

www.iwed.science Program of the International Workshop on Electric Drives

31 of January 2018

14:00 – 18:00 Technical visit to Moscow Power Engineering Institute for International participants
18:00 – 21:00 Welcome reception for International participants

01 of February 2018

8:30 – 11:00 Registration
9:00 Opening Ceremony
9:15 – 11:00 Optimization in Control of Electric Drives
9:15 The Impact of Modulation Technique on High Power Density Synchronous Machine Characteristics
9:30 Minimization and Redistribution of Switching Losses Using Predictive PWM Strategy in a Voltage Source Inverter
9:45 Joint Space Reference Trajectory to Reduce the Energy Consumption of a Six-Legged Mobile Robot
10:00 Considering the electric drive variables constraints for servo motion control optimization
10:15 Impact of Low Switching-to-Fundamental Frequency Ratio on Predictive Current Control of PMSM
10:30 Genetic Algorithm Optimization of SHE-PWM Technique for Multi-Module VSIs Employed in Electric Drive systems
10:45 Simulink Based Model for Flow Control of a Centrifugal Pumping System
11:00 – 11:30 Coffee break
11:30 – 12:15 Optimization in Control of Electric Drives
11:30 Analysis of Motion Controller Requirements for Precision Planar Motion System with Parallel Kinematic
11:45 Application of Adaptive Neuro Fuzzy Inference System (ANFIS) Controller in Servodrives with Multi-Mass Object
12:00 Improving the dynamic response of FOC induction machines operated with reduced rotor flux
12:15 – 13:15 Other Topical Reports on Electric Drives
12:15 Electrical Machines for Turbocharging High-Horsepower Marine Engines
12:30 Design And Testing of Electromechanical Actuator for Aerospace Applications
12:45 Modeling of Two-Trolleybus Motion with Braking Energy Exchange and Transmission Resistance
13:00 – 14:00 Coffee break
14:00 – 16:30 Invited Speeches and Tutorials
14:00 Invited speech: Crossrail – London's New Underground Railway
14:30 From Control to Intelligence the new generation of Electric Drives with Xilinx All Programmable System on Chip"
16:00 Development Tools and Reference Solutions for Novel Russian Motor Control Microcontroller
16:30 – 17:30 Russian Session of the Workshop

Nikolay Rogalev, Aleksey Anuchin

Dmitry Golovanov, Galina Mirzaeva, David Gerada and Chris Gerada
Aleksey Anuchin, Dmitry Aliamkin, Maxim Lashkevich, Dmitry Shpak, Alexandr Zharkov and Fernando Briz
Aleksey Bodrov, Weichen Cheah, Peter N. Green, Simon Watson and Judith Apsley
Lev N. Rassudov, Elizaveta K. Samygina and Aleksandr P. Balkovoi
Leszek Jarzebowicz
Ahmed Omara, Michael Sleptsov and Mohamed El-Nemr
Levon Gevorkov, Anton Rassölkin, Ants Kallaste and Toomas Vaimann

Mikhail Tiapkin, Dmitriy Elenskiy, Alexander Balkovoy and Oleg Tolstykh
Dmitry Lukichev, Galina Demidova, Aleksei Kuzin and Aleksandr Saushev
Alexander Popov, **Viktoriya Lapshina**, Igor Gulyaev and Fernando Briz

David Gerada, Zeyuan Xu, Dmitry Golovanov and Chris Gerada
Luca Papini, Peter Connor, Chintanbhai Patel, Lee Empringham, Chris Gerada and Patrick Wheeler
Girts Stana and Viesturs Brazis

Rhys Vaughan Williams and **Peter Excell**

Dr. Giulio Corradi – Senior System Architect ISM Xilinx (with translation into Russian)
Maxim Lashkevich (in Russian)

