Tuesday

	Room 1	Room 2	Room 3	Room 4
9.00-10.00	*Plenary session* *Chair: Tadeusz Kaczorek* **SPACE ROBOTICS - Beginnings are current developments**, Jurek Sasiadek			
10.00-11.20	*Stability Problems* *Chair: Jerzy Klamka* **Robust Stability of Ladder Circuits from the 2D Systems Point of View**, Bartłomiej Sulikowski, Krzysztof Gałkowski, Anton Kummert **On the Stability of Unforced Nonautonomous Underdamped Dissipative Hamiltonian Systems**, Antonio Alexandridis, Evangelos Androulidakis **Controllability and Stability of Switched Systems**, Adam Czornik, Michał Niezabitowski **Synchronization of phase oscillators with attractive and repulsive interconnections**, Ali El-Ati, Elena Panteley	*Signal Processing and Networked Control Systems* *Chair: Krzysztof Latawiec* **Database of Iris Printouts and its Application: Development of Liveness Detection Method for Iris Recognition**, Adam Czajka **A Concept of Time-Varying FIR Notch Filter with Non-Zero Initial Conditions Based on Linear Kalman Notch Filter Prototype**, Sławomir Kocoń, Jacek Piskorowski **Buffer Length Selection for Distributed Control Systems**, Wojciech Grega, Andrzej Tutaj **Stability Analysis of Linear Time-Varying IIR Filter with Equalized Group Delay Characteristic**, Piotr Okoniewski, Jacek Piskorowski	*Control Applications I* *Chair: Harald Aschemann* **Modeling of a Planar Motion Stage for Precision Positioning**, Kai Treichel, Remon Al Azrak, Johann Reger, Kai Wulff **Robust Output Feedback Trajectory Tracking Control of an Electrodynamic Planar Motion Stage for Precision Positioning**, Kai Treichel, Remon Al Azrak, Johann Reger, Kai Wulff **Application of Risk-Sensitive Optimal Filtering Equations to Excitable Noise System**, Maria Aracelia Alcorta-Garcia, Jose Paz Perez, Alicia Yesenia Lopez	*Fuzzy Logic* *Chair: Wojciech Hunek* **The Fuzzy-Neuro Development System FUZNET**, Petr Cermak, Miroslav Pokorny **Aggregation Stability of Multiple Agents with Fuzzy Attraction and Repulsion Forces**, Lan Le Hung, Lan Le Hong, Nga Le Thi Thuy **Real-Time Implementation of a Type-2 Fuzzy Logic Controller to Control a DC Servomotor with Different Defuzzification Methods**, Haytham M. Fayek, Irraivan Elamvazuthi
11.40-13.00	*Intelligent Systems and Methods* *Chair: Jana Nemcova* **Cooperative Collision Avoidance for Multi-Vehicle Systems Using Reinforcement Learning**, Qichen Wang, Chris Phillips **Decision Support System for Peak Load Dispatching**, Jin Liu, Jilai Yu, Zhuo Liu **Identity of a companion, migrating between robots without common communication modalities: initial results of VHRI study**, Krzysztof Arent, Bogdan Kreczmer **Solving Multicriteria Optimal Control Problems with Reference Multifunctions**, Andrzej M.J. Skulimowski	*Identification* *Chair: Krzysztof Janiszowski* **Modeling and Identification of a Twin Hull-Based Autonomous Surface Craft**, Johannes Reuter, Stefan Wirtensohn, Michael Blaich, Michael Schuste **Hammerstein System Identification with Multisine Excitations - Quantized Low-Power Observations Case**, Jarosław Figwer **Parametric Identification of Wiener Systems with Invertible Nonlinearities**, Andrzej Janczak **Identification-Driven Emotion Recognition System for a Social Robot**, Mateusz Żarkowski	*Control Applications II* *Chair: Johann Reger* **Coil Current Proportional Feedback Embedded Into Programmable Analog Controller**, Adam Pilat **Experimental Validation of a Sensitivity-Based Observer for Solid Oxide Fuel Cell Systems**, Luise Senkel, Andreas Rauh, Harald Aschemann **Uses of Differential-Algebraic Equations for Trajectory Planning and Feedforward Control of Spatially Two-Dimensional Heat Transfer Processes**, Andreas Rauh, Harald Aschemann, Nedialko S. Nedialkov, John D. Pryc **Static and Dynamic Ergonomic Corrects of Torque Controlled in Bicycle Ergometer**, Krzysztof Nowopolski, Bartłomiej Wicher, Cezary Bielak	*Fault Detection* *Chair: Andrzej Bartoszewicz* **Fault Detection with Unscented Kalman Filter Applied to Nonlinear Differential-Algebraic Systems**, Ilja Alkov, Dirk Weidemann **Robust Unknown Input Filter for Fault Diagnosis of Non-Linear Systems**, Marcin Mrugalski, Marcin Witczak **Active Fault Tolerant Control for Uncertain System with State Time-Delay**, Soltani Hadil, Bel Hadj Ali Saloua, El Harabi Rafika, Abdelkrim Moha **Nonlinear PCA and Graphical Tools Based Fault Diagnosis of Multi-Energy Systems**, Rahma Smaili, Rafika Elharabi, Mohamed Naceur Abdelkrim

