

FEDERATION OF SCIENTIFIC TECHNICAL UNIONS
UNION OF AUTOMATICS AND INFORMATICS

23rd INTERNATIONAL SYMPOSIUM

Control of Power Plants, Industrial and Ecological Systems

May 14-15, 2015 Hotel Bankya Palace, Bankya, Bulgaria



Technology Transfer Seminar on
Advanced Computing for Innovation
Industrial Applications



SCIENTIFIC PROGRAMME

May 14, 2015

12.30-14.00 **Registration**

14.00-14.10 **Opening Session: V.Sgurev**

14.10-14.40 **Plenary Lecture** Low-cost automation – Opportunities and Prospects

M.Hadjiski

14.40-16.00 **Session A1. Modeling and Management of Power Objects and Systems**

Chair: **K.Boshnakov**

Model-Based Control of the Wood Thermal Treatment Process

M.Hadjiski, N.Deliysky

Analysis of Parameters of Thermoelectric Generators for Geothermal Water Sources

I.Bozev, F.Filipov

Modeling of the Energy Consumption for Unilaterally Heating of Wood Details Before Their Bending

N.Deliysky

Information System for Achieving Energy Savings

A.Buchvarov

16.00-16.40 **Session A2. Companies' Presentations**

Chair: **T.Penzov**

System for Control, Management, Protection and Inflammatory Gas-Fuel Oil System of Power Unit 7 of Thermal Plant "Maritsa Iztok 2"

S.Petrov – Honeywell

The e^+ Principle – A New Generation of Industrial Air-Conditioning Systems (Rittal – The System)

Y.Panayotov – Rittal

16.40-17.00 **Coffee-Break**

17.00-18.00 Session A3. Automation of Technological Processes

Chair: **E.Nikolov**

Sensors and Systems for Measuring of Indirect Parameters at Technological Process Automation

D.Marinov, T.Penzov

Modeling and Optimization of Processes of Anaerobic Digestion of Organic Wastes with Production of Hydrogen and Methane

I.Simeonov, D.Denchev, V.Hubenov, E.Chorukova

Improvement of the Environmental Features and Reduction of the Energy Costs of the Bus Transport through the Use of Electric Traction Engines

Galin Bankov, Ivan Milenov

17.00-18.00 Session TT1. Technology Transfer Seminar on Advanced Computing for Innovation-Industrial Applications

Chair: **D.Karastoyanov**

Mapping of Acoustic Noise and Microwave Radiation

Volodymyr Kudriashov

Acoustic Fields Reconstruction

Yuriy Chyrka

Research of Moving and Interaction between Spheroidal Tetrahedrons in Ball Mills

Nikolay Stoymenov

High-Speed Briquetting of Metal Waste using Rocket Engine

Stanislav Gyoshev

Inspection and Observation using Infrared Thermal Camera by Service Mobile Robots

Denis Chikurtev

18.00-19.00 Discussion: The Place of Automation in Modern Innovation Process

Chair: **I.Shishkov**

19:30 Symposium Dinner

May 15, 2015

9.00-10.40 Session B1. Theoretical Problems of Management and Optimization of Industrial Objects and Systems

Chair: **M.Hadjiski**

Analysis of Filtration Features of Repetitive Management Systems – Parts I, II

N.Nikolova, E.Nikolov

Software Tool for Design of Explicit Model-Predictive Controllers Based on Orthogonal Partition of the Parameter Space

A.Gruncharova

Avoiding Local Optimums in Distributed Population-Based Heuristic Algorithms

T.Balabanov

Statistical Models Optimization Based on Differential Evolution and Monte Carlo – Evaluated Cost Function

T.Balabanov, I.Zankinsky, B.Shumanov

10.40-11.00 Coffee-Break

11.00-12.40 Session B2. Information Technologies to Improve Energy Efficiency

Chair: **I.Bachkova**

Measures to Improve the Efficiency of Energy Management Systems

P.Kessova, I.Bachkova

Ontology-Based Approach to Decision-Making in Manufacturing Operation Management Systems

D.Gocheva, D.Georgiev, I.Bachkova

Energy-Efficient Control System of Conveyor Belt at Broadband Grinding Machine

J.Belev, I.Bachkova, G.Popov

Monitoring and Management of Urban Road Traffic

V.Ivanov, P.Stoyanov

Automatic Control of Switching the Power Supply in Microgrid

V.Stoyanov

11.00-12.40 Session TT2. Technology Transfer Seminar on Advanced Computing for Innovation-Industrial Applications

Chair: **L.Doukovska**

Determination of Particle Size Distribution and Analysis of a Natural Food Supplement with Prophylactic Action

Iliana Nacheva, Maria Doneva, Yancho Todorov

Determination of Particle Size Distribution and Analysis of a Healthy Functional Food

Svetla Dyankova, Petya Metodieva, Margarita Terzyiska

Industrial Transport Optimization through Multigraphs

Stanislav Drangajov, Vassil Sgurev

Inference Control System for the Flame Position in the Combustion Chamber of a Power Plant System

Stefan Koynov, Mincho Hadjiski

Robust Stability Analysis of Perturbed Single Area Power System Model

Svetoslav Savov, Ivan Popchev

12.40 Closing Session