

**SECOND INTERNATIONAL CONFERENCE
“PHYSICS AND CONTROL” (PhysCon 2005)**

August 24 – 26, 2005,

Saint Petersburg, RUSSIA

Preliminary Program

August, 24, 9.30–11.20.

Opening Ceremony. Plenary Session–I.

Synergetics: Some Recent Developments

H. Haken (*Germany*)

Status of ITER Project

O.G. Filatov, V.P. Smirnov (*Russia*)

August, 24, 11.50–13.20. White Hall

Plenary Session–II.

Control of Multibody Systems in Resistive Media

F.L. Chernousko (*Russia*)

Control of Pendulum

K. Furuta (*Japan*)

August, 26, 15.00–16.30. White Hall

Plenary Session–III.

Controlling bifurcations

G. Chen (*China*)

Controlling the Relative Entropy Evolution for Classical, Thermodynamical and Quantum Systems

M. Pavon, F. Ticozzi (*Italy*)

REGULAR, INVITED AND POSTER SESSIONS

August, 24, 15.00–17.00. White Hall
Session WP1. Control of Oscillations

From the Pendulum to Rydberg Accelerator and Planetary Dynamics: Autoresonant Formation and Control of Nonlinear States (*invited*)
L. Friedland (*Israel*)

A Pendulum-Driven Cart via Internal Force and Static Friction
H. Li, K. Furuta (*Japan*), **F.L. Chernousko** (*Russia*)

Motion Control of an Underactuated Two-Link Manipulator by Using High-Frequency Excitation
H. Yabuno (*Japan*)

Asymptotic Stabilization of Uniform Motion in Hamiltonian Systems
I.V. Burkov (*Russia*)

Control of Mechanical Energy Pumping in the Non-Homogeneous System of Coupled Oscillators
A.I. Musienko, L.I. Manevitch (*Russia*)

August, 24, 15.00–17.00. Golden Hall
Session WP2. Thermodynamics, Self-Organization, Control

Synergetic Phenomena in Detonation of Solid Heterogeneous Explosives Control of Oscillations and Dissipative Structures in Detonation Flow
I. Plaksin, J. Campos, J. Direito, R. Mendes, J. Ribeiro, J. Góis, P. Simões, L. Pedroso, A. Portugal (*Portugal*), **J. Kennedy, S. Coffey** (*U.S.A.*)

Internal Control in Nonequilibrium Transport
T.A. Khantuleva (*Russia*)

Effect of the Solution Ionic Composition upon the Precipitation Kinetics and Self-Organization Processes in Basic Iron Sulfate Precipitates
N.M. Sergeeva (*Russia*), **V.G. Korsakov** (*Russia, Japan*), **Y. Nakanishi** (*Japan*), **S.V. Mjakin** (*Russia*), **H. Kominami** (*Japan*)

Thermodynamic Modeling of Nanocomposites
V.G. Korsakov, M.M. Sychov, S.V. Mjakin, S.A. Alexeev (*Russia*), **Y. Nakanishi, H. Kominami, T. Aoki, Y. Hatanaka** (*Japan*)

Direct Lyapunov Method in the Theory of Replicator System with Entropy-Like Applications
Yu.A. Pykh (*Russia*)

Decision Making for a Great Number of Alternatives by Self-Organization
A.V. Osipov (*Russia*)

August, 24, 15.00–17.00. Blue Hall

Session WP3. Plasma Modeling and Control in Tokamaks (invited)

Organizers: V.A. Belyakov, D.A. Ovsyannikov

Control of Plasma in Tokamaks

V.A. Belyakov (*Russia*)

Globus-M Experiments with Using Magnetic Sensors

V.I. Vasiliev, Yu.A. Kostsov, K.M. Lobanov, L.P. Makarova, A.B. Mineev, V.K. Gusev, R.G. Levin, Yu.V. Petrov, N.V. Sakharov (*Russia*)

Robust Features Analysis for the MAST Plasma Vertical Feedback Control System

V.A. Belyakov, A.A. Kavin, D.A. Ovsyannikov, A.D. Ovsyannikov, A.P. Zhabko, E.I. Veremey, I.A. Makeev (*Russia*), **M.P. Gryaznevich, G.J. McArdle** (*U.K.*)

Program for Scientific and Educational Investigations on the Base of Small Spherical Tokamak Gutta

D.A. Ovsyannikov, A.D. Ovsyannikov, A.P. Zhabko, E.I. Veremey, G.M. Vorobyov, V.M. Zavadskij (*Russia*)

Study of Plasma Current Ramp-Down and Runaway Generation under Massive Gas Injection into the Tokamak for Disruption Mitigation