Tuesday

	Room 1	Room 2	Room 3	Room 4
	Neural Networks *Chair: Jacek Czeczot*	*Modelling and Simulations I* *Chair: Andrzej Janczak*	*Control Applications III* *Chair: Viorel Nicolau*	*Robotics I* *Chair: John Baras*
15.00-16.20	**Adaptive Neural Speed Controller for Servodrive Trained Online**, Tomasz Pajchrowski **Neural Network Based LQ Control of a Semiactive Quarter-Car Model**, Piotr Krauze, Jerzy Kasprzyk **Designing Nonlinear Model of the Two Rotor Aero-Dynamical System Using State Space Neural Networks with Delays**, Andrzej Czajkowski, Krzysztof Patan **Robust H-Infinity Actuator Fault Diagnosis with Neural Network**, Marcel Luzar, Marcin Witczak, Piotr Witczak	**Matching of Linear Dynamic Model of Process Based on Known Frequency Characteristic Using a Non-Quadratic Measure of Model Error**, Krzysztof Janiszowski **True RMS-Based Inverse MR Damper Model for a Semi-Active System**, Krzysztof Plaza **An Approach to SysML Modeling of IEC 61131-3 Control Software**, Marcin Jamro, Bartosz Trybus **Steering and Dynamic Performance of a New Configuration of a Wheelchair on Two Wheels in Various Indoor and Outdoor Environments**, Abdullah Almeshal, Khaled Goher, Osman Tokhi, Ahmad Nasir	**Design and Experimental Validation of Control Strategies for Commercial Gas Preheating Systems**, Andreas Rauh, Luise Senkel, Harald Aschemann **A Distributed Parameter Approach for Dual Solenoid Valve Control with Experimental Validation**, Johannes Reuter, Tristan Braun **Verified Simulation of Control Systems with Interval Parameters Using an Exponential State Enclosure Technique**, Andreas Rauh, Ramona Westphal, Harald Aschemann **Application of Idea of Time-Scale Control to Synthesis of Control Signals for Certain Class of Discrete -Time Systems**, Bogdan Grzywacz	**Task Assignment, Sequencing and Path-Planning in Robotic Welding Cells**, Chantal Landry, René Henrion, Dietmar Hömberg, Martin Skutella **Identification and Controller Design for the Inverted Pendulum Actuated by a Position Controlled Robot**, Alexander Winkler, Jozef Suchy **Dynamic Model for an Articulated Chain of 16-DoF**, Monica Hernandez, Diego Patino, Carlos Parra **Advanced Robot Calibration Using Partial Pose Measurements**, Alexandr Klimchik, Yier Wu, Stéphane Caro, Stéphane Furet

