

ROMANIAN ACADEMY  
Department of Technical Sciences

ACADEMY OF TECHNICAL SCIENCES



The Annual Symposium of the  
Institute of Solid Mechanics

**SISOM 2006**

Bucharest

May 17-19, 2006

**Session 1** 

**Session 2** 

**Organizing Committee** 

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

(1D) A.STROZZI, A.BALDINI, M.GIACOPINI, S. RIVASI, R. ROSI, E. BERTOCCHI

*Initial clearance effects on hoop stresses in conrod small ends*

(2D) Adrian CARABINEANU

*The determination of the reaction force in a certain material poin of a system*

(3D) Dinu BRATOSIN

*Assesment of the necessary period-shift in structural pasive control by using the non-linear magnification functions*

(4D) O. SIMIONESCU-PANAIT

*The coupling of guided plane waves in piezoelectric crystals subject to initial electromechanical fields*

(5D) Liliana GRATIE

*Linear shell models revisited with the stress resultants and the bending moments as the new unknowns*

(6D) Petre P. TEODORESCU, Veturia CHIROIU, Ana Maria MITU

*On the bending and torsion of carbon nanotubes*

(7D) Polidor BRATU

*Rigidity and damping dynamic characteristics in case of composite neoprene systems due to passive vibrations isolation*

(8D) Mihai Valentin PREDOI, Adina NEGREA, Catalin George ION

*Some considerations on the critical angle at the plane boundary between anisotropic media*

(9D) Ștefan SOROHAN, Nicolae CONSTANTIN, Mircea GĂVAN, Viorel ANGHEL

*Numerical extraction of dispersion curves used in Lamb wave inspections*

(10D) Viorel ANGHEL, Ștefan SOROHAN, Nicolae CONSTANTIN

*Finite element investigation of the buckling of composite stiffened panels*

(11D) Nicolae-Doru STĂNESCU, Nicolae PANDREA

*On the stability of the forced damped oscillator with nonlinear cubic stiffness*

- (12D) Silviu MACUTA, Luminita MORARU, Ioan TARAU  
*The use of Taguchi method in designing experimental research*
- (13D) Daniela BARAN, Horia PAUN, Sebastian PETRISOR  
*Fluid-structure interaction, theoretical and practical aspects*
- (14D) Dan DUMITRIU, Daniel BALDOVIN, Tudor SIRETEANU  
*Numerical simulation of the vertical interaction between railway vehicle and track*
- (15D) Mircea FENCHEA  
*Optimization of hammer construction for material crushing*
- (16D) Ioan COSMA, Diana I. POPESCU, I. LUPEA, I.A. COSMA  
*Experimental method for visualization and dynamical model for study of compressional waves and vibration modes*
- (17D) Veturia CHIROIU  
*The damping capacity of the nanostructured materials from carbon nanotubes*

(18D) Gabriel MURARIU, Marina Aura DARIESCU, Ciprian DARIESCU  
*Mass system evaluation for a Cveck space – time case*

(19D) Gabriel MURARIU, Luminita MORARU  
*Evolution equations for a system in a Hoffmann space - time*

(20D) Elena MEREUȚĂ  
*Mechanical structures with geometrical stability – iterative and classical models*

(21D) Angela PETRESCU  
*A possible evaluation of geomaterials damage*

(22D) Ligia MUNTEANU  
*On the evaluation of the Young's modulus for composites based on the auxetic materials*

(23D) Ligia MUNTEANU, Oana MARIN, Valeria MOSNEGUȚU  
*On the nonlinear stick- slip friction. Part II : an example*

(24D) Marcel MIGDALOVICI, Justin ONISORU, Emil M. VIDEA, Al. ALBRECHT  
*Control of vibrations of cables with viscous damping hypothesis*

(25D) AMEDEU ORĂNESCU, ELENA MEREUȚĂ, SILVIA BEJENARU, MĂDĂLINA RUS  
*The determination of the Cauchy simultaneous correspondence points for the structures having supraunitary mobility*

(26D) Carmen TACHE, Laurentiu PREDESCU, Mirela ZAHARIA, Dumitru DUMITRU  
*Numerical evaluation for the time response of a vibrating system*

(27D) Camelia CERBU  
*Water and seawater effects on the members made of e-glass composite materials*

(28D) Silviu NASTAC  
*Computational Dynamics of the POSEID Systems*

(29D) Silviu NASTAC  
*Experimental Dynamics of the POSEID Systems*



(30D) Alexandru VLADÉANU, Gabriela VLADÉANU

*Contributions regarding the monitoring of the concrete preparation process in concrete mixing plants*