A. Mineev (*Russia*), **M. Sugihara** (*Japan*), **V. Zhogolev, K. Lobanov, L. Makarova, V. Vasiliev** (*Russia*)

August, 24, 15.00–17.00. Emperor's Cabinet

Session WP4. Complex Networks, Analysis, Synchronization and Control (invited)

Organizers: M. di Bernardo, G. Chen

Synchronization in Complex Networks with Blinking Interactions

I. Belykh (*Switzerland*), **V.N. Belykh** (*Russia*), **M. Hasler** (*Switzerland*)

Automatic Control of Phase Synchronization in Coupled Complex Oscillators

V.N. Belykh (*Russia*), **N. Kuckländer** (*Germany*), **G.V. Osipov** (*Russia*), **B. Blasius, J. Kurths** (*Germany*)

On Pinning Control of Scale-Free Networks

G. Chen, Z. Fan (*China*)

Load Distribution in Small World Networks

M. di Bernardo, F. Garofalo, S. Manfredi, F. Sorrentino (*Italy*)

Physical Properties and Medium Access Control for Wireless Ad-hoc Networks

B. Zieliński (*Poland*)

Network Analysis, Adaptive Control and Imitation Simulation for Multi-Agent Telecommunication Systems

A.V. Timofeev, A.V. Syrtsev, A.V. Kolotaev (*Russia*)

August, 25, 9.00–11.00. White Hall
Session ThM1. Optimal Control

Real-Time Computation of Constrained Optimal Closed-Loop Control for Large DAE Systems and Applications in Industrial and Engineering Processes
G. Bock (*Germany*)

Positional Guaranteed Optimization of Linear Control Systems under Disturbances
N.V. Balashevich (*Belarus*)

Nonlinear Adaptive Extremum Seeking Control for Time Delayed Index in the Presence of Deterministic Disturbance
S. Yamanaka, H. Ohmori (*Japan*)

Optimal Control of the Magnetohydrodynamic Ocean Wave Energy Converter: Theory
D.A. Altshuller, R.A. Koslover (*U.S.A.*)

Optimal Control Problem for Head Injury Criterion
D.V. Balandin, N.N. Bolotnik (*Russia*), **W.D. Pilkey, S.V. Purtsezov** (*U.S.A.*)

Weak Conservation Laws for Minimizers Which Are Not Pontryagin Extremals
D.F.M. Torres (*Portugal*)

August, 25, 9.00–11.00. Golden Hall
Session ThM2. Control of Nanostructures

Exciton Spectroscopic Control of Disordered Semiconductor Systems Properties
A.G. Areshkin, L.I. Vasil'eva, D.L. Fedorov (*Russia*)

Statistical Control in Dynamical Non-Linear Systems
S.V. Borisenok (*Russia*)

Multi-Zone Coherent Atomic Beam Splitter Control by Raman Transitions
S.V. Borisenok, Yu.V. Rozhdestvensky, Yu.D. Selishcheva (*Russia*)

Synchronization and Control of Internal and External Degrees of Freedom of Atoms in a Standing Laser Wave
V.Yu. Argonov, S.V. Prants (*Russia*)

Development of Materials with Periodically Arranged Groups of Microparticles by Photopolymerization of Faraday Ripple Patterns
A.B. Ezersky, B.S. Kaverin, S.V. Kiyashko, S.A. Chesnokov (*Russia*)

August, 25, 9.00–11.00. Blue Hall
Session ThM3. Synchronization

Modeling and Synchronization of the Mechatronic Vibrational Stand
B. Andrievsky, A. Fradkov, S. Gavrilov, V. Konoplev (*Russia*)

Multistability of Partially Synchronous Regimes in a System of Three Coupled Logistic Maps
S.M. Nikolaev, A.V. Shabunin, V.V. Astakhov (*Russia*)

Robust Synchronization of nDOF Lagrangian Systems
D.I. Rosas, J. Alvarez (*Mexico*)

Scaling Properties of Multimode Dynamics in Coupled Chaotic Oscillators
A.R. Ziganshin, A.N. Pavlov (*Russia*)

Synchronization of Chaotic Intermittent Behavior
G.V. Osipov, M.V. Ivanchenko, V.D. Shalfeev (*Russia*), **J. Kurths** (*Germany*)

Periodic Oscillations in Weakly Connected Cellular Nonlinear Networks
M. Gilli, M. Bonnin, P.P. Civalieri, F. Corinto (*Italy*)

August, 25, 9.00–11.00. Emperor's Cabinet

Session ThM4. Multiparameter Stability and Control Problems in Physics: Singularities, Bifurcations, Non-Conservativeness–I (invited)

