



**4ECSC**  
ST.PETERSBURG 2008

Fourth European Conference on Structural Control  
St.Petersburg, September 8-12, 2008



IPME

**CONFERENCE PROGRAM**

## **Hosting Institution**

Institute of Problems in Mechanical Engineering, Russian Academy of Sciences, <http://www.ipme.ru>

## **Steering Organization**

European Association for the Control of Structures, <http://dipmec.unipv.it>

## **History**

The First European Conference on Structural Control took place in Barcelona in 1996. It has been decided to organize a European Conference on Structural Control every four years. The Second European Conference on Structural Control was held in 2000 in France at the Ecole Nationale des Ponts and Chaussees in Champs-sur-Marne, close to Paris. The Third European Conference of Structural Control took place at the Vienna University of Technology, Austria in 2004. The present Call refers to the Fourth European Conference of Structural Control which will be held at the Institute of Problems in Mechanical Engineering, Russian Academy of Sciences, St. Petersburg, September 8--12, 2008.

## **Chairmen**

**Alexander K. Belyaev**, Institute of Problems in Mechanical Engineering, Russian Academy of Sciences, St. Petersburg, Russia;

**Dmitry A. Indeitsev**, Institute of Problems in Mechanical Engineering, Russian Academy of Sciences, St. Petersburg, Russia;

**Hans Irschik**, Division of Technical Mechanics, Johannes Kepler University of Linz, Austria;

**Rainer Flesch**, Arsenal Research, Vienna, Austria;

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Dmitry G. Kiryan

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Alexey V. Porubov

Tatyana P. Tovstik

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S. Masri: University of Southern California, USA  
M. Melkumyan: American University of Armenia, Armenia  
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K. Schlacher: University of Linz, Austria  
V. Silberschmidt: University of Loughborough, United Kingdom  
B.F. Spencer: University of Illinois at Urbana--Champaign, USA  
C. Ssymak: National Technical University of Athens; Greece  
A. Vakakis: National Technical University of Athens; Greece  
F. Vestroni: University La Sapienza, Roma, Italy  
K. Watanabe: Yamagata University, Japan  
F. Ziegler: Vienna University of Technology, Austria

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**Conference Location**

The ECSC4th will take place in the historical building "Palace of Grand Prince Vladimir Romanov", now "House of Scientists", located in the heart of Saint-Petersburg. (Dvortsovaya emb., 26).

**Registration**

Conference Opening and Plenary Session will be held on September, 8, 2008, at 09.00 in the White Hall of the Saint-Petersburg House of Scientists RAS (Dvortsovaya emb., 26).

Oral presentation will be held in parallel sessions.  
Each presentation will be of 15 minutes duration plus 5 minutes for discussion.  
Mini-symposium Venue will be located at the House of Scientists.  
Each presentation at mini-symposium will be of 30 minutes duration.

## Conference Schedule

**Monday, 8<sup>th</sup> September**

	<b>White Hall</b>	<b>Oak Hall</b>	<b>Small hall</b>
<b>9.00-11.00</b>		<b>Registration</b>	
<b>10.00-11.15</b>	Opening ceremony, <b>Plenary Session</b>		
<b>11.15-11.45</b>	<b>Coffee break</b>		
<b>11.45-13.15</b>	<b>Plenary Session</b>		
<b>13.15-15.00</b>	<b>LUNCH</b>		
<b>time</b>	<b>Session 1.3: S3</b>	<b>Session 1.1: MS1</b>	<b>Session 1.2: S1-I</b>
<b>16.40-17.10</b>	<b>Coffee break</b>		
<b>17.10-18.25</b>	<b>Session 1.3: S3</b>	<b>Session 1.1: MS1</b>	<b>Session 1.2: S1-I</b>