16:00 – 17:30 Poster Session

Quasi-Optimal Energy Path Planning for Anthropomorphic Manipulator using Gravity Torque Mapping
Estimation of the Requirements for Hybrid Electric Powertrain Based on Analysis of Vehicle Trajectory Using GPS and Accelerometer Data
Design of a Portable Drone for Educational Purposes
Interpolation and analysis of the efficiency of a synchronous reluctance electric drive at various load points of a fan profile
Torque Control of Switched Reluctance Drive in Generating Mode
Internal Design of Permanent-Magnet Direct-Drive In-Wheel Motors for Battery-Powered Traction Applications
Ultrasonic Sensor for UAV Flight Navigation
Thermal Models Based Power Module Temperature Monitoring in AC Drives
Overvoltage Protection for Interior Permanent Magnet Synchronous Motor Testbench
Calculation of the efficiency and power consumption of induction IE2 and synchronous reluctance IE5 electric drives in the pump application based on the passport specification according to the IEC 60034-30-2
Model Predictive Direct Power Control of Rotor Side Converter for DFIGs Driven by Variable Speed Wind Turbines

Comparative Study of Field-Oriented Control Model in Application for Induction and Synchronous Reluctance Motors for Lifecycle Analysis
Optimization Task Definition of Double Inverter-Fed Motor Drive Based on Energy Criteria
Simulation of Synchronous Reluctance Motor with Digital Control System and Magnetic Flux Estimator
Mathematical Modeling Ultra Premium Efficiency (IE5 class) PM assisted synchronous reluctance motor with ferrite magnets
Optimum and Quasi-optimum Control of the Position Electric Drive by Criterion of Electric Losses Minimum
Cascaded Fuzzy Logic Based Direct Torque Control of Interior Permanent Magnet Synchronous Motor for Variable Speed Electric Drive Systems
High-Speed Generator with Tooth-Coil Winding, Permanent Magnets and New Design of a Stator Magnetic Core Made from Amorphous Alloy
Comparison of linear position and velocity control strategies for a direct servodrives
Calculation of the Traction Effort of ISEAUTO Self-Driving Vehicle

Sang Beom Woo, **Aleksey Bodrov** and Judith Apsley
Egor Kulik, Trung Tran and Aleksey Anuchin
Maximilian Hell, Robert Bolam, Yuriy Vagapov and **Aleksey Anuchin**
Nail Safin, **Vadim Kazakbaev**, Vladimir Prakht, Vladimir Dmitrievskii and Sergei Sarapulov
Mikhail Bychkov, **Alexander Krasovskiy**, Artem Fedorenko and Elena Gorbunova
Essam Hamdi and John Paul Spivey
David Davies, Robert Bolam, Yuriy Vagapov and **Peter Excell**
Mikhail Ilyin, Alexander Popov, Fernando Briz and Igor Gulyaev
Hiep Duy Do, Aleksey Anuchin, Dmitry Shpak, Alexandr Zharkov and Anatoliy Rusakov

Nail Safin, **Vadim Kazakbaev**, Vladimir Prakht and Vladimir Dmitrievskii
Ahmed Diab
Siahrey Autsov, Anton Rassölkin, Levon Gevorkov, Viktor Saroka, Dmitriy Karpovich, Toomas Vaimann, Ants Kallaste and Anouar Belahcen
Gennady Tutaev and **Maxim Bobrov**
Vadim Kazakbaev, Vladimir Prakht and Vladimir Dmitrievskii
Vladimir Prakht, Vladimir Dmitrievskii and Vadim Kazakbaev
Mikhail Bychkov and Valentina Kuznetsova
Ahmed Omara, Michael Sleptsov and Ahmed Zaki
Flur Ismagilov, Jing Ou, **Vuacheslav Vavilov** and **Denis Gusakov**
Elizaveta K. Samygina, Lev N. Rassudov and Aleksandr P. Balkovoi
Anton Rassölkin, Levon Gevorkov, Toomas Vaimann, Ants Kallaste and Raivo Sell

18:00 – 22:00 Gala-dinner

02 of February 2018

10:00 – 14:00 Technical visits
ABB Moscow Training Center
TBA

14:00 – 18:00 Guided Moscow tour for International participants