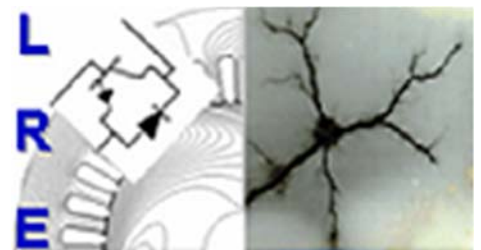




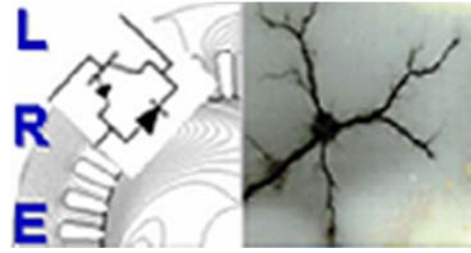
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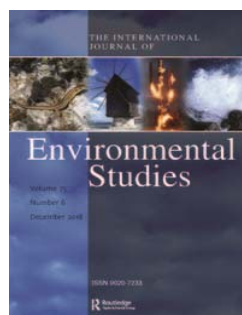
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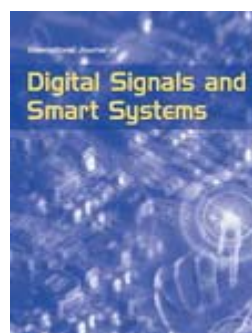
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## ***KEYNOTE SPEAKERS***



**Kamal Youcef-Toumi** joined the MIT Mechanical Engineering Department faculty in 1985. He earned his advanced degrees (M.S. 1981 and Sc.D. 1985) in Mechanical Engineering from MIT. His undergraduate degree (B.S. in Mechanical Engineering awarded in 1979) is from the University of Cincinnati. Professor Youcef-Toumi's research has focused primarily on design, modeling, simulation, instrumentation, and control theory. The applications have included manufacturing, robotics, automation, metrology and nano/biotechnology. He teaches courses in the fields of dynamic systems; robotics; precision machine design and automatic control systems. Professor

Youcef-Toumi was selected as a National Science Foundation Presidential Young Investigator "in recognition of research and teaching accomplishments and academic potential." He served as a member on several professional committees of The National Science Foundation, Chairman of the Information Technology program within The Arab Science and Technology Foundation, Member of the review committee for European Union funded Network of Excellence for Innovative Production Machines and Systems, Member of the Scientific Committee for Qatar Foundation Annual Research Forum, Head of the Controls, Instrumentation and Robotics Area in the Mechanical Engineering Department at MIT, Member of the MIT Council for International Programs, and Research and Strategy Advisor for Qatar Computing Research Institute. He is the Co-Director of the Center for Clean Water and Clean Energy at MIT and KFUPM. Professor Youcef-Toumi has served as a consultant for a several companies including AT&T Bell Laboratories, EDO Corporation, Varian Radiation Division, Gillette Corp., Delta Search Laboratories, Jentek Sensors, Morgan Stanley Co., General Electric, TEKES - National Technology Agency of Finland, Jordan Hospital, Mitsubishi Electric Corp. Penn State University-College of Medicine - Cancer Institute. He is a member of IEEE and an ASME Fellow. He served as Chairman of the ASME Dynamics Systems & Control Division Robotics Panel. He was an Associate Editor of the ASME Journal of Dynamic Systems Measurement and Controls, the International Program Committee Chairman for the 2010 IFAC Symposium on Mechatronic Systems, and an Associate editor of the ASME's Dynamic Systems and Control Division (DSCD) Conference Editorial Board. He has served as Editor of several symposia/conference proceedings. Professor Youcef-Toumi is the author of over 200 publications, including a textbook on the theory and practice of direct-drive robots. He holds over 30 registered/pending patents. Professor Youcef-Toumi has been an invited lecturer at over 160 seminars at companies, research centers and universities throughout the world.



**Mohamed Benhaddadi** is a Professor at Cégep du Vieux Montréal and researcher-associate at CIRODD Interdisciplinary Center for Research in operationalization of Sustainable Development. He is the author of over 100 publications and his research focuses on training & the quality of electrical energy and his area of interest also covers energy, energy efficiency, the environment. He has helped train more than 300 technologists, more than 2000 engineers at Polytechnique and the development of more than 100 engineers for Carrefour Polytechnique. He has published

Energetic Dilemmas and is co-author of the book Electric Motors and Drives. Mr. Benhaddadi also spoke at the Régie de l'énergie in Quebec and participated in the work of the Parliamentary Committee on Energy. He is often invited as a guest lecturer on energy issues by colleges and universities in Canada and abroad. Mr. **Mohamed Benhaddadi** is the recipient of several awards and honors, including the College Research Award (2015). In 2016, he was made Knight of the National Order of Quebec.