**Tuesday, 9<sup>th</sup> September**

<b>time</b>	<b>White Hall</b>	<b>Oak Hall</b>	<b>Small hall</b>
<b>9.30-11.00</b>	<b>Session 2.3: S6-I</b>	<b>Session 2.1: S1-II</b>	<b>Session 2.2: MS2-I</b>
<b>10.50-11.30</b>	<b>Coffee break</b>		
<b>11.45-13.00</b>	<b>Session 2.3: S6-I</b>	<b>Session 2.1: S1-II</b>	<b>Session 2.2: MS2-I</b>
<b>13.00-14.00</b>		<b>Workshop</b>	
<b>13.00-15.00</b>	<b>LUNCH</b>		
<b>15.00-16.30</b>	<b>Session 2.6: S3</b>	<b>Session 2.4: MS3</b>	<b>Session 2.5: MS2-II</b>
<b>16.20-17.00</b>	<b>Coffee break</b>		
<b>16.50-18.30</b>	<b>Session 2.6: S3</b>	<b>Session 2.4: MS3</b>	

**Wednesday, 10<sup>th</sup> September**

<b>time</b>	<b>White Hall</b>	<b>Oak Hall</b>	<b>Small hall</b>
<b>9.00-10.50</b>	<b>Session 3.2: S5</b>	<b>Session 3.1: S4</b>	<b>Session 3.3: S6-II</b>
<b>10.50-11.20</b>	<b>Coffee break</b>		
<b>11.20-13.50</b>	<b>Session 3.4: MS4</b>	<b>Session 3.1: S4</b>	<b>Session 3.3: S6-II</b>
<b>13.00-15.00</b>	<b>LUNCH</b>		
<b>15.00-18.00</b>	<b>City Bus Tour</b>		
<b>18.00-22.00</b>	<b>Conference Dinner</b>		

## Thursday, 11<sup>th</sup> September

time	White Hall	Oak Hall	Small hall
9.30-11.00	Session 4.1: S2	Session 4.3: MS5-I	Session 4.2: S1-IV
10.50-11.30	Coffee break		
11.45-13.00	Session 4.1: S2	Session 4.4: MS6-I	Session 4.2: S1-IV
13.00-15.00	LUNCH		
15.00-16.30	Session 4.6: MS5-II	Session 4.7: MS6-II	Session 4.5: S1-V
16.20-17.00	Coffee break		
16.50-17.30	Session 2.6: S3		Session 4.5: S1-V

## Friday, 12<sup>th</sup> September

time	White Hall	Oak Hall	Small hall
9.00-10.30	Plenary Session		
10.30-11.00	Coffee break		
11.00-12.30	Open Discussion		
12.30-13.00	Closing Ceremony		

### List of Mini-Symposia

- MS1.** Industrial Applications in Mechatronics.  
Coordinators: H. Irschik and H. J. Holl (Austria)
- MS2.** Structural and Phase Transformations under Dynamic Loading.  
Coordinators: E. Aero and Yu. Mesheryakov (Russia).
- MS3.** Multibody System Dynamics with Control.  
Coordinator: J. Gerstmayr (Austria).
- MS4.** Sensor Systems for Structural and Health Monitoring.  
Coordinators: M. Krommer and Yu. Vetyukov (Austria).
- MS5.** Distributed Parameter Systems Control Methods for Structures and Machines. Coordinators: K. Schlacher and M. Schöberl (Austria).
- MS6.** Modelling and Simulation of Dynamic processes in Seismically Active Areas. Coordinators: V. Babeshko and A. Belyaev (Russia).

### List of Sessions

- S1.** Structural Dynamics and Control
- S2.** Smart Materials for Structural Control
- S3.** Experimental Methods for Structural Control
- S4.** Health Monitoring
- S5.** Special Applications
- S6.** Interdisciplinary (Miscellanea)

**Technical Program**  
**Monday, 8<sup>th</sup> September**

**9.00-11.00.** Registration, *Oak Hall*

**10.00-10.30-** Opening ceremony, *White Hall*

**Plenary Session, *White Hall***

**10.30-11.15.** **L. Faravelli** (Italy), Embedded informatics towards self-healing materials.

**11.15-11.45.** Coffee break

**11.45-12.30.** **G. A. Leonov** (Russia), Stabilization of linear systems.

**12.30-13.15.** **K. Schlacher** (Austria), Model-based Control of Structures and Machines, a Dissipative and Internal Model Control.

**13.15-15.00.** Lunch

**Session 1.1: Mini-symposium “Industrial Applications in Mechatronics”,  
*Oak Hall***

Chairs: H. J. Holl, H. Irschik (Austria).

**15.00-15.25.** **M. Nader**, H.-G. v. Garßen, J. Ilg, H. Irschik, M. Krommer (Austria, Germany) Active Noise Suppression in Airconditioning Systems using Piezoelectric Actuators.

**15.25-15.50.** **W. Kunze**, Ch. Zehetner, E.C. Cojocaru, F. Hammelmüller, H.J. Holl, H.Irschik, (Austria) Advanced mechanical modelling for automatic panel benders with highest accuracy demands: Process control for a one-piece flow production.

**15.50-16.15.** **M. Baldinger**, J. Lehner, **H.J. Holl**, Ch. Bemmer, A. Brandl (Austria) Fault detection by vibration analysis for an agricultural mower.

**16.15-16.40.** **R. Ludwig**, J. Gerstmayr, H. Irschik, C. Augdopler, C. Mittermayer (Austria), Flexible robot with clearance.

**16.40-17.10** Coffee break

**17.10-17.35.** **W. Witteveen**, B. Unger, H. Riener, H. Irschik, H.J. Holl (Austria), A computationally efficient strategy for the multibody simulation of jointed FE models.

**17.35-18.00.** **R. Stadlmayr**, G. Keintzel, Ch. Pröll, K. Schlacher (Austria), Parameter Estimation for Hydraulic Drives in Steel Rolling Mills.

**18.00-18.25.** **S. Fuchshumer**, Ch. Mayrhofer, B. Ramsebner, K. Rieger, K. Schlacher, J. Antlinger, R. Geirhofer (Austria), An energy-based control approach for a pilot rolling mill towards vibration attenuation.

## **Session 1.2: Structural Dynamics and Control-I, *Small Hall***

Chair: A.V. Porubov (Russia)

**15.00-15.20.** A. Occhiuzzi, N. Caterino (Italy), Comparative evaluation of phenomenological models for MR dampers.

**15.20-15.40.** Y. Vetyukov (Austria), Buckling and supercritical behavior of thin-walled rods of open profile: analytical and numerical solutions for the one-dimensional continuum.

**15.40-16.00.** N. Sakamoto (Japan), Optimal control for integrable mechanical systems using canonical perturbation theory.

**16.00-16.20.** N. Luo, M. Zapateiro (Spain), QFT Robust Control for Structures with Hysteretic Dynamics.

**16.40-17.10.** Coffee break

**17.10-17.30.** Sujit Kumar Ojha, S. K. Saha, S. P. Singh (India), Dynamics of flexible manipulators.

**17.30-17.50.** V.A. Proursin (Russia), A Constrained Scalar Control for Elastic Structures and Many-Mass Systems

## **Session 1.3: Experimental Methods for Structural Control, *White Hall***

Chair: A. E. Del Grosso (Italy)

**15.00-15.20.** T. Attard, N. Pnevmatikos and C. Wharton (USA), Experimental shaking table tests of a steel structure using a prototype MR damper.

**15.20-15.40.** L. Petti, M. De Iuliis, G. Giannattasio, B. Palazzo (Italy), Small scale experimental testing on base isolation and tuned mass dampers combined control strategy.

**15.40-16.00.** L. Ramos, A. Cunha (Portugal), Experimental study of a tuned liquid damper with small base displacement amplitudes.

**16.00-16.20.** G. Magonette (Italy), Advancement in the Development of the On-line Hybrid Testing Method with Substructuring at the European Laboratory for Structural Assessment and Presentation of the E-FAST Design Study Project.

**16.20-16.40.** V. Cossalter, R. Lot, R. Sartori, M. Massaro (Italy), A motorcycle guidance algorithm.

**16.40-17.10.** Coffee break

**17.10-17.30.** A. Castellanos, A. Gonzalez and A. Ramos (Spain), Control of bioparticles using micro-electrode arrays: scaling laws.



## Tuesday, 9<sup>th</sup> September

**9.00-11.00.** Registration

### **Session 2.1: Structural Dynamics and Control-II, Oak hall**

Chair: F. Bourquin (France)

**9.30-9.50-** M. Spizzuoco, J.M. Londoño, G. Serino, M.R. Marsico (Italy), Design of non-linear viscous dampers for a steel braced mock-up structure.

**9.50-10.10.** A.Baratta, I.Corbi, O.Corbi (Italy), A hybrid base isolation device for the smart control of structures on the basis of soil/structure interaction

**10.10-10.30.** A. Occhiuzzi, N. Caterino, G. Maddaloni (Italy), Exploitation of seismic early warning networks for structural control.

**10.30-10.50.** H.R. Karimi, M. Zapateiro, N. Luo (Spain), Robust Mixed H<sub>2</sub>/H<sub>∞</sub> Vibration Control of Uncertain Structures.

**10.50-11.20** Coffee break

**11.20-11.40.** H. Irschik, M. Nader, (Austria), A Corollary to Mohr's Analogy for Optimal Placement of Piezoelectric Actuator Patches in Beams.

**11.40-12.00.** M. Diaferio, D. Foti, R. Nobile (Italy), Design optimization of Aluminium-Steel Devices for Passive Protection of Structures.

**12.00-12.20.** A.K.Abramyan (Russia), Rain-wind induced vibration of cables.

**12.20-12.40.** K. Watanabe (Japan), Measurability of beam vibrations by means of longitudinal ultrasonic waves.

### **Session 2.2: Mini-symposium "Dynamics of systems with structural and phase transitions"-I, Small hall**

Chairs: E.L. Aero and Yu. I. Meshcheryakov (Russia)

**9.30-10.00.** D.A.Indeitsev, V.N.Naumov, B.N.Semenov (Russia), Dynamic effects in materials of complex structure.

**10.00-10.30.** E.L. Aero (Russia), Strong thermoelastic and temperature waves in crystalline lattice.

**10.30-11.00.** Yu. I. Meshcheryakov, A.K. Divakov, N.I. Zhigacheva, I.P.

Makarevich, B.K. Barakhtin (Russia), Shock-induced nanostructure formation.

**11.00-11.30** Coffee break

**11.30-12.00.** T. Khantuleva, I.A. Nikulin, N.A. Serebryanskaya (Russia), Non-local model for non-stationary front with internal control.

**12.00-12.30.** A.V. Porubov (Russia), Structurally caused abnormal nonlinearity and localized strain waves.

**12.30-13.00.** L. Aghalovyan (Armenia), On one method of solution of three-dimensional dynamic problems for layered elastic plates and applications in seismology and seismosteady construction.

**Session 2.3: Interdisciplinary(Miscellanea) -I, White Hall**

Chair: J. Holnicki-Szulc (Poland)

**9.30-9.50.** S. De Grandis, M. Domaneschi and Federico Perott (Italy), The computation of seismic fragility of equipment components in nuclear power plants.

**9.50-10.10.** K. Sekula, J. Holnicki-Szulc (Poland), Validation of the new sensor system for monitoring of traffic load.

**10.10-10.30.** E.D. Sviageninov (Russia), Resonant Cyclic Energy Flow Systems.

**10.30-10.50.** R. A. Arutyunyan, K. S. Yakimova (Russia), The effect of aging on the fracture of elastic viscous thin layer subjected to cyclic compression.

**10.50-11.20** Coffee break

**13.00-14.00 Workshop "How to Get Published in Scientific Journals?"**

**Organisers:** Andres Kecskemethy (Germany) and Desiree de Myer (Elsevier New York), **Oak Hall.**

**13.00-15.00** Lunch

**Session 2.4: Minisymposium "Multibody system dynamics with control", Oak Hall**

Chair: J. Gerstmayr (Austria)

**15.00-15.30.** A.L.Schwab, J.D.G.Kooijman, and J.P.Meijaard (Netherlands), Some recent developments in bicycle dynamics and control.

**15.30-16.00.** Ben Jonker, V. Hollander and J. van Dijk (Netherlands), Prototype Modelling of Mechatronic Systems using a Multibody System Approach.

**16.00-16.30.** A. Kecskeméthy, F. Geu Flores (Germany), Simulation of guided motion with the object oriented multibody simulation library MOBILE.

**16.30-17.00** Coffee break

**17.00-17.30.** M. Dibold, J. Gerstmayr, H. Irschik (Austria), Two approaches for the modelling and simulation of controlled flexible multibody systems.

**17.30-18.00.** R. Stadlmayr (Austria) A combination of Feedforward and Feedback Control for Mechatronic Applications.

**18.00-18.30.** J. Gerstmayr, H. Irschik (Austria), On the appropriateness of the absolute nodal coordinate formulation for nonlinear problems of rods.

## **Session 2.5: Mini-symposium “Dynamics of systems with structural and phase transitions”-II, *Small hall***

Chairs: E.L. Aero and Yu. I. Meshcheryakov (Russia)

**15.00-15.30.** A.K. Abramyan, L.V.Mirantsev (Russia), Nano-fluid-structure interaction.

**15.30-16.00.** B.K. Barakhtin, Yu.I. Meshcheryakov, G.G. Savenkov (Russia), Fractal dimension as a kinetic energy dissipation measure in dynamic fracture processes.

**16.00-16.30.** A. N. Bulygin, E. L. Aero, Yu. V. Pavlov (Russia), A new approach to 3-D sine-Gordon equation solution.

## **Session 2.6: Structural Dynamics and Control-III, *White Hall***

Chair: R. Heuer (Austria)

**15.00-15.20.** M.Domaneschi and L.Martinelli (Italy), Modelling the ASCE Cable-Stayed Bridge Benchmark with Passive Devices.

**15.20-15.40.** P.V. Krot, I.Y. Prihod'ko, P.P. Chernov (Ukraine), Regenerative chatter vibrations control in the tandem cold rolling mills.

**15.40-16.00.** M. Zapateiro, H.R. Karimi, N. Luo (Spain), Semiactive Control of Nonlinear Structures by Using Neural Networks and Wavelet Analysis.

**16.00-16.20.** V.S. Baklanov, S. L. Denisov (Russia), Numerical simulation of airframe and engine based on experimental data of dynamical compliances in mounting points.

**16.20-16.50** Coffee break

**16.50-17.10.** M. Ostrowski, J. Holnicki-Szulc (Poland), Adaptive impact absorption controlled via pyrotechnic devices.

**17.10-17.30.** J.M. Londono, G. Serino (Italy), Using computational intelligence strategies in delay compensation for real-time systems.

**17.30-17.50.** F. Pozo, G. Pujol, L. Acho, J. Rodellar (Spain), A frictional damping system for vibration control of structures.

**17.50-18.10.** L. Petti, M. De Iuliis (Italy), Effectiveness analysis of base isolation and tuned mass damping combined strategy to control the non-linear response of a benchmark structure.

## Wednesday, 10<sup>th</sup> September

### Session 3.1: Health Monitoring, *Oak Hall*

Chair: H. Irschik (Austria)

**9.00-9.20.** V.A. Polyanskiy, D.A. Indeitsev, A.M. Polyanskiy, Y.A. Yakovlev (Russia), Investigation of hydrogen indicators of the materials brittleness, fatigue and destruction.

**9.20-9.40.** C. Moutinho, W. Hu, E. Caetano, A. Cunha, (Portugal), Analysis of the Levels of Vibration Measured by a Dynamic Monitoring System

**9.40-10.00.** F. Lanata, A. Mercalli (Italy), Damage detection in reinforced concrete test beams using continuous static monitoring.

**10.00-10.20.** A. E. Del Grosso, F. Lanata (Italy), A Critical Review of Recent Advances in Monitoring Data Analysis and Interpretation for Civil Structures.