	Room 1	Room 2	Room 3
	Control Theory *Chair: Johannes Reuter*	*Modelling and Simulations II* *Chair: Jarosław Figwer*	*Predictive Control* *Chair: Andreas Rauh*
16.40-18.00	**Discrete-Time Formulas of One Parameter Stabilizing Controllers and Mixed Sensitivity Problem, for Square Systems**, Cutberto Conejo, Rene Galindo **Local Nash Realizations**, Jana Nemcova, Mihaly Petreczky **A New Form of a (sigma)-Inverse for Nonsquare Polynomial Matrices**, Wojciech Hunek, Krzysztof Latawiec, Rafał Stanisławski, ...	**Modification of Human Circulatory System Model for the Purpose of Physical Reproduction of Apex of the Heart Conditions**, Alicja Siewnicka, Krzysztof Janiszowski **On an Automatic Generation of Nilpotent Systems**, Ignacy Duleba **Modelling, Investigation, Simulation, and PID Current Control of Active Magnetic Levitation FEM Model**, Adam Pilat **Formal Model for Micro-Scale Traffic Simulation and Control**, Piotr Błaszczyk, Wojciech Turek, Krzysztof Cetnarowicz	**Model Predictive Control of Power Plant Superheater – Comparison of Multi Model and Nonlinear Approaches**, Jaroslav Hlava, Jan Opalka, Tor Arne Johansen **Comparison of DMC and PFC Control for Heating Process**, Piotr Laszczyk, Tomasz Klopot, Dominika Pyka **A Comparative Study on Approaches to State and Disturbance Estimation for a Vehicle Combustion Heating System**, Saif Siddique Butt, Robert Prabel, Harald Aschemann **Fault Tolerant Generalized Predictive for Networked Control Hydraulic System**, Manel Atitallah, Saloua Bel Hadj Ali Naoui, Rafika El Harabi, ...

Wednesday

	Room 1	Room 2	Room 3
9.00-10.00	*Plenary session* *Chair: Jurek Sasiadek* **Space Penetrometers - Rosetta Case Study**, Jerzy Grygorczuk, Marek Banaszkiewicz, Karol Seweryn, Lukasz Wisnie...		
10:00-11:20	*Robotics II* *Chair: Alexander Winkler* **The Artificial Hand with Elastic Fingers for Humanoid Robot Roman**, Krzysztof Mianowski, Karsten Berns, Jochen Hirth **Trajectory Generation for the Hybrid Robot from G Code**, Janusz Ochonski, Maciej Petko **Stabilization of Biped Robot Standing on Nonstationary Plane**, Dmitry Bazylev, Anton Pyrkin	*INVITED SESSION: Control & Optimization of Infinite Dimensional Systems I* *Chair: Adam Kowalewski* **Controllability of Switched Linear Dynamical Systems**, Jerzy Klamka, Michal Niezabitowski **Application of Topological Derivative to Accelerate Genetic Algorithm in Shape Optimization for Semilinear Elliptic Equation**, Katarzyna Szulc, Antoni Zochowski **Optimal Control via Initial Conditions of a Time Delay Hyperbolic System with the Neumann Boundary Condition**, Adam Kowalewski **On Certain Optimization Problems with Applications to Control Problems with Constraints**, Zbigniew Emirsajlow	*Modelling and Simulation III* *Chair: Gilberto Gonzales Avalos* **Modelling and Control of 3D STM-Like Scanning Device with Application to Surface Reconstruction**, Lukasz Ryba, Alina Voda, Gildas Besançon **FPGA Implementation of Direct Rotor Field Oriented Control for Induction Motor**, Nadir Kabache, Samir Moulahoum, Hamza Houassine **Nonlinear Estimation Framework: a Versatile Tool for State Estimation**, Miroslav Flídr, Ondrej Straka, Jindrich Havlík, Miroslav Šimandl **Shunt Active Power Filter to Mitigate Harmonics Generated by Compact Fluorescent Lights**, Samir Moulahoum, Hamza Houassine, Nadir Kabache
11:40-13:00	*Robotics III* *Chair: Ignacy Dulęba* **Visual Servoing Based Mobile Robot Navigation Able to Deal with Complete Target Loss**, Wenhao Fu, Hicham Hadj-Abdelkader, Etienne Colle **MEMS Motion Tracking System for Surgical Robot ROCH-1**, Ryszard Leniowski, Lucyna Leniowska	*INVITED SESSION: Control & Optimization of Infinite Dimensional Systems II* *Chair: Adam Kowalewski* **Sensitivity Analysis of Time Delay Parabolic-Hyperbolic Optimal Control Problems with Boundary Conditions Involving Time Delays**, Zbigniew Emirsajlow, Anna Krakowiak, Adam Kowalewski, Jan Sokolowsk... **Block-Sparse Analysis Regularization of Ill-Posed Problems via ell2,1-Minimization**, Markus Haltmeier **Shape-Topological Differentiability of Energy Functionals in Domains with Cracks**, Günter Leugering, Jan Sokolowski, Antoni Zochowski	*Modelling and Simulation IV* *Chair: Andreas Rauh* **Design of LTI Tracking Systems Modelled by Bond Graphs**, Gilberto Gonzalez-A **Idea of Switching Algebraic-Logical Models in Flow-Shop Scheduling Problem with Defects**, Katarzyna Grobler-Debska, Edyta Kucharska, Ewa Dudek-Dyduch **Dynamic Assignment of Tasks to Mobile Robots in Presence of Obstacles**, Tomasz Sosnicki, Wojciech Turek, Krzysztof Cetnarowicz, Malgorzata ... **Optimization of Task Processing on Parallel Processors with Learning Abilities**, Radoslaw Rudek, Agnieszka Rudek, Andrzej Kozik, Piotr Skworcow