Organizers: A.P. Seyranian, O.N. Kirillov

Eigenvalue and Stability Analysis for Axially Moving Strings in Transverse Vibrations
Y. Wang, X. Liu, L. Huang (*China*)

Instability of Non-Linear Viscoelastic Beam under Tracking Loading
S.A. Agafonov, D.V. Georgievskii (*Russia*)

Control of the Hunting Motion of a Railway Vehicle Wheelset
H. Yabuno (*Japan*)

The Aerodynamical Instability of Circular Profiles Systems
V.I. Vanko (*Russia*)

Sensitivity Analysis of the Roots of the Characteristic Polynomial and Stability of Non-Conservative Systems
O.N. Kirillov (*Russia*)

Excitation of Oscillations by a Small Limited Control Force
A.O. Belyakov (*Russia*)

August, 25, 11.20–13.20. White Hall

Session ThA1. Control of Distributed Systems

Ideal Turbulence and Bifurcations in Infinite-Dimensional Dynamical Systems
A. Sharkovsky, V. Fedorenko (*Ukraine*)

Control of Clocks Distributed Systems
G.A. Leonov, S.M. Seledzhi (*Russia*)

Pole Placement in Infinite Dimensions

D.V. Yakubovich (*Spain, Russia*)

Parabolic Distributed Parameter Control Systems with Two-Time-Scale Motions

V.D. Yurkevich (*Russia*)

Suppression of Spiral-Wave Turbulence by Point Weak Excitations

S.A. Vysotsky, R.V. Cheremin, A. Loskutov (*Russia*)

Controlled Generation of the Oscillations of a Magneto-Sensitive Elastic Sphere

I.A. Brigadnov, I.V. Burkov (*Russia*)

August, 25, 11.20–13.20. Golden Hall

Session ThA2. Dynamics and Control of Chaos

Analysis of the Control of Chaos in Unidimensional Maps

F. Borondo, L.H. Orden (*Spain*)

Generating Multi-Folded Torus Chaotic Attractors

S. Yu, J. Lü (*China*), **H. Leung** (*Canada*), **G. Chen** (*China*)

Is Chaos Always Suppressed Parametrically?

A. Dzhanoev, A. Loskutov (*Russia*), **T. Schwalger** (*Germany*)

Localized Control for Non-Resonant Hamiltonian Systems

M. Vittot, C. Chandre, G. Ciraolo, R. Lima (*France*)

Conditional Attractors and Regularization of Chaotic Systems

I.V. Miroschnik, E. Olkhovskaya (*Russia*)

Speed-Gradient Control with Non-Linearity in the Parameters for a Chaotic Colpitts Oscillator

M.A. Jordán, J.L. Bonitatibus (*Argentina*)

August, 25, 11.20–13.20. Blue Hall

Session ThA3. Control of Charged Particle Beams (invited)

Organizer: D.A. Ovsyannikov

Exploring the Bunching Section of the Neutrino Factory

A. Poklonskiy (*Russia*), **D. Neuffer, M. Berz** (*U.S.A.*), **A.D. Ovsyannikov, D.A. Ovsyannikov** (*Russia*)

Muon Collider Interaction Region Simulation and Optimization

P. Snopok (*Russia*), **C. Johnstone, M. Berz** (*U.S.A.*), **D.A. Ovsyannikov, A.D. Ovsyannikov** (*Russia*)

BDO-RFQ Code and Optimization Models

D.A. Ovsyannikov, A.D. Ovsyannikov, I.V. Antropov, V.A. Kozynchenko (*Russia*)

Mathematical Modeling of the Electron Beam Formatting System on the Basis of Field Emission Cathode

N.V. Egorov, E.M. Vinogradova (*Russia*)

Modeling of Transitional Processes in APF Cavity

E. Pikulin, V. Malyshev, S. Filaev, Yu.A. Svistunov (*Russia*)

Some Approaches to Long Time Beam Evolution

S.N. Andrianov (*Russia*)

August, 25, 11.20–13.20. Emperor's Cabinet

Session ThA4. Multiparameter Stability and Control Problems in Physics: Singularities, Bifurcations, Non-Conservativeness–II (invited)

Organizers: A.P. Seyranian, O.N. Kirillov

Unfolding a Degeneracy Point of Two Unbound States: Crossing and Anticrossing of Energies and Widths

E. Hernández, A. Jáuregui, A. Mondragón, L. Nellen (*Mexico*)

Local Analysis of the No-Controllable Set for One-Input Generalized Linear Systems

M.I. García-Planas (*Spain*)

On a Parametric Resonance Problem

A.P. Seyranian (*Russia*), **C. Cattani** (*Italy*)

A Comparison of Methods for the Stability Analysis of Beams with Varying Cross Sections under Nonconservative Loading

J.M. Temis, I.M. Fyodorov (*Russia*)

Strong and Weak Coupling of Eigenvalues of Complex Matrices

A.A. Mailybaev, O.N. Kirillov, A.P. Seyranian (*Russia*)

On Eigenvalue Surfaces near a Diabolic Point

O.N. Kirillov, A.A. Mailybaev, A.P. Seyranian (*Russia*)

August, 25, 15.00–17.00. White Hall

Session ThP1. Control of Mechanical Systems

Some Topics in Active Vibration Control (*invited*)

A. Preumont (*Belgium*)

Optimization of Parameters of Shock Isolator with Preview Control

W.D. Pilkey, S.V. Purtsezov (*U.S.A.*)

Control of Scleronomous Mechanical System with Unknown Matrix of Inertia

I.M. Ananievski (*Russia*)

Robust Control of Smart Beams in the Presence of Damage-Induced Structural Uncertainties

D.G. Marinova (*Bulgaria*), **G.E. Stavroulakis, E.C. Zacharenakis** (*Greece*)

Predictive Controller Design with Offline Model Learning for Flexible Beam Control
K. Zmeu, E. Shipitko (*Russia*)

August, 25, 15.00–17.00. Golden Hall
Session ThP2. Control of Chaos

Bifurcation Analysis of Chaos Control by Delayed Feedback
N. Janson (*U.K.*), **A. Balanov, E. Schöll** (*Germany*)

Control of Chaotic Oscillations in the Process of Crystallization via Extended Method of Time-Delayed Feedback
E.M. Koltsova, M.V. Cherenkov (*Russia*)

Control of Hamiltonian Chaos as a Possible Tool to Control Anomalous Transport in Fusion Plasmas
G. Ciraolo (*Italy*), **F. Briolle, C. Chandre, E. Floriani, R. Lima, M. Vittot** (*France*), **M. Pettini** (*Italy*), **C. Figarella, P. Ghendrih** (*France*)

Delayed Feedback Control of Chaos in a Switched Arrival System
Y.-P. Tian (*China*)

Control of Unstable Steady States by Time-Delayed Feedback Methods
P. Hövel, E. Schöll (*Germany*)

Control of the Chaotic Dynamics of Delayed Feedback Klystron Oscillator and its Application in Chaotic Communications
A.M. Shigaev, N.M. Ryskin (*Russia*)

August, 25, 15.00–17.00. Blue Hall
Session ThP3. Control of Oscillations and Waves

Singularity Phenomena in Ray Propagation in Anisotropic Media
A.A. Melikyan (*Russia*), **N.D. Botkin, V.L. Turova** (*Denmark*)

Harmonic Disturbance in a Controlled Mechanical System with Friction
G. Kostin (*Russia*)

On Asymptotic Stabilization of Elastic Systems
M.I. Caiado (*Portugal*), **A. Sarychev** (*Italy*)

Running Waves in a Ring of Van-der-Pol Oscillators: Role of Anharmonicity
A. Shabunin, V. Astakhov, A. Akopov, T. Vadivasova (*Russia*)

Robustness and Describing Function Method
L.S. Chechurin, A.I. Merkoulov (*Russia*)

Nonlinear Dynamics and Chaotic Behavior of Coupled Systems with Phase and Delay Control
V.P. Ponomarenko (*Russia*)

August, 25, 15.00–17.00. Emperor's Cabinet

Session ThP4. Modeling

Automatic Derivation and Decomposition of Lagrange's Form Mathematical Model for a Complex Mechanical System

S.D. Zemlyakov, V.M. Glumov (*Russia*)

On Use of Reduction in Qualitative Analysis of Lagrange Systems

V.D. Irtegov (*Russia*)

Description of Electronic Polarization of a Dielectric by the Model of System with Feedback

I.E. Eremin, E.L. Eremin, V.A. Overchuk (*Russia*)

Behavioral Modeling of Microelectromechanical Filters

S. Fouladi, A. Hajhosseini Mesgar, M. Kahrizi (*Canada*)

Generic Analytical Embedding Methods for Nonstationary Systems Based on Control Theory

V. Reitmann, H. Kantz (*Germany*)

Automatic Detecting Actomyosin Complex Biological Data

J. Yang, T. Ohashi, T. Yasunaga (*Japan*)

August, 26, 9.00–11.00. White Hall

Session FM1. Bifurcations and Chaos

Bifurcations and Chaos in Nonsmooth Dynamical Systems: Analysis and Control (*invited*)

Mario di Bernardo (*Italy*)

Quasiperiodicity and Torus Birth Bifurcations in Nonsmooth Systems

Zh.T. Zhusubaliyev (*Russia*), **E. Mosekilde** (*Denmark*)

Torus Birth and Destruction in an Autonomous Piecewise-Smooth System

Zh.T. Zhusubaliyev, E. Soukhoterlin (*Russia*), **E. Mosekilde** (*Denmark*)

Characterization of Chaotic Dynamics from Return Times

D.V. Dumsky, A.N. Pavlov (*Russia*)

Fractal Properties of Chaotic Dynamical Systems in Reverse Time and Its Applications

A.I. Tomashevsky, M.V. Kapranov (*Russia*)

August, 26, 9.00–11.00. Golden Hall

Session FM2. Nonlinear Dynamics and Control

Relay Control of the Steel Converter Process by Means of Cooling Additives

B.M. Sokolov, A.I. Shepeljavyi (*Russia*), **A.V. Medvedev** (*Sweden*)

Adaptive Decoupling Control of Nonlinear Multivariable Systems with Unknown Parameters

Y. Mutoh (*Japan*)

Complex Dynamics of a Frequency-Phase Lock System
V.P. Ponomarenko, E.A. Tikhonov (*Russia*)

Invariant Stabilization of Time-Varying Control Systems with Outer Action
I.E. Zuber, A.Kh. Gelig (*Russia*)

Frequency-Domain Estimates for Transient Attributes of Discrete Phase Systems
A.I. Shepeljavyi, V.B. Smirnova, N.V. Utina (*Russia*)

A Chaotic Dynamics of the Vehicle on the Plane
P.A. Shavrin (*Russia*)

August, 26, 9.00–11.00. Blue Hall
Session FM3. Motion Control

A New Approach to Control of Moving Structure Object with Nonrigid Construction
V.Yu. Rutkovsky, V.M. Sukhanov, V.M. Glumov (*Russia*)

Concept and Advantages of Spaceplane Water Landing with Ekranoplane Assist
A. Nebylov (*Russia*), **N. Tomita** (*Japan*)

Mathematical Models, Designing, Analysis and Synthesis of Control Systems of the Complex Flexible Objects
A.V. Nebylov, A.I. Panferov, S.A. Brodsky (*Russia*)

Coupling and Damping the Structure Oscillations at Spacecraft Gyromoment Digital Control
Ye.I. Somov, S.A. Butyrin, S.Ye. Somov (*Russia*)

Robust Control of a Flexible Spacecraft Respinup by the Weak Internal Torques
Ye.I. Somov, G.P. Titov, S.A. Butyrin, V.A. Rayevsky, A.G. Kozlov (*Russia*)

Methods for Increasing the Accuracy of Micromechanical Gyroscopes
L.A. Severov, V.K. Ponomarev, A.I. Panferov, N.A. Ovchinnikova (*Russia*)

August, 26, 9.00–11.00. Emperor's Cabinet
Session FM4. Identification and Filtering

Guaranteed Filtering in Delayed Dynamic Systems
N.K. Ahmedova, V.B. Kolmanovskii, A.I. Matasov (*Russia*)

Observability of a Flexible Manipulator with a Payload
A. Zuyev (*Ukraine*)

Neuro-Quantum Networks in Tasks of Pattern Recognition
T.R. Ambaryan (*Russia*)

Parameter Estimation from Noisy Chaotic Time Series
I. Grosu (*Romania*), **A. Lerescu** (*The Netherlands*)

Best Likelihood Forecast of Volatility in Class of Linear Functions

M.I. Krivoruchenko (*Russia*)

Development of Neural Networks Module for Fault Identification in Asynchronous Machine Using Various Types of Reference Signals

Dj. Khodja, B. Chetate (*Algeria*)

August, 26, 11.00–13.20. White Hall

Session FA1. Stochastic and Chaotic Systems

Multiscale Coupling in Heterogeneous Diffusion Processes: A Port-Based Approach

D. Eberard, L. Lefèvre, B. Maschke (*France*)

Robust and Simultaneous Stabilization of Jump Discrete-Time Systems with Control-Dependent Noise via Output Feedback

P.V. Pakshin, V.V. Pachaev (*Russia*)

Influence of Random Phase Modulation on Chaotic Response of a Bilinear Driven Oscillator

M.V. Zakrzhevsky (*Latvia*), **D.V. Iourtchenko** (*U.S.A.*)

Nonlinear Fractal Dynamics and Clustering of Passive Particles by a Hydrodynamic Vortex and a Current

M.V. Budyansky, S.V. Prants (*Russia*)

August, 26, 11.00–13.20. Golden Hall

Session FA2. Discontinuous and Hybrid Systems

Differential Flatness of Sliding Mode Nonlinear Systems

A.J. Koshkouei, K.J. Burnham, A.S.I. Zinober (*U.K.*)

Variable Structure Model Reference Adaptive Control with an Augmented Error Signal for Input-Delay Systems

E.L. Mirkin (*Kyrgyz Republic*)

Hybrid Luenberger Observers in the Problem of Multiprogrammed Control

N.V. Smirnov (*Russia*)

Variable Structure-Based Nonlinear Congestion Control for Networked Controlled Systems

K. Bouyoucef, K. Khorasani (*Canada*)

Impulsive Control Problem for Uncertain Dynamic Systems

T.F. Filippova (*Russia*)

An LMI Approach to Stability Analysis of PWM DC-DC Buck Converters

A.N. Churilov (*Russia*)

August, 26, 11.00–13.20. Blue Hall
Session FA3. Nonlinear Dynamics

On stability by the First Approximation for Discrete Systems
N.V. Kuznetsov, G.A. Leonov (*Russia*)

Attractors of One-Dimensional Maps Generated By Boundary Value Problems
A. Sharkovsky (*Ukraine*), **J. Sousa Ramos** (*Portugal*), **S. Berezovsky** (*Ukraine*)

Iteration Method of the Localization of Periodic Orbits
A.P. Krishchenko (*Russia*), **K.E. Starkov** (*Mexico*)

Examples of Localization of Periodic Orbits of Polynomial Systems
K. Starkov, L.N. Coria (*Mexico*)

Review and Examples of Non-Feigenbaum Critical Situations Associated with Period-Doubling
S.P. Kuznetsov, A.P. Kuznetsov, I.R. Sataev (*Russia*)

Asymptotic Analysis of the Autoresonance Phenomenon
L.A. Kalyakin (*Russia*)

August, 26, 11.00–13.20. Emperor's Cabinet
Session FA4. Molecular and Quantum Control

Coherent Control of Atomic Excitation under the Action of Bichromatic Laser Field in the Presence of Electric Field
V.A. Astapenko (*Russia*)

Coherent Control Technique Enhanced by Entangled States
A.I. Zhiliba (*Russia*)

Perturbation Theory and Control in Classical or Quantum Mechanics by a Closed Formula
M. Vittot (*France*)

Quantum Control of Dissociation of an Iodine Molecule by One and Two Femtosecond Laser Pulses Excitation
M. Ananyevskiy, A.S. Vetchinkin, Yu.A. Zotov, A. Fradkov, S.Ya. Umanskii, O.M. Sarkisov (*Russia*)

Quantum Control and Quantum Chaos in Cavity QED
M.Yu. Uleysky, S.V. Prants (*Russia*)

POSTERS–I

August, 24, 17.00–18.00. Dancing Hall

Controlling Motion of an Ensemble of Topological Defects
V.O. Afenchenko, A.B. Ezersky, S.V. Kiyashko (*Russia*)

Stability Conditions for a Class of Nonlinear Dynamical Systems

A.Yu. Aleksandrov, A.V. Platonov (*Russia*)

Control of quantum molecular dynamics

M. Ananyevskiy (*Russia*)

Suppression of a noise-induced transition by feedback control

Yu.A. Astrov, A. Fradkov, P. Guzenko (*Russia*)

Adiabats and Compression of Pulses

V.G. Arkhipkin, I.V. Timofeev (*Russia*)

Velocity Control of an Electro Hydraulic Servomotor by Neural Networks

H. Azimian, R. Adlgostar, M. Teshnehlab (*Iran*)

Multi-Purpose Control of Dynamic System

A.A. Ashimov, Yu.V. Borovskiy, As.A. Ashimov (*Kazakhstan*)

Controlling the Optimize Deposition of Thin Film in D.C. Plasma Magnetron Sputtering and Measuring the Surface Conductivity by Hall Effect

F. Bahadori, M. Mahmoudzadeh (*Turkey*)

Breaking the Light Barrier. Adding Velocities beyond the Speed of Light

E.A. Blomdahl (*U.S.A.*)

An H_∞ Technology for Simultaneous Estimation and Control of an Inertial Gyroplatform when Stabilizing It in a Reference Phase Path

A.V. Chernodarov (*Russia*)

Theses on Entropy

K. Chernyshov (*Russia*)

Control of Energy and Selective Dissociation of a Model 3-Atomic Molecule

A. Efimov (*Russia*)

Robust and Simultaneous Stabilization of Jump Time-Delay Systems via Output Feedback

P.V. Pakshin, A.A. Emelyanov (*Russia*)

Description of Elastic Ionic Polarization of a Dielectric by the Model of System with Cross Coupling

I.E. Eremin, N.S. Kostyukov, E.A. Covalence (*Russia*)

The Condensable Phase Fractions Growth under Free Molecular Conditions

A.I. Gavrillov, E.V. Hairjuzova, F.V. Moskalenko, I.A. Gavrillov (*Russia*)

Pontryagin Maximum Principle for Quantum Time-Optimum Problem

P.A. Golovinski (*Russia*)

Quantum Feedback of Distinguishable Atoms

T. Ivanova, D. Ivanov (*Russia*)

Single Particle Dynamics in Continuously Controlled Bosonic Gas

D. Ivanov (*Russia*), **S. Wallentowitz** (*Chile*)

An Approach to Surface Profile Estimation

S.A. Kochetkov, **P.A. Shavrin** (*Russia*)

Nonlinear Controllers: A Hybrid Algorithm of Synthesis

Yu.V. Kolokolov, **A.P. Sholonik**, **P.S. Ustinov** (*Russia*)

Direct Synthesis of Sliding Modes Identifier for Non-Linear Systems

S.A. Krasnova, **V.A. Utkin**, **S.I. Kuznetsov** (*Russia*)

Investigation Self-Organization Structures in Supersonic Dynamics of Domain Wall in Orthoferrites

A.P. Kuz'menko, **E.A. Zhukov**, **A.V. Kaminskiy** (*Russia*)

On Stabilization Problem for Non-Linear Systems

S.I. Kuznetsov, **V.A. Utkin**, **S.A. Krasnova** (*Russia*)

Modeling of Tetrahedrally Close-Packed Structures in Magnetic Nanocrystalline Fe-C Films

L.I. Kveglis, **A.V. Kuzovnikov**, **I.V. Timofeev** (*Russia*)

The Digital Measurer of Temperature with Platinum Thermoresistor

B.M. Mamikonyan, **Kh.B. Mamikonyan**, **A.M. Manukyan** (*Armenia*)

Precision Control of Thermal Field in Solid Sample

M.A. Martsenyuk, **A.Yu. Oschepkov** (*Russia*)

Hankel Singular Values and Vectors of a Nonlinear Pendulum

L.A. Mironovsky, **X.Y. Petrova** (*Russia*)

Motion Control on a Vicinity of Sets on Logarithmic Restrictions in Connected Phase Planes

V.N. Pilishkin (*Russia*), **I. Tollet** (*Finland*)

From Nanopowders to Micro-Crystals

I. Sandu, **I. Morjan**, **I. Voicu**, **R. Alexandrescu**, **F. Dumitrache**, **I. Soare**, **M. Fleaca**, **L. Albu**,
M. Scarisoreanu, **E. Popovici**, **E. Vasile** (*Romania*)

The Deutsch-Jozsa Algorithm and the Bulk Ensemble NMR Quantum Computer

R. Sawae, **Y. Mori**, **M. Kawamura**, **T. Sakata**, **K. Takarabe** (*Japan*)

Nonlinear Effects and Chaotic Nonequilibrium Behavior with the Thermal Effect on the Nano-Dimensional Metallic Films

I. Serov, **A. Anisimov**, **G. Lukyanov**, **V. Margolin**, **I. Soltovskaya** (*Russia*)

Simulation of Interaction of the Electromagnetic Radiation in the Form of Surface Wave with the Solid Surfaces

I. Serov, **G. Lukyanov** (*Russia*)

Novel Electrochemical Formaldehyde Actinometer for Xe₂-excimer Lamp Intensity Control

E.A. Sosnin, **E.A. Zakharova**, **M.L. Moskalyeva**, **V.N. Batalova** (*Russia*)

Controlled Synchronization of Unbalanced Rotors with Flexible Shafts in Time-Varying Vibrational Units

O. Tomchina, I. Kudryavtseva (*Russia*)

Admissible Sampling Time to Stabilize a Shaft in Radial Active Magnetic Bearings

V.S. Voronkov, A.V. Krivitskaya (*Russia*)

Adaptive Control Systems with Two-Time Scale Motions

A.S. Vostrikov, O.Y. Shpilevaya (*Russia*)

POSTERS–II

August, 25, 17.00–18.00. Dancing Hall

On the Instability of the Free Elastic Rod with Non-Linear Intrinsic Viscosity under the Action of the Follower Force

S.A. Agafonov, G.A. Scheglov (*Russia*)

A Hierarchy of Non-Holonomic Constraints and Step-2 Nilpotent Lie Algebras

A. Anzaldo-Meneses, F. Monroy-Pérez (*Mexico*)

Determined Chaos in Phase-Transition Processes of Melting of Anisotropic Substances

E.V. Bogatikov, L.A. Bitvutskaya (*Russia*)

Feedback Bounded Control of Oscillation for Wave Equation under a White-Noise Excitation

A.S. Bratus, A.P. Ivanova (*Russia*)

Optimal Control of Piston Movement in Tube Caused by the Difference of Gas Static Pressures

M.V. Chernyshov, S.A. Kabanov, V.N. Uskov (*Russia*)

Vibrational Resonance in a Noisy Bistable System: Nonfeedback Control of Stochastic Resonance

V.N. Chizhevsky (*Belarus*), **G. Giacomelli** (*Italy*)

Definition of the Fiber-Optical Tomography Problem

I.V. Denisov, E.V. Denisova, N.A. Rybalchenko, V.A. Sedov (*Russia*)

Description of Population Dynamics of Commercial Species Allow for Nonlinearity of a Craft Function

E.Ya. Frisman, E.V. Last (*Russia*)

The Trade Effects on Both Genetic Variety and Dynamic Behavior of Mendelian Limited Population

E.Ya. Frisman, O.L. Zhdanova (*Russia*)

Travelling Waves in Systems of Locally or Globally Coupled Relaxation Oscillators

E.V. Grigorieva, S.A. Kaschenko (*Belarus*)

Control of Noise-Induced Cooperative Dynamics in Coupled Neuron Models

B. Hauschildt, A. Balanov, N. Janson, E. Schöll (*Germany*)

Second Circuit of Two-Dimensional Feedback Loop in Ring Interferometer as a Way to Create Coupled Oscillators System or Couplings in an Oscillator

I.V. Izmailov, A.V. Lyachin, M.E. Nazarov, B.N. Poizner, D.A. Shergin (*Russia*)

Application of Finite Element Method for the Computation of Young's Modulus and Poisson's Ratio along Non-Principal Material

K.V. Jayakumar, G. Gupta (*India*)

Variation in the Electrical Behaviour of CdS Thin Films Caused by High Electron Beam Irradiation

K.V. Jayakumar, G. Gupta (*India*)

Reconstruction of Signals of Sensors of the Power Flux

E. Jharko (*Russia*)

The Measuring of Dynamic Parameters of Functioning Water Storage Dams

S. Karapetyan, B. Mamikonyan (*Armenia*)

Estimation of Control Times for Weakly Chaotic Dynamical Control Systems

S.M. Khryashchev (*Russia*)

Chaos-Degree-Change Bifurcations during Self-Organization of Cascade-Like Hierarchical Systems

V.G. Kleparskiy (*Russia*)

Detecting Orbits of High Periods from Numerical Solutions of the Rossler System

B.G. Kukhareno (*Russia*)

A Collection of the Simplest Synchronized Chaotic Systems

A.I. Lerescu, I. Grosu (*Romania*)

Comparison and the Analysis of the Processes of the Movement of Air through the Human Breathing System and its Natural Model

G. Lukyanov, A. Rassadina, V. Usachev (*Russia*)

Double-Wavelet Analysis: A Tool to Study Interaction Phenomena in Nonstationary Dynamics

A.N. Pavlov (*Russia*), **O.V. Sosnovtseva** (*Denmark*)

The Physical Modeling of Cutting Process at Steel Treatment

A.I. Sahradyan (*Armenia*)

Identification of the Psychophysiological State of the Man

I. Serov, G. Lukyanov, L. Rybina (*Russia*)

Yakhno-Fitzhugh Model of the Control Parameter in Feigenbaum Scenario for Speech Rhythm

O.P. Skljarov (*Russia*)

Pomeau-Manneville Scenario for Speech V-rhythms and Memory Mechanisms

O. Skljarov (*Russia*)

Multy-Output Maps with Associated Asymptotically Stable Zero Dynamics

S.B. Tkachev, D.U. Panfilov (*Russia*)

Non-Authorized Access to the Chaotic Communication Channel Based on the Partial Approach to the Inverse Problem of Non-Linear Dynamics

M.V. Tomashevskaya, V. N. Kuleshov (*Russia*)

Speed-Gradient Control of Passing through Resonance in Mechanical Systems

D. Tomchin (*Russia*)

Eigenvalue and Stability Analysis for Axially Moving Strings in Transverse Vibrations

Y. Wang, X. Liu, L. Huang (*China*)

Adaptive Control of Chaos in Nonlinear Discrete-Time Systems Using Time-Delayed State Feedback

A. Yazdanpanah, A. Khaki-Sedigh (*Iran*)

Adaptive Control of Chaos in Nonlinear Chaotic Discrete-Time Systems

Am. Yazdanpanah, A. Khaki-Sedigh, Ar. Yazdanpanah (*Iran*)