**10.20-10.50.** M. Spizzuoco, G. Serino, M.R. Marsico, S. Chandrasekaran (Italy), The monitoring system of an isolated religious building in Italy: a recent acquisition of the italian "oss".

**10.50-11.20** Coffee break

**11.20-11.40.** M. Domaneschi, F. Scannavino (Italy), Damage Identification of Plastic Pipes Subjected to Impacts.

**11.40-12.00.** M. P. Limongelli (Italy), Structural health monitoring based on time series analysis.

**12.00-12.20.** F. Casciati, C. Fuggini (Italy), GPS units for monitoring the displacements of steel structures.

**12.20-12.40.** V. Acopyan (Russia), Harmonical and Modal Analysis for Determination of Flaws in Truss Structures.

**12.40-13.00.** K. Machida, M. Sato and S. Ogihara (Japan), Whole-field stress analysis of unidirectional CFRP laminate by digital image correlation

**13.00-13.20.** D. Foti, V. Gattulli, M. Lepidi (Italy), Dynamic identification of a modern bell tower: resonance cancellation through stiffening intervention.

### Session 3.2: Special Applications, *White Hall*

Chair: K. Watanabe (Japan)

**9.30-9.50.** Ivan M. Díaz, Donald Nyawako, Paul Reynolds (UK), On the stability and performance of on-off nonlinear velocity feedback control for cancelling floor vibrations.

**9.50-10.10.** C. Graczykowski, J. Holnicki-Szulc (Poland), Adaptive flow control based airbags for waterborne and aeronautical applications.

**10.10-10.30.** L. Petti, M. De Iuliis, B. Palazzo (Italy), An investigation on semi-active control strategies using information provided by an early warning network system.

**10.30-10.50.** K. Sekula, G. Mikułowski, C. Graczykowski, J. Holnicki-Szulc (Poland), Verification of the impact load identification methods.

**10.50-11.20** Coffee break

**Session 3.3: Interdisciplinary (Miscellanea) -II, *Small Hall***

Chair: E.D. Sviageninov (Russia)

**9.30-9.50.** N. Aguirre, F. Ikhouane, J. Rodellar, R. Christenson (Spain), Modeling and identification of large scale magnetorheological dampers.

**9.50-10.10.** F. Hammelmüller, H. Holl (Austria), Reduction of the bending vibrations due to eccentricity in a coiling process.

**10.10-10.30.** I.A. Brigadnov, H. Altenbach, K. Naumenko (Russia, Germany), Analysis of Global Rotation Stability of a Slender Particle in a Shear Flow.

**10.30-10.50.** D.G. Arsenjev, V.M. Ivanov, M.L. Korenevsky (Russia), Stochastic-adaptive methods of numerical solution the problems of applied mathematics and mechanics.

**10.50-11.20** Coffee break

**11.20-11.40.** G. Serino, M. Spizzuoco, M.R. Marsico, S. Chandrasekaran (Italy), Seismic isolation and modeling of a worship structure.

**11.40-12.00.** Yu.V. Zakharova, N.N. Fedorova, M.A. Goldfeld (Russia), Study of temperature factor effects on supersonic turbulent flows over backward facing step.

**Session 3.4: Minisymposium “Sensor Systems for Structural and Health Monitoring”, *White Hall***

Chairs: M. Krommer and Y. Vetyukov (Austria)

**11.20-11.45.** Y. Vetyukov and M. Krommer (Austria), Optimal sensing of kinematic quantities in the vicinity of a pre-deformed state in a geometrically nonlinear setting.

**11.45-12.10.** M. Krommer, M. Zellhofer (Austria), Design of distributed sensors for monitoring of redundant structures.

**12.10-12.35.** F. Bourquin and A. Nassiopoulos (France), Rapid inverse heat transfer in civil structures: Part 1: Computational framework for enhanced LS with pointwise data.

**12.35-13.00.** F. Bourquin and A. Nassiopoulos (France), Rapid inverse heat transfer in civil structures: Part 2: Relaxation of the cost functional.

