

SIELMEN 2021 TECHNICAL PROGRAM

THURSDAY - OCTOBER 7, 2021

14.00 Microsoft Teams platform opening

14.00	OFFICIAL OPENING	Microsoft Teams LINK - GENERAL
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PLENARY SESSIONS	Microsoft Teams LINK - GENERAL
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Chairs: Ilie Nucă, Cristian Foşalău

14.45	Alecksey ANUCHIN, Galina DEMIDOVA	„Improving Reliability of Traction Electric Drives: Encoderless Operation and Active Thermal Control,”
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15.15	Ioan TUDOSA	“Measurements and Instrumentation for Hardware Security in IoT era: challenges and new research opportunities”
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15.45 BREAK

SECTION SESSIONS	
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CLASS 1	
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16.00	MMS 1 (Metrology and measurement systems 1)	LINK MMS
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Chairs: Monica Siroux, Cristian Zet

		ID
Turos Laszlo-Zsolt and Alexandru Salceanu	ESR and capacity measurement of Supercapacitor banks	9
Robert Fuior, Alexandru Salceanu	System for Monitoring Vital Biopotentials	68
Dorin Botoc, Monica Siroux, Alexandru Salceanu and Olga Plopa	Exergetic approach for magnetic refrigeration	81
Lucian Nita	Web Page for Data Acquisition by Accessing Local Computer Resources	70
Cătălin Damian and Denis Donu	Design and Implementation of the Control Unit for a Non Pressurised Solar Heating System	105
Cristian Zet, Cristian Fosala, Anamaria Hariton	Study on the possibilities of detecting recyclable waste using the dielectric properties of materials	109

17.30 BREAK

17.45	MMS 2 (Metrology and measurement systems 2)	LINK MMS
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Chairs: Monica Siroux, Alexandru Salceanu

		ID
Gheorghitanu Ionut and Codrin Donciu	Distance measurement method based on average interpupillary distance	88
Gheorghitanu Ionut, Codrin Donciu and Marinela Temneanu	Shaking table on one axis with electrodynamic actuator	92
Iulian Ghinda and Codrin Donciu	Distance Measurement using the sound card of a computer and two microphones	114
Cătălin Damian, Alexandru Sofronie, Lenuța Alboae	SmartDPO - Template Based, Integrated Flow Document Management System	56
Cătălin Damian and Adelina Răducan	Using A* Algorithm for Autonomous Taxi Application	106

19.00

18.30	MEE (Materials, Eco-design and Electro-ecology)	LINK MEE
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Chairs: Mircea-Emilian Ardeleanu, Marius Olariu

		ID
Mircea-Emilian Ardeleanu, Aurelia Scornea, Dan Gabriel Stanescu, Ioana-Gabriela Sirbu and Ionut Burciu	Modern Methods of Analysing the Transformer Oil	72
Maria Ursan, George-Andrei Ursan, Olga Plopa, Alin-Alexandru Olteanu and Ileana Ursu	Dielectric Properties of Malleable Composite Materials in Electromagnetic Field	87
George-Andrei Ursan, Maria Ursan, Olga Plopa, Raluca Mihaela Ursuleasa and Costel Tugui	Obtaining of the Paints with Electromagnetic Shielding Properties	93
Vasile Eusebiu Toader, Laurentiu Dan Milici, Ciprian Bejenar and Mariana Rodica Milici	Development and Testing of Different Types of Polymer-based Electrical Actuators	104
Mona Andrei, Mihaela Aradoaei, Sebastian Mihail Pascu, Sebastian Teodor Aradoaei	Modeling and simulation of electromagnetic absorption properties of nano-structured composites in the radio frequency/microwave range	110
Mona Andrei, Mihaela Aradoaei, Andreea-Maria Lucaci, Sebastian Teodor Aradoaei	Design of the nano / micro scale structure of nanostructured composites activable in the the radio frequency/microwave range depending on the frequency of the electromagnetic field	122

20.00

CLASS 2	
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16.00	EM 1(Electrical Machines 1)	LINK ME
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Chairs: Francesco Benzi, Adrian Munteanu