(31D) Stefania DONESCU

*Some aspects of the existence of Coulomb vibrations in a composite bar*

(32D) Adrian Ioan NICULESCU

*Specific conditions at stroke-damping force benches, used for self-adjustable shock absorbers.  
Practical solutions for damping chart benches modification*

(33D) Petre STIUCA

*Applications of CEFIT and LISA approaches in propagation of waves along pipelines*

(34D) Grigore-Liviu ODOBESCU, Rareş Alexandru ODOBESCU

*The efficiency analysis in function of working conditions in case of high power ultrasonic systems using piezoelectric transducers which are series compensate*

(35D) Rareş Alexandru ODOBESCU, Grigore-Liviu ODOBESCU

*The experimental study about series compensation schemes in case of high power piezoelectric transducers*

- (36D) Radu Dan RUGESCU  
*Extended Bolza method for discontinuous integrands*
- (37D) Rodica IOAN, Stefan IOAN  
*On the assymetrical strip rolling*
- (38D) Valerica MOSNEGUTU  
*On the friction in planar motions*
- (39D) Vasile MARINA  
*reserved title*
- (40D) Cristian FACIU, Mihaela MIHAILESCU-SULICIU  
*On the dynamics of strings made of shape memory alloys.*
- (41D) Polidor BRATU, Silviu NASTAC  
*Isolation performances of the polygonal shape elastic isolation device*

(42D) Mihai Valentin PREDOI, Cristian PETRE

*A simple model for Lamb waves generation using a piezoelectric wafer transducer*

(43D) Camelia CERBU, Călin ITU

*Analysis of the rigidity in case of the rear plate of a motorboat hull made of e-glass fibres / polymeric resins*

(44D) Ion PREDOIU, Florin FRUNZULICĂ

*Stress field in thin-walled aircraft structures. Experimental research*

(45D) Dan Ioan OLTEAN, Dana Luca MOTOC

*Electric properties assessments of particle reinforced polymer composite materials subjected to constant applied loads*

(46D) Dana Luca MOTOC

*Investigation vs. finite element simulation of particle reinforced polymer composite materials*

(47D) Anton SOLOI, Stefan AMADO

*Analytical study of orthotropic rectangular plate*

- (48D) Cristina POPA, Lucian GEORGESCU  
*Theoretical study of Lamb wave dispersion in aluminum/polymer bilayers*
- (49D) R.C.PICU, Monica.SOARE  
*Characterization of the dislocation core fields using conservation laws in elastostatics*
- (50D) Ion PREDOIU, Marius STOIA-DJESKA, Florin FRUNZULICĂ, Ionel POPESCU, Paul SILIȘTEANU  
*Aeroelastic models and the synthesis of controllers for flutter suppression*
- (51D) Iuliana OPREA  
*Zig-zag chaos - a new spatiotemporal pattern in nonlinear dynamics*
- (52D) Daniel BALDOVIN, Ana-Maria MITU, Tudor SIRETEANU  
*Experimental analyse of shock absorbing properties for playground surfacing*
- (53D) Margarit BAUBEC  
*An uniqueness result in theories of plates with moderate thickness*
- (54D) Justin ONISORU, Aron IAROVICI, Lucian CAPITANU  
*Kinematics and contact in total knee prostheses during routine activities*

(55D) Cornel BALAS, Tudor SIRETEANU

*A study of a semiactive control system using a single parameter.*

(56D) Viorica BOGDANESCU , Cornel BALAS

*Low-frequencies longitudinal vibrations in urban persons transportation*

(57D) Emil VIDEA, Cornel BALAS

*A study of the dynamical behavior of a mechanical structure equipped with a dry friction damper*

(58D) Cristian RUGINA

*The use of adaline neural network in defect identification*

(59D) Gloria COSOVICI, Dan Sorin COMȘA, Dorel BANABIC

*Evaluation of the performances of the different yield criteria by using the deep drawing test*

(60D) Liana PĂRĂIANU, Dorel BANABIC

*Predictive accuracy of different yield criteria*

**Session 1** 

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**Session 2** 

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

(1R) Nicolae POP

*Contact boundary conditions and frictions laws in mathematical modeling of contact problems*

(2R) Cornel BRISAN

*Considerations concerning calibration of parallel reconfigurable robots*

(3R) Calin RUSU, Cornel BRISAN

*Considerations concerning training of the human muscles using robotic methods*

(4R) Ana DONIGA, Silviu MĂCUTĂ, Istrate MILTIADE, Vasilescu ELISABETA

*Cercetari privind influenta parametrilor laminarii asupra proprietatilor benzilor bimetalice*

(5R) Vasile ZAMFIR, Horia Marius VÎRGOLICI

*The transmission angle - a criterion for the approximate synthesis of the function generating four bar mechanism with two cranks*