**Maurice FADEL** was born in Toulouse (France). He got the PhD degree at the Institut National Polytechnique de Toulouse in 1988, in the domain of the Control in Electric Engineering. He is currently a Professor in the Ecole Nationale Supérieure d'Ingénieurs en Electrotechnique, d'Electronique, d'Informatique, d'Hydraulique et de Télécommunications of Toulouse (ENSEEIH). In 1985 he as integrated the Laboratory of Electrotechnics and Industrial electronics (LEEI), mixed unit of research (CNRS-INPT). He was leading of the LEEI laboratory in 2005. From January 2007 until 31 December 2015 he was Deputy Director of the LAPLACE labatory (Laboratoire Plasma et Conversion d' Energie). Since April 2013, he is president of PRIMES platform in Tarbes, which brings together industrialists and university researchers by

providing tools for integration in Power Electronics.

The field of scientific interest of Pr. Maurice FADEL concerns the modeling and the control of the electric systems more especially of the synchronous machine, the control law of the static converters with the help of direct predictive controls approach and the definition of control strategies for cooperative systems. The theme of improving energy efficiency through control is one of its axes of research.



**Mohamed Benbouzid** received the B.Sc. degree in electrical engineering from the University of Batna, Batna, Algeria, in 1990, the M.Sc. and Ph.D. degrees in electrical and computer engineering from the National Polytechnic Institute of Grenoble, Grenoble, France, in 1991 and 1994, respectively, and the Habilitation à Diriger des Recherches degree from the University of Picardie "Jules Verne," Amiens, France, in 2000.

After receiving the Ph.D. degree, he joined the Professional Institute of Amiens, University of Picardie "Jules Verne," where he was an Associate Professor of electrical and computer engineering. Since September 2004, he has been with the Institut Universitaire de Technologie of Brest, University of Brest, Brest,

France, where he is a Professor of electrical engineering. Prof. Benbouzid is also a Distinguished Professor at the Shanghai Maritime University, Shanghai, China. His main research interests and experience include analysis, design, and control of electric machines, variable-speed drives for traction, propulsion, and renewable energy applications, and fault diagnosis of electric machines.

Prof. Benbouzid is an IEEE Senior Member. He is the Editor-in-Chief of the (IRECON). He is also an Associate Editor of the IEEE , and the IET



**Djamel Bouchaffra** is a Director of Research at the Center for Development of Advanced Technologies (CDTA). He is currently the Head of the Artificial and Machine Learning team at CDTA. Prior to this appointment, Dr. Djamel Bouchaffra was a Professor of Computer Science at Grambling State University (USA). He started his academic position at Joseph Fourier University, Grenoble (France), and a postdoc in Canada. Later, he went to the US where he held a position of Assistant Professor at Oakland University, Michigan.

Professor Bouchaffra was teaching a wide spectrum of courses including machine learning and pattern recognition, artificial intelligence, soft computing and discrete mathematics. Dr. Bouchaffra has been selected as the recipient of the Oakland University Teaching Excellence Award for 2004 (awardees) as well

as the recipient of the School of Engineering Teaching Excellence Award. He was invited by OU-TV "Focus on Faculty Program" broadcasted on Comcast cable channel 74 image in the USA. Prior to this appointment, he held a position of Senior Research Scientist at the "Center of Excellence for Document Analysis and Recognition" (CEDAR) located at The State University of New York. He was a technical lead (research director) of different research groups in several federally sponsored projects. He worked as a reviewer for NASA and NSF agencies. He is currently an Associate Editor for the journal of Pattern Recognition (Elsevier).

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## Plenary Sessions Abstracts

**Pr. Kamal Youcef-Toumi, Massachusetts Institute of Technology Cambridge, USA**

Plenary Title: [Robotics & Automation: Opportunities & Challenges](#)

**Abstract:** Robotics has evolved remarkably over the years with a great societal impact. Advancements in research and development have made robots capable of performing complex tasks in a more efficient and reliable manner than their predecessors, a generation of primitive robots that were merely designed for menial and repetitive tasks. Robotic systems have been utilized successfully in many applications. Some can operate autonomously in accomplishing complex missions while being aware of their surroundings.

These advancements have been made possible by addressing major technical challenges. These include design, instrumentation, control systems, wireless and Internet enabled communication and networks. This presentation will look into robots as intelligent systems and the greater role they play. Such systems show capabilities in handling uncertainties, reject unexpected disturbances, adapt to new environmental situations, localize themselves and other robots, cooperate, and provide an overall supervisory intelligