU  
*Determination for the equivalent damping constant of a system of elastic springs*
- (23D) Nicolae POP, Constantin GHITA,  
*Numerical Solving of the Variational Inequalities in Elasticity with Frictional Contact*
- (24D) Gheorghe MORARU,  
*The integral equations for thin inclusions in a shallow spherical shell*

- (25D) Silviu NASTAC, Aurora POTIRNICHE, Adrian LEOPA  
*Unified Approach of Basic Visco-Elastic Rheological Models*
- (26D) Silviu NASTAC, Gigel CAPATANA, Carmen DEBELEAC  
*On Rheological Schematization of Working Tool - Ground Interaction for Vibratory Compaction*
- (27D) M. POIENARIU,  
*On the hysteretic features of the Euler-Bernoulli beams with auxetic patches*
- (28D) M. GEORGESCU,  
*On the effect of shape on the wind-induced vibrations*
- (29D) D. BALDOVIN, S. BALDOVIN,  
*The lateral stability of a Bogie with independently rotating wheelsets*
- (30D) Gabriela MINDU,  
*The concept of performance for special purpose buildings, isolated by elastomeric links from externally induced vibration*
- (32D) H. PAVEN,  
*Basic sequences of dynamic dissipative quantities in case of linear viscoelastic behavior of polymer-like materials. I. Isothermal circumstances*

- (33D) H. PAVEN,  
*Basic sequences of dynamic dissipative quantities in case of linear viscoelastic behavior of polymer-like materials. II. Isochronal circumstances*
- (34D) Iuliana OPREA,  
*Surface -atmosphere interaction over complex terrains - with implications to hydrological models and climate changes*
- (35D) Marcel MIGDALOVICI, Daniela BARAN, Gabriela VLADDEANU  
*On the stability of the dynamical systems that depend of parameters*
- (36D) Carmen DEBELEAC  
*External vibrations caused by multiple excitation sources, in the case of technological machines moving on wheels*
- (37D) Eduard-Marius CRACIUN, Adrian RABAEA, Liviu MARSAVINA,  
*Analytical and numerical aspects regarding cracks interaction in elastic composites*
- (38D) Alexandru TRUTA, Mihai CIUNCANU  
*Experimental evaluation of the resonance condition with controlled accuracy on the parametric level*
- (39D) Carmen Anca SAFTA , Mihai SCHIAUA , Valeriu PANAITESCU , Ioan MAGHETI  
*Vibrations induced by flow around a bluff body*



(40D) Cristian DRAGOMIRESCU, Andrei CRAIFALEANU

*Aspects concerning the vibrations of a thermal relay with bimetallic blade*

(41D) Nicolaie ORĂȘANU, Andrei CRAIFALEANU

*Experimental study of the forced vibrations of a system with distributed mass and four concentrated masses*

(42D) Nicolae ENESCU, Mariana SAVU, Craita CARP CIOCARDIA, Cristian BADEA

*Some practical aspects vibrations spectral analysis*

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***Session 2 – Robotics, mechatronics, biomechanics, wear investigations of materials***

- (1R) Florentin SMARANDACHE,  
 *$\alpha$ -Discounting Method for Multi-Criteria Decision Making ( $\alpha$ -D MCDM)*
- (2R) Neli Dimitrova TRIZLOVA,  
*Influence of the wear of the tires, support rollers and the gear of rotary kilns on the work of the equipment*
- (3R) Dimitar RUSEV, Aleksander KIROV, Penka ZLATEVA, Neli TRIZLOVA, Dimitar GENOV,  
*Analysis of the operation of air-water heat pump unit in winter mode*
- (4R) Adriana TAPUS, Cornel BRISAN, Ligia MUNTEANU, Veturia CHIROIU  
*On the Grand Challenges in Robotics*
- (5R) Ionel STAREȚU,  
*Mobile telethesis - analysis, design and simulation*
- (6R) Liliana Laura BADITA, Lucian CAPITANU, Dumitru Catalin BURSUC  
*Thin coatings durability of the femoral heads*
- (7R) Anastase PRUIU , Traian FLOREA , Florian VASILE  
*Considerations on lubrication characteristics of crosshead bearings for marine internal combustion engine*
- (8R) Florian VASILE, Anastase PRUIU, Traian FLOREA  
*Contributions of hydrodynamic lubrication of crankshaft bearings for naval internal combustion engine*

- (9R) Rodica IOAN, Ștefania DONESCU, Valeria MOȘNEGUȚU  
*On the motion of femoral head into the acetabular cup. Part I. The model*
- (10R) Miorita UNGUREANU, Nicolae POP, Nicolae UNGUREANU, Vasile NASUI,  
*Considerations on certain tribological aspects of the brake. Hoisting machines*
- (11R) Doina MARIN  
*Feed drive system – an integral part of a machine control system*
- (12R) Alexandru VLĂDEANU, Gabriela VLĂDEANU  
*The possibilities of the horizontal trajectory realization of the bucket teeth at Tri-Power excavators*
- (13R) Constantin Radu MIRESCU, Lucian CAPITANU  
*Surface topography characterization. A pragmatic approach*
- (14R) Octavian MELINTE, Luige VLADAREANU, Alexandru GAL,  
*The performances of a Haptic device when compensating the dynamic parameters*
- (15R) Stefan DUMITRU, Luige VLADAREANU, Dan BUCUR,  
*Obstacle avoidance intelligent robot control method based on optical flow and neural networks*
- (16R) Ovidiu Ilie ȘANDRU, Luige VLĂDĂREANU, Alexandra ȘANDRU  
*Mathematical perspectives on networked systems control theory*
- (17R) Dănuț BUCUR, Luige VLĂDĂREANU, Ștefan DUMITRU,  
*Inverse kinematics for a 3-DOF planar manipulator using neural networks*

(18R) Alexandru GAL, Octavian MELINTE and Luige VLADAREANU  
*PID sliding motion control by using a fuzzy adjustment*

(19R) Traian FLOREA , Anastase PRUIU , Florian VASILE  
*Considerations on hydrodynamic lubrication characteristics of radial and axial bearings for naval propulsion plants*

(20R) Constantin TIGANESTEANU  
*Experimental measurement of impact force to study the impact wear*

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- (1A) Tudor CULDA, Dumitru STANOMIR, Cristian NEGRESCU, Ioan MAGHETI,  
*Construction and assembly of audio equipment for capturing room acoustic impressions and measuring acoustic parameters*
- (2A) Victor POPA, Tudor CULDA, Cristian NEGRESCU,  
*Software library for managing a complete audio chain intended for determining acoustic room parameters and spatial impression*
- (3A) Ovidiu GRIGORE, Valentin VELICAN,  
*Automated identification methods for audio-verbal disorders*
- (4A) Diana MILITARU, Marilena LAZAR,  
*Using linguistic knowledge to realize a language model*
- (5A) Tiberius ZAHARIA, Svetlana SEGARCEANU, Inge GAVAT,  
*A mixture of DTW and VQ used in speech recognition*
- (6A) Svetlana SEGARCEANU, Tiberius ZAHARIA,  
*Implementing new trends in speaker verification using Gaussian mixtures models*
- (7A) Amelia CIOBANU, Cristian NEGRESCU, Dumitru STANOMIR,  
*Improved harmonic analysis in speech synthesis*

- (8A) L. MUNTEANU, M. A. POPESCU, I. GIRIP, V. CHIROIU,  
*On the control of sound and applications*
- (9A) Ancuța BORLEA (TIUC), Tiberiu RUSU, Ovidiu VASILE, Ana GHEORGHE  
*Soundproofing materials whit recycled rubber particles and sawdust*
- (10A) Veturia CHIROIU, Cristian RUGINĂ, Dan DUMITRIU, Ligia MUNTEANU  
*On the acoustics and friction*
- (11A) C. PACHIU, B. MORVAN, JL IZBICKI,  
*One dimensional phononic crystal containing defect states: analytical and experimental investigation*
- (12A) Ana GHEORGHE,  
*Harmonization of normative criteria with technical requirements of performance for vibro-acoustic processes*
- (13A) Ana Gheorghe, Ancuța BORLEA (TIUC)  
*Evaluation of absorbing performance for composite plates made from recycled waste*
- (14A) Ovidiu VASILE, Nicolae ENESCU  
*Design and analysis of silencers for screw compressors with two-stage*

- (15A) Călin ANDRONE,  
*Evaluation of the vibration as a source of structural-borne noise with impact upon interior comfort of residential buildings*
- (16A) Călin ANDRONE,  
*Dynamic analysis of ventilation-air conditioning systems to reduce vibration and structure-borne noise in buildings*
- (17A) VASILE IGNAT  
*Consideration on signal and noise features from side scan sonar input. Methods to increase signal / noise ratio*
- (18A) Ana PICU  
*An experimental study on HAV and WBV*
- (22A) Liliana CĂINICEANU, Constantin D.STĂNESCU, Tudor BURLAN,  
*Researches on the high power audio speaker vibration*
- (23A) Constantin D.STĂNESCU, Liliana CĂINICEANU, Tudor BURLAN,  
*Simulation and experimental results in manufacturing technology high power audio speaker*
- (24A) Silviu IONESCU, Adina IONESCU  
*Acoustic Intensity Analysis at Natural Gas Compression Station*

(26A) Sorina ILIUTA, Toma ZAPLAIC, Mihai ZAPLAIC  
*A particular situation in noise abatement work in a complex area*

(27A) Mihnea MAGHETI, Luminita VOICULESCU  
*Aplication of SEA method at sound transmission through duble panel*

(28A) Sorina ILIUTA, Toma ZAPLAIC, Mihai ZAPLAIC  
*A solution to improve the environmental quality of the Basarab overpass road*

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#### ***Session 4 – Ultraacoustics***

(1UA) Gheorghe AMZA, Cristian CIOCAN

*Contribution regarding dies working for shoe sole using ultrasonic energy*

(2UA) Zoia APOSTOLESCU, Gheorghe AMZA

*Contribution regarding ultrasonic welding of intelligent composites*

(3UA) Oana CHIVU, Ilie PRISACARIU

*Current research about modelling with finite element method of the ultrasonic motors*

(4UA) Gheorghe AMZA, GARAC Zlatko, Zoia APOSTOLESCU

*Contribution regarding ultrasonic using for the autocomponents recycling*

(5UA) Gheorghe AMZA, Mitache Adrian

*Contribution regarding ultrasonic using in the atmospheric depollution process*

(6UA) Gheorghe AMZA, Maria BRATU, Zoia APOSTOLESCU

*Contribution regarding ultrasonic using in the water depollution process*

(7UA) Gheorghe AMZA, Maria DRAGOMIR GROZA

*Contribution regarding the impact on the environment of the automatic welding under flux with ultrasonic activation*

- (8UA) Mihai ARSENE, Delia GARLEANU, Gabriel GARLEANU, Marinela MARINESCU  
*Pulse application for the Fourier Transform evaluation of the noise emerged from the Black Sea ship*
- (9UA) Ilie PRISACARIU, Oana CHIVU  
*Several applications of ultrasonic piezoelectric motors. Future directions of research*
- (10UA) Oana AMZA, Dan Florin NITOI  
*Finite elements modeling of the working of the radicular channels with endodontic instruments  
ultrasonic activate*
- (11UA) Gheorghe AMZA, Adrian MILICĂ  
*Contribution regarding ultrasonic using in the polychromic printing*
- (12UA) Gheorghe AMZA, Robert BENDIC  
*Contribution regarding ultrasonic using in obtaining intelligent composites used in the building*
- (13UA) Gheorghe AMZA, Calin FLORICA  
*Contribution regarding using ultrasonic non contact inspection of some underground pipes*
- (14UA) Gheorghe AMZA, Gabriel TASCA  
*Contribution regarding using dipping inspection with ultrasounds of some complexes works*

(15UA) Marinela MARINESCU

*Contribution regarding ultrasonic using in obtaining some intelligent composites*

(16UA) Larisa BUTU

*Contribution regarding ultrasonic using in the cleaning process, pickling, degreasing of the endodontics instruments*

(17UA) Oana AMZA

*Contribution regarding ultrasonic using in radicular right channels working*

(18UA) Claudia BORDA, Mihai ARSENE

*Estimation and construction elements of an ultrasonic motor with three degrees of freedom*

(19UA) Gheorghe AMZA, Zoia APOSTOLESCU, Dumitru POPESCU

*Ultrasonds abilities using in the deposition process of the bitum carpet*

(20UA) Gheorghe AMZA , Oana AMZA

*Ultrasonic distress of the radicula channels before obturation*

(21UA) Oana AMZA, Roxana ONEA

*Estimation and construction elements of the endodontics instruments ultrasonic activated*

(22UA) Gheorghe AMZA, Ion CIUCUR

*Recondition through welding deposition in ultrasonic field*

- (23UA) Constantin RADU  
*Estimation and construction elements of an ultrasonic system used in the special materials turning*
- (24UA) Dan Florin NITOI  
*Finite elements modeling of the implant process in ultrasonic field*
- (25UA) Cornelia LUCHIAN, Florea DUMITRACHE, Delia GARLEANU  
*Contributions regarding the ultrasonic working technologies of the compound materials*
- (26UA) Gheorghe AMZA, Mihai ARSENE  
*Ships signature measurement with an hidrophones array*
- (27UA) Gheorghe AMZA, Mihai ARSENE  
*Assement on the noise influence in the marin habitat*
- (28UA) Valeriu BALAN, Iulia GRAUR, George M. BALAN  
*The sonic technology in the beer industry*
- (29UA) Mihai ARSENE, Claudia BORDA, Delicia ARSENE  
*Ambiental subacvatic noise measurement in the Black Sea*
- (30UA) Mihai ARSENE, Delia GARLEANU, Gabriel GARLEANU  
*Marine water conductivity measurement with the CTD instrument*

(31UA) Mihai ARSENE , Victor POPOVICI , Delicia ARSENE  
*Transmission loss measurement in the Black Sea*

(32UA) Grigore Liviu ODOBESCU,  
*A method for characterization of power piezoelectric transducers by utilizing a phasemeter*

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*Resonance frequency of high power ultrasonics systems elements*

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