(6R) Niculae MANAFI

*The analytical method in kinematics of plane mechanisms modeling and animation*

(7R) A. FILIPESCU, Silviu MACUTA

*Robotic manipulators control by adaptive gain smooth sliding observer – controller and parameter identification*

(8R) Luminita MORARU, Silviu MACUTA

*Acoustical degassing of molten aluminium*

(9R) Ionel GHERCĂ, Vasile MERTICARU, Eugen MERTICARU, Dana CIOBANU, Silviu MACUTA

*Mixer with shock wave*

(10R) Radu BĂLAN, Vistrian MĂTIEȘ, Sergiu STAN

*A control approach of a 3-RRR planar parallel minirobot*

(11R) Radu BALAN, Vistrian MATIES, Sergiu STAN, Ciprian LAPUSAN

*Some applications for nonlinear processes of a model predictive control algorithm*

- (12R) Mircea IGNAT, George ZARNESCU, Sebastian SOLTAN, Victor STOICA  
*Electromechanical microdrives for robotics using piezoelectric microactuators and micromotors*
- (13R) Ionel GHERCĂ, Vasile MERTICARU, Eugen MERTICARU, Dana CIOBANU  
*Directions to improve the construction of mixers*
- (14R) George BALAN, Alexandru EPUREANU, Viorel VACARUS  
*The monitoring of a lathe using an artificial neural network – 3<sup>rd</sup> part (the experimental setup)*
- (15R) George. BALAN  
*The monitoring of a lathe using an artificial neural network – 4<sup>th</sup> part  
(experimental results, data processing)*
- (16R) Adrian Catalin DRUMEANU, Ioan TUDOR  
*Experimental determinations concerning the overstrain of the bits bearing sealing “O” rings*
- (17R) Daniela GHELASE, Luiza DASCHIEVICI, Igor GORLACH  
*Considerations and contributions regarding the rigidity of the gearing tooth*



(18R) Silvia BEJENARU

*Restriction of the Lagrange mathematical models for the differential monitored gearings*

(19R) Mădălina RUS

*The movement's computer simulation of a series of gears having fixed axes with an imposed kinematics after a parabolic law*

(20R) Liviu POPA, Diana-Flavia POPA

*Contributions to the optimization of passive rotary dampers*

(21R) Ion NAE, Marius Gabriel PETRESCU

*The particularities of the decisional technological process*

(22R) Marius Gabriel PETRESCU, Ion NAE

*Programming method of the maintenance activities of the process equipment*

(23R) Luiza DASCHIEVICI, Daniela GHELASE, Cristian SIMIONESCU

*Experimental results obtained in researching of non-coulombian friction*

(24R) Boris CONONOVICI, Wladimir RACOVITĂ

*Particularities of robotic manipulation in micro/nano scale.*

(25R) L. VLADAREANU, R.MUNTEANU, S. CONONOVICI, V. CHIROIU, C.LAZAR, I.ILIUC

*Studies and Research of Open Real -Time Control Systems for Nano and Micromanipulators Working in a Cooperative Regime*

(26R) Radu BALAN, Vistrian MATIES, Olimpiu HANCU, Ciprian LAPUSAN

*A nonlinear control algorithm – six applications*

(27R) Călin ITU

*Design solution in order to increase the energetic and ecology parameters of the engine with internal combustion*

(28R) Călin ITU, Camelia CERBU

*Structural behaviour evaluation of the piston compressor con-rod based on dynamic stress simulation*

(29R) Ion NITU, Cornel SECARA

*Cinematica unui manipulator plan redundant cu structură ramificată*

- (30R) Ion CRUDU, Alexandru IVĂNESCU, Ioan ȘTEFANESCU  
*Tribosystems for integrate manufacturing processes in metallurgical industry*
- (31R) G. IONESCU, O.N. IONESCU  
*Improvements in control of thermal spray coating*
- (32R) Nicolae LOBONTIU  
*Resonant nano/micro mechanical systems*
- (33R) Nicolae LOBONTIU, Simona NOVEANU, Dan MANDRU,  
*Monolithic hinges and compliant mechanisms: applications to nano/micro systems*
- (34R) Alexandru NASTASE  
*Model al angrenarii flexibile din motoarele piezoelectrice Non-destructive ultrasonic Experimental*
- (35R) Stefan AMADO, Anton SOLOI  
*A FEM Analysis of a mass measurement device by tensometry*

(36R) Dorin BADOIU

*Research concerning the dynamics of a manipulator robot with elastic links*

(37R) Ivan ILIUC, Constantin TIGANESTEANU

*Micropitting wear of steel ball sliding against TiN coated steel plate in lubricated conditions – a comparative study*

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