Wednesday

	Room 1	Room 2	Room 3
15:00-16:40	*Adaptive Control* *Chair: Harald Aschemann* **Balance-Based Adaptive Control of the Second Order Systems**, Krzysztof Stebel, Jacek Czeczot **A Model Reference Adaptive Control Strategy for a Self-Balancing Chair**, Florian Straussberger, Manuel Schwab, Michael Huber, Christian Baum... **Fault Tolerant Tube-Based Adaptive Tracking for a Class of Nonlinear Plants**, Boris Mirkin, Per-Olof Gutman, Yuri Shtessel **A Digital Controller for Satellite Medium Power DC/DC Converters**, Konrad Skup, Pawel Grudzinski, Piotr Orleanski, Witold Nowosielski	*INVITED SESSION: Space Robotics* *Chair: Jurek Sasiadek, Karol Seweryn* **Electromagnetic Compatibility Problems of ELSA - Novel Component for Spacecraft Attitude Control System Based on Concept of Spherical Actuator**, Roman Wawrzaszek, Marek Strumik, Karol Seweryn, Michal Sidz, Marek ... **Parameter Identification of Free Floating Space Manipulator Flat Laboratory Model**, Tomasz Barcinski, Karol Seweryn **Detumbling of Highly Non-Symmetrical Satellites with Use of B-Dot Control Law**, Grzegorz Juchnikowski, Tomasz Barcinski, Jakub Lisowski **Autonomous Mobile Robot Positioning Using Unscented HybridSLAM**, Amirhossein Monjazeb, Jurek Sasiadek, Dan Necsulescu **Project FREDE as a Stratospheric Experiment with Autonomus Control System**, Jedrzej Gorski	*Fractional Order Systems* *Chair: Tadeusz Kaczorek* **Compactness of Fractional Embeddings for Boundary Value Problems**, Dariusz Idczak, Marek Majewski **Two Types of Controllability of H-Difference Linear Systems with Two Fractional Orders**, Ewa Pawluszewicz, Dorota Mozyrska **Laguerre-Based Modeling of Fractional-Order LTI SISO Systems**, Rafal Stanislawski, Krzysztof J. Latawiec, Wojciech P. Hunek, Maria... **On Robust PI Lambda D μ Control for Time-Delay Non-Integer Order Plants**, Wieslaw Krajewski, Umberto Viaro **Minimum Energy Control of Fractional Positive Continuous-Time Linear Systems**, Tadeusz Kaczorek