		ID
Oana Vasilica Grosu, Mihaela Paval, Laurentiu Milici, Ciprian Bejenar, Ovidiu-Magdin Tanța and Mihai Cenusă	Bibliometric Analysis in the Field of Polymeric Motors	35
Francesco Benzi, Ezio Bassi and Francesco Vercesi	CAE optimization of Synchronous Reluctance motor and vibro-acoustic analysis for lift systems	41
Veronica-Carmen GHEORGHE	THEORETICAL CONSIDERATIONS, NOVEL THEORY FOR THE TRANSFORMERS FROM THE NATIONAL AND INTERNATIONAL ENERGY SYSTEM	62
Petru Todos, Ghenadie Tertea, Ilie Nuca, Vadim Cazac, Marcel Burduniuc	Acceptance Testing of the Six-Phase Asynchronous Machines	125
Voinea Radu Cocui, Livia Cocui	On the Transient of the Induction Machine with Rotor in Motion when Connecting to the Power Supply	85

17.15 BREAK

EM 2(Electrical Machines 2)		LINK ME	ID
17.30	Chairs: Elisabeta Spunei, Petru Todos		
	Adrian Munteanu	Fault Tolerant Fractional-Slot Concentrated-Wound Permanent Magnet Synchronous Motor with Redundancy for Critical Applications	84
	Adrian Munteanu, Ion Nastas, Alecsandru Simion, Leonard Livadaru, Bogdan Virlan and Ionut Nacu	A New Topology of Fractional-Slot Concentrated-Wound Permanent Magnet Synchronous Motor with Grain-Oriented Electric Steel for Stator Laminations	89
	Bogdan Virlan, Adrian Munteanu, Leonard Livadaru, Alecsandru Simion and Ionut Nacu	Design and Optimization of a BLDC Motor for Small Power Vehicles	108
	Spunei Elisabeta, Piroi Ion and Piroi Florina	Equalizing Links on DC Machine Windings	40
	Octavian Mangos,	Study of the Circulation of Heat Transfer Fluid in the Permanent Magnets Thermogenerator	131

18.45

ETAE (Electrical Traction and Automotive Equipment)		LINK ETAE	ID
18.30	Chairs: Alecksey Anuchin, Alexandru Tarlajanu, Gabriel Chiriac		
	Alin Dragomir, Maricel Adam, Mihai Andruscă, Silviu Marian Antohi, Cosmin Nistor Deac, Seeram Ramakrishna	Perspectives on Railway Electric Traction System Improvement Brought by Monitoring the Impedance Bonds	1
	Tarlajanu Alexandru	Development of vector control structures for traction systems with six-phase asynchronous motors	38
	Iurie Nuca, Ilie Nuca, Marcel Burduniciu, Vadim Cazac, Dusan Kostic and Petre-Marian Nicolae	Harmonic Decomposition and Power Quality Analysis of a Six-Phase Induction Motor Traction Drive with Fast Fourier Transform	107
	Alecksey Anuchin, Evgeniy Stolyarov, Maria Gulyaeva, Alexandr Zharkov, Maxim Lashkevich and Dmitry Aliamkin	Comparative Analysis of Active Damping Techniques in Electric and Hybrid Electric Powertrains	117
	Gabriel Chiriac, Dorin D. Lucache, Costica Nituca and Georgeta Gabor	Aspects Regarding the Heating of Electric buses	118
	Adrian Turcanu, Ilie Nuca and Vadim Cazac	Development of Powertrain System Model for Urban Passenger Vehicle Simulations	129

20.00

CLASS 3			
ARM (Automation, Robots and Mechatronics)		LINK ARM	
16.00	Chairs: Irina Cojuhari, Marian Poboroniuc		ID
	Ababii Victor, Sudacevschi Viorica, Munteanu Silvia, Borozan Olesea, Nistriuc Ana, Lasco Victor	IoT based on Membrane Computing Models	3
	Hamid Alshareefi and Ciprian Lupu	Real-Time Model Predictive Control with Online State Estimator for Series Fans Processes	4
	Alexandru Mitocaru, Marian-Silviu Poboroniuc, Danut Irimia, Alina Baciu	Comparison Between Two Brain Computer Interface Systems Aiming to Control a Mobile Robot	52
	Bartolomeu Izvoareanu, Irina Cojuhari, Ion Fiodorov, Adrian Secrieru, Dumitru Moraru and Mihail Potlog	Synthesis of the PID Control Algorithm for the Models of Objects with Second Order Astatism	54
	Radu Ionascu, Andrei-Iulian Roman, Marian-Silviu Poboroniuc, Danut-Constantin Irimia, Alexandru Mitocaru	A smart FES&mechatronic glove system MANUTEX aiming for recovery of the upper limb in stroke people	76
	Bartolomeu Izvoareanu, Irina Cojuhari, Ion Fiodorov, Adrian Secrieru, Dumitru Moraru and Mihail Potlog	Synthesis of the Control Algorithm to the Models of Objects with Inertia First Order and Second Order Astatism	78