**13.00-13.25.** M. Stangl, M. Nader (Austria), Vibration Control of Pipes Conveying Fluid using Piezoelectric Sensors and Actuators.

**13.00-15.00** Lunch

**15.00-18.00** Bus City Tour

**18.00-22.00** Conference Dinner

## Thursday, 11<sup>th</sup> September

### Session 4.1: Smart Materials for Structural Control, *White Hall*

Chair: A. Kecskeméthy (Germany)

**9.50-10.10.** C. Zehetner (Austria), Compensation of torsional vibrations in rods by piezoelectric shear actuators.

**10.10-10.30.** S. Casciati, A. Marzi (Italy), Comparison of the thermo-mechanical behaviour of different shape memory alloys.

**10.30-10.50.** A. E. Gorodetsky, I. L. Tarasova (Russia), Computer modelling of the process of porous silicon formation.

**10.50-11.20** Coffee break

**11.20-11.40.** E.F. Grekova (Russia), Wave propagation in elastic materials with weak anisotropic coupling between rotations and translations.

**11.40-12.00.** S. N. Shevtsov, A. N. Soloviev, S. A. Bragin (Russia), Numerical Investigation of the Efficiency of Sensors and Actuators Different Placement on Surface of Dynamically Loaded Composite Tube.

**12.00-12.20.** E. Ivanova (Russia), On one approach to formulation of coupled problem of the thermo-viscoelasticity for the thermal conductivity equation of the hyperbolic type.

### Session 4.2: Structural Dynamics and Control-IV, *Small Hall*

Chair: U. Gabbert (Germany)

**9.30-9.50.** A. Baratta, O. Corbi (Italy), Active and passive dynamic control strategies for nonlinear structures.

**9.50-10.10.** T. P. Tovstik (Russia), On the numerical investigation of conformation and stability estimation of the 2D graphite crystal layer under the large deformations.

**10.10-10.30.** Z. Rakicevic, D. Jurukovski, A. Zlateska (Macedonia (F Y R O M)), Optimal damping capacity of steel frame structures.

**10.30-10.50.** A. Yu. Kuchmin, A. E. Gorodetsky, D. S. Alekseev, V. V. Dubarenko, Y.I. Badu, A.V. Ankudinov, V.S. Kozlov, M.E. Kompan, I.L. Tarasova (Russia), Control and synchronization of cilia constructions.

**10.50-11.20** Coffee break

**11.20-11.40.** F. Ubertini (Italy), Flutter prediction in suspension bridges: sources of uncertainty and open issues

**11.40-12.00.** V. V. Dubarenko, U. N. Artemenko, V.G. Gimmelman, A. E. Gorodetsky, A. U. Kuchmin (Russia), The pointing efficiency of millimetric wave radiotelescope.

**12.00-12.20.** M.A. Kovyriagin (Russia), The control in elements of buildings structures.

**12.20-12.40.** M.V. Shitikova, Yu.A. Rossikhin, T.A. Shcheglova (Russia), Control of Dynamic Response of a Fractional Viscoelastic Oscillator via Uncertances in Fractional Parameters and Relaxation (Retardation) Time Variation.

### **Session 4.3: Minisymposium “Distributed Parameter Systems Control Methods for Structures and Machines”- I, *Oak Hall***

Chairs: K. Schlacher and M. Schöberl (Austria)

**9.30-10.00.** K. Rieger, K. Schlacher (Austria), Observability and Accessibility Analysis of a Single Mast System.

**10.00-10.30.** A. Macchelli, L. Bassi, C. Melchiorri (Italy), A formal approach for the inverse dynamic control of flexible beams.

**10.30-11.00.** M. Bachmayer, J. Rudolph, H. Ulbrich (Germany), Flatness based feed forward control for a horizontally moving beam with a point mass.