Thursday

	Room 1	Room 2	Room 3
9.00-10.00	*Plenary session* *Chair: Andrzej Bartoszewicz* **Robust Regulation of Infinite-Dimensional Systems**, Seppo Pohjolainen		
10:00-11:20	*Robotics IV* *Chair: Wojciech Grega* **Multi Level Modeling and Loop Closing with GridTiles**, Christian Heigele, Holger Mielenz, Joerg Heckel, Dieter Schramm **Velocity/Force Observer Design for Robot Manipulators**, Alejandro Gutiérrez-Giles, Marco Arteaga-Pérez **Brain Controlled Multiagent Aerial Vehicles System**, Alexandr Borgul, Dmitry Bazylev **3D Proximity Laser Scanner Calibration**, Petra Kocmanova, Ludek Zalud, Adam Chromy	*Nonlinear Systems* *Chair: Marcus Haltmeier* **Geometric H-Infinity Control of Nonlinear Markovian Jump System**, Zhongwei Lin, Jizhen Liu, Yuguang Niu, Wenguang Zhang **Nonlinear Control for Load Reduction on a Variable Speed Pitch Regulated Wind Turbine**, Barry Dolan, Harald Aschemann **Decentralised Flatness-Based Control of a Hydrostatic Drive Train Subject to Actuator Uncertainty and Disturbances**, Harald Aschemann, Hao Sun **Nonlinear Control of a Hydraulic Steer-by-Wire Test Rig Using Extended Linearisation Techniques**, Robert Prabel, Harald Aschemann	*Discrete Events and Hybrid Systems* *Chair: Per Olof Gutman* **On the Nonlinear Dynamic Behavior of Unrelaxed Timed Petri Nets in Idempotent Semirings**, Abderahim Benfekir, Samir Hamaci, Abdel-Moumen Darcherif, Laurent L... **A Hybrid Approach to Modeling and Optimization for Supply Chain Management with Multimodal Transport**, Pawel Sitek, Jaroslaw Wikarek **Event Enforcement in the Context of the Supervisory Control Theory**, Robin Diekmann, Dirk Weidemann **Modeling Discrete-Event Systems with Constraints**, Lothar Seybold, Piotr Witczak, Pawel Majdzik

Thursday

	Room 1	Room 2	Room 3
11:40-13:00	*Robotics V* *Chair: Marian Łukaniszyn* **Stereo Image Visualization for VISROBOT System**, Zdzislaw Kowalczuk, Tomasz Merta **On the Connectivity Assumption of Non-Linear Flocking Models**, Christoforos Somarakis, John Baras **Relations Between Classification Criteria of Objects Recognizable by Ultrasonic Systems**, Bogdan Kreczmer **Inter-Field Routes Scheduling and Rescheduling for an Autonomous Tractor Fleet at the Farm**, Per-Olof Gutman, Ilya Ioslovich	*Sliding Mode Control* *Chair: Adam Czornik* **Interval-Based Sliding Mode Observer Design for Nonlinear Systems with Bounded Measurement and Parameter Uncertainty**, Luise Senkel, Andreas Rauh, Harald Aschemann **Refined Reaching Laws for Sliding Mode Control of Discrete Time Systems**, Andrzej Bartoszewicz, Piotr Lesniewski **Sliding Plane Design for Discrete-Time Networked Control of Cable Suspended Loads**, Przemyslaw Ignaciuk	*Marine Vehicle Control* *Chair: Krzysztof Latawiec* **On the Ship Path-Following Control System Design by Using Robust Feedback Linearization**, Zenon Zwierzewicz **Dynamic Positioning System with Vectorial Backstepping Controller**, Anna Witkowska **Modeling Aspects of Nonlinear Steering Machine of Conventional Ships**, Viorel Nicolau