17.30

EA & EFEC (Electrical Apparatus & Electromagnetic Field and Electrical Circuits)		LINK EA & EFEC	ID
17.30	Chairs: Camelia Petrescu, Kiorsak Michael, Maricel Adam		
	Silviu Marian Antohi, Maricel Adam, Alin Dragomir, Mihai Andrusca, Marian Atanasoaei, Alexandru Miron, Anamaria Iamandi	About Communication Networks Used within Electrical Equipment	79
	Constantin Daniel Oancea and Florin Calin	The Design and Analysis of a Control Circuit of the Offset from the Voltage Zero Crossing	2
	Radu Fechet, Adrian Graur, Andrei-Marius Silaghi, Aldo De Sabata	Solution for remote microclimate monitoring in Low Voltage / High Voltage switchgear cells	96
	Marius Vasile Ursachianu, Ovidiu Bejenaru, Catalin Lazarescu, Alexandru Salcean, Marius Paulet	The Assessment of Human Exposure in Iasi-City using Data Provided by The National Autonomous RF-EMF Monitoring System throughout 2020	58
	Lavinia Ferariu and Camelia Petrescu	Solving Multimodal Problems Using Genetic Algorithms – A Case Study in Electromagnetics	69
	Kiorsak Michael and Turturica Natalya	Simulation of Filters of Six Symmetrical Components of Currents (Voltages) of Controlled Self-Compensating Power Lines	94
	Vlad Scarlatache, Marius Andrei Olariu, Sebastian T Aradoaei, Tudor Alexandru Filip	An Overview On Nonvolatile Memories Used In Automotive Industry	126

19.15

EEE (Engineering Education and Evocations)		LINK EEE	ID
18.15	Chairs: Gheorghe Manolea, Angela Suletea		
	George-Andrei Ursan, Olga Plopa and Maria Ursan	PLCs' Inputs and Outputs Response Time Testing Application	12
	George-Andrei Ursan, Olga Plopa and Maria Ursan	Testing Stand Using Hardware Description Languages	13
	Maria Ursan, George-Andrei Ursan and Olga Plopa	Practical Application for Monitoring the Behavior of a Series RLC Circuit	14
	Sergiu Dintu, Angela Suletea	On-line evaluation in graphic engineering disciplines	32
	Gheorghe Manolea, Ionel Alboteanu, Dumitru Sacerdotianu, Sorin Stepan	Ph.D. Research, Component of the Engineering Education	42
	Ionel Pavel, Marius Brânziliă, Constantin Sărmășanu, Costel Donose	LabVIEW based control and monitoring of a remote test-bench experiment for teaching laboratories	100
	Mihai Rata, Gabriela Rata, Adrian Graur, Ciprian Bejenar	Automation Design of a Two-Axis Control using Sinamics S210 and S7-1511T PLC	123

20.00 END OF PRESENTATIONS ON OCTOBER 7th

FRIDAY - OCTOBER 08, 2021

8.30 Microsoft Teams platform opening

CLASS 1		
EE & RR 1 (Energy Efficiency and Renewable Resources 1)		LINK EE & RR
9.00	Chairs: Radu Dumitru Pentiu, Mihai Tirşu	ID
Pavel Atanasoae, Radu-Dumitru Pentiu, Mariana-Rodica Milici, Eugen Hopulele, Cristina Prodan and Valentin Vlad	The Influence of Renewable Energy Ratio and Conversion Factors on the Energy Performance of Buildings	8
Ivan Rabei	Vertical axis wind turbines: open airfoils and plastic blades	11
Dumitru Braga	Optimal capacity and feasibility of energy storage systems for power plants using variable renewable energy sources	24
Mihai Tirşu, Nicolae Covalenco, Ion Negura, Dmitrii Zaitsev, Mihai Gavrilas and Bogdan Constantin Neagu	Photovoltaic-thermal system for trigenerating electricity, hot water and cold	25
Marin Gutu, Valeriu Odainai, Iulian Malcoci, Trifan Nicolae	Aerodynamic efficiency numerical estimation of 1 kW horizontal axis wind turbine rotor	28

10.15 BREAK

CLASS 2		
EE & RR 2 (Energy Efficiency and Renewable Resources 2)		LINK EE & RR
10.30	Chairs: Mihai Sănduleac, Dragoş Machidon	ID
Cristina Eremov, Vasile Leu and Mihai Sanduleac	Increasing System Flexibility through a Combination of Pumped-Hydro and Battery-Storage Systems. An Overview of Possible Developments	61
Madalina (Nechifor) Roman, Alexandru Salceanu	An Evaluation Study on Solar Energy from Photovoltaic Systems Located in Romania	64
Robert Jahrstorfer, Alexandru Salceanu	Assessing Method for Potential Induced Degradation in Photovoltaic Systems	67
Ciprian CRISTEA, Maria CRISTEA, Radu-Adrian TIRNOVAN, Iulian BIROU, Carmen Elena STOENOIU, Florica Mioara SERBAN	Performance analysis of grid-connected rooftop solar photovoltaic systems using different photovoltaic technologies: a case study in Romania	80
Ciprian CRISTEA, Maria CRISTEA, Radu-Adrian TIRNOVAN	Techno-economic assessment of grid-connected residential rooftop photovoltaic systems using various photovoltaic technologies: a case study in the Northwestern Romania	102

11.45

CLASS 2		
PETD 1 (Power Generation, Transport and Distribution 1)		LINK PETD
9.00	Chairs: Ion Stratan , Gheorghe Grigoras	ID
Sergiu Robu and Mihai Lupu	Allocation of economic parameters between heat and electricity for a CHP	18
Kalinin Lev, Zaitsev Dmitrii, Tirşu Mihai, Golub Irina, Kaloshin Danila	Typical operating modes of a multichannel frequency converter	23
Ecatarina Chelaru, Gheorghe Grigoras, Livia Noroc, Bogdan-Constantin Neagu, and Florina Scarlatache	Influence of the Prosumers on the Replacement Strategies of the Aged Transformers from the Electric Distribution Networks	26
Claudiu Buca and Marcel Istrate	Arc protection function modelling using Petri nets	27
Ecatarina Murchid and Ion Stratan	Optimal PMU Placement and Algorithms' Development of Accelerated Calculations of State Estimation Performance in Power Systems	31

10.15 BREAK

CLASS 2		
PETD 2(Power Generation, Transport and Distribution 2)		LINK PETD
10.30	Chairs: Ovidiu Ivanov, Bogdan Constantin Neagu	ID
Mihai-Andrei Luca, Bogdan-Constantin Neagu, Ovidiu Ivanov, Mihai Gavrilas, Gheorghe Grigoras	A Deeper Analysis about the Impact of Prosumers on Power Losses in Low Voltage Microgrids	45
Bogdan Constantin Neagu, Constantin Zetu, Gheorghe Grigoras, Ovidiu Ivanov	Theories about Mechanical Calculus in the Context of Coexistence between Overhead Power Lines and Buildings from Outskirts of Cities	46
Dragos Machidon and Marcel Istrate	Analysis of Romania's Transmission Power Lines Behavior under Direct Lightning Strikes	47
Bosneaga Valeriu, Suslov V.	Investigation of Supply Phase Failure in Phase-Shifting Transformer with Hexagon Scheme and Regulating Autotransformer	53

11.30

CLASS 3		
PED (Power Electronics and Drives)		LINK PED
9.00	Chairs: Alain Bouscayrol, Galina Demidova, Valentin Oleschuk	ID
Olimpiu Stoicuta	A New Gain Matrix of the Luenberger Observer for the Vector Control Systems with Induction Motors	7
Valentin Oleschuk	Schemes, and Algorithms of Synchronous Space-Vector PWM for Voltage Source Inverters of Open-End Winding Motor Drives: An Overview	16
Elio Sanchez G. and Sara J. Rios	Digital Control and MBPC design for DC Voltage Regulation in a Grid-Connected PV Microgrid	57
Nikolai Poliakov, Galina Demidova, Pavel Zolov, Konstantin Vorobev, Dmitry Lukichev and Ryszard Strzelecki	Distributed Energy Laboratory Concept Focused on Power Electronics Units	97
Salis Hussain, Khurram Qureshi, Jason Gu, Muhammad Usman Asad, Naureen Butt and Umar Farooq	A New Topology with 31-Levels for Cascaded Multilevel Inverters	99
M.PadmaLalitha, S.Suresh, A.Viswa Pavani	Advanced control architecture for Interlinking Converter in Autonomous AC, DC and Hybrid AC/DC Micro grids	74
Ilie Nuca, Cazac Vadim, Burduniuc Marcel, Artiom Moldovan, Costică Niţucă, Gabriel Chiriac, Georget Gabor	A Hybrid Charging System Design for Electric Vehicles with Autonomous Power Surce	119

10.45

IA 1 (Industry Applications 1)		LINK IA	ID
11.30	Chairs: Cristian-Győző Haba, Dan Milici		
	Daniel Cretu, Ciprian-Catalin Rusu, Radu Burlica, Oana Beniuga, Dragos Astanei and Dorin Tesoi	DBD Non-Thermal Plasma Used on Surface Treatment of Polymeric Film for Food Packaging	111
	George Balan, Elena Serea and Dorin D. Lucache	Critical Issues in the Design and Operation of Electrical Installations in Hospitals	124
	Cristian-Győző Haba	Extending Sensor Type Connections to a PLC	66
	Artiom Moldovan, Dan Milici and Ilie Nuca	Anaerobic - aerobic WWTP for a non-alcoholic liquid products factory	86
	Catalin-Ioan Draghita, Aurel Botezan, Silviu Stefanescu	Automated Sorting and Handling Process	103

11.45 BREAK

PLENARY SESSIONS		Microsoft Teams LINK - GENERAL
12.00	Chairs: Victor Gropa, Dorin Lucache	
	Lucian TOMA	„Challenges and solutions towards green and resilient power systems,,
12.30	Alain BOUSCAYROL, Mircea RUBA	„Energetic Macroscopic Representation For Control Of Energy Conversion Systems,,

13.00 BREAK

CLASS 1			
13.15	EE & RR 3 (Energy Efficiency and Renewable Resources 3)	LINK EE & RR	
	Chairs: Petre-Marian Nicolae, Cezar Popa, Dragoş Machidon		ID
	Abdefatah Ali, Karar Mahmoud, Mostafa Shaaban and Matti Lehtonen	Optimal Sizing and Placement of Multiple Photovoltaics Considering Electric Vehicles Charging Stations	91
	Ihsan Mizher Baht, Petre-Marian Nicolae, Ileana-Diana Nicolae	Enhancing the Power Grid Performance by Integrating Wind Turbines Systems	101
	Armaghan Cheema, Mostafa Shaaban, Mahmoud Ibrahim and Maher Azzouz	A New Approach for Long-term Optimal Scheduling of Photovoltaic Panels Cleaning	83
	Popa Cezar and Ungureanu Constantin	Analysis of a Hybrid Water Heating System for a Swimming Pool	127
	Muhammad Wajeeh Uddin Khan, Khurram Karim Qureshi, Jason Gu, Ghulam Abbas, Muhammad Usman Asad, Naureen Butt and Umar Farooq	A New Topology For Cascaded Multi-Level Inverter With Symmetrical Extension of H-Bridge	90

14.30 BREAK

R&D (Reliability and Diagnosis)		LINK R & D	ID
14.45	Chairs: Sorin Enache, Ciprian Nemes		
	George Cercel, Cosmin Tiganasu, Ciprian Nemes	Power Quality Requirements for Grid-Connected Photovoltaic Systems	5
	Tiganasu Cosmin, Cercel George, Nemes Ciprian	The influence of battery state of charge on self consumption indices	6
	Mihai Ghidu and Cezar Scinteie	Effect of wear process on the security of Nuclear Power Plants	48
	Ancuta-Mihaela ACIU, Maria Cristina NITU, Marcel NICOLA, Claudiu-Ionel NICOLA	Determination of the Condition of Solid Insulation in High-Power Transformers Based on 2-Furfuraldehyde and Methanol Markers Using Neural Networks	49
	Maria-Cristina NITU, Ancuta-Mihaela ACIU, Marcel NICOLA, Claudiu-Ionel NICOLA	Identification of the Phenomena Leading to the Aging of the Insulation of In-Service High Power Transformers	50
	Daniel Constantin OCOLEANU, Cristian-Eugeniu SALCEANU, Mihai IONESCU, Marcel NICOLA, Maria Cristina NITU, Sorin ENACHE, Camelia MARINESCU	Reactive Energy Transfer Reduction Equipment for Low-Load Wound-Rotor Induction Motors	51

16.15

CLASS 2			
13.15	PETD 3 (Power Generation, Transport and Distribution 3)	LINK PETD	
	Chairs: Lucian Toma, Victor Gropa		ID
	Salman Hassan, Shahriar Khan	Review of Advances in Smart Grid , Blackout Mitigation, and Applications in Bangladesh	55
	Mihai Sanduleac, Mircea Eremia, Lucian Toma, Ioan Damian, Mihai Gavrilas, Gheorghe Grigoras, Ion Stratan and Victor Gropa	Islanded Microgrids control by using Grid Former and Synthetic Slack Bus concept - A preliminary analysis	59
	Daniela Irimia, Elena Crenguța Bobric, Radu Stefan Minescu	Firefly algorithm for establishing the optimal power of DG units	95
	Bogdan Leu, Bogdan-Adrian Enache, Florin-Ciprian Arqatu, Marilena Stanculescu	A Survey of Condition Monitoring Systems Operation in Romanian Transmission Substations	116
	Rotari Iulian and Rotaru Adrian	The analysis of the sensitivity of the active power losses in relation to the bus powers	43

14.30

M&E (Management and entrepreneurship)		LINK M&E	ID
15.00	Chairs: Carmen-Elena Stoenoiu, Marius Pîslaru		
	Tatiana Gutium	Gas Pricing Mechanisms: Overview, Comparative Analysis and Recommendations	10
	Carmen-Elena Stoenoiu	Retrospective analysis of the evolution of industrial production in relation to energy consumption	63
	Carmen-Elena Stoenoiu	The evolution of efficiency indicators in the economies of EU countries	71
	Simona Gifei (Aionoaie), Alexandru Salceanu	Autonomous and Electrical Vehicles Development Using Optimized Processes Defined by Cyber Security and Safety Management System	65

16.00

CLASS 3		
IA 2(Industry Applications 2)		LINK IA
13.15	Chairs: Sorin G. Pavel, Dorin Lucache	ID
	Virgil Maier, Sorin G. Pavel and Horia G. Beleiu	Harmonics of the Central Component of the PWM Inverter Output Voltage
	Virgil Maier, Sorin G. Pavel and Horia G. Beleiu	128
	Țislinscaia Natalia, Vișanu Vitali, Balan Mihail, Melenciuc Mihail, Gidei Igor and Popescu Victor	Installation for drying agri-food products by forced convection with volatile substances capture
	Țislinscaia Natalia, Vișanu Vitali, Balan Mihail, Melenciuc Mihail, Gidei Igor and Popescu Victor	120
	Georgel Gabor and Gheorghe Livint	Application of S7-1200 PLC for Temperature Monitoring of a Railway Separator
	Georgel Gabor and Gheorghe Livint	112
	Georgel Gabor and Gheorghe Livint	Solution for Monitoring and Remote Control Based on Modbus RTU and S7-1200 PLC
	Georgel Gabor and Gheorghe Livint	113

14.15 BREAK

WORKSHOP		„Applications based on Brain-Computer Interfaces,,	LINK Workshop
14.30	Chairs: Marian POBORONIUC, Dănuț IRIMIA, Alina-Georgiana BACIU		

16.15

CLOSING CONCLUSIONS AND SPEECHES	Microsoft Teams LINK - GENERAL
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