**11.00-11.30** Coffee break

### **Session 4.4: Minisymposium “Modelling and Simulation of Dynamic Processes in Seismically Active Areas”-II, *Oak Hall***

Chairs: V. A. Babeshko and A. K. Belyaev (Russia)

**11.30-12.00.** A. K. Belyaev (Russia), Propagation of seismic waves in randomly heterogeneous media.

**12.00-12.30.** L. Acho, G. Pujol, F. Pozo, A. Rodríguez (Spain), A new adaptive control for seismically excited highway bridges.

**12.30-13.00.** R. Heuer, S. M. Yousefi (Austria), On the nonlinear influence of tuned pendulum dampers in slender structures.

**13.00-15.00** Lunch

### **Session 4.5: Structural Dynamics and Control-V, *Small hall***

Chair: J. Rodellar (Spain)

**15.00-15.20.** A.A. Sukhanov (Russia), Examination of hydrogen embrittlement process of the loaded structures.

**15.20-15.40.** G. Mikulowski, C. Graczykowski, K. Sekuła, J. Holnicki-Szulc (Poland), A feasibility study of pneumatic Adaptive Impact Absorber (pAIA).

**15.40-16.00.** V. N. Pilishkin (Russia), Controllability of Complex Systems on the Class of Symmetrical Phase Limitations.

**16.00-16.20.** T. Furukawa (Japan), H. Irschik (Austria), Extension of Body Force Analogy to Generalized Thermoelasticity.

**16.20-16.50.** Coffee break

**16.50-17.10.** C. M. Casado, J. de Sebastian, A. Poncela, A. Lorenzana (Spain), Design of a Semi-active Tuned Mass Damper for the Science Museum Footbridge of Valladolid.

**17.10-17.30.** M. Ismail, J. Rodellar, and F. Ikhouane (Spain), A New Isolation Approach for Equipment Protection.

#### **Session 4.6: Minisymposium “ Distributed Parameter Systems Control Methods for Structures and Machines”-II, *White Hall***

Chairs: K. Schlacher and M. Schöberl (Austria)

**15.00-15.30.** F. Pozo, G. Pujol, L. Acho (Spain), Saturated LMI Control of Hysteretic Base-Isolated Structures.

**15.30-16.00.** A. Baratta, O. Corbi (Italy), Dynamic control by tuned sloshing dampers: theoretical/experimental validation.

**16.00-16.30.** T. Rittenschober, K. Schlacher (Austria), Observer-based Self Sensing Actuation of Piezoelastic Structures for Robust Vibration Control.

**16.30-17.00.** Coffee break

**17.00-17.30.** E. Fortaleza, Y. Creff, J. Levine (France), Active control and motion planning for offshore structures.

#### **Session 4.7: Minisymposium “Modelling and Simulation of Dynamic Processes in Seismically Active Areas”-II, *Oak hall***

Chairs: V. A. Babeshko and A. K. Belyaev (Russia)

**15.00-15.30.** A.E. Volkov, D.S. Dubilet (Russia), A theoretical study of the efficiency of seismic protection by shape memory alloy dampers and base isolators against different ground vibrations.

**15.30-16.00.** R. Bairrao, C. Ferreira Oliveira, R. Bairrao, R. Carneiro Barros, L. Guerreiro (Portugal), The New Generation of Seismic Semi-Active and Active Protection Systems.

**16.00-16.30.** A. A. Sukhanov, A. K. Belyaev (Russia), Detection of deterministic underwater component by means of analysis of the random ocean surface.

**16.30-17.00.** Coffee break



## Friday, 12<sup>th</sup> September

### Plenary Session, *White Hall*

**9.00-9.45. Matveyenko V.P.** Kligman E.P., Yurlova N.A. (Russia), Simulation and optimization of dissipative properties of viscoelastic and electroviscoelastic deformable systems.

**9.45-10.30. U. Gabbert**, J. Lefèvre, T. Nestorović, S. Ringwelski (Germany), Active Vibration and Noise Control – Design, Simulation and Application

**10.30-11.00.** Coffee break

**11.00-12.30.** Open Discussion: Structural Control: Present and Future.

**12.30-13.00** Closing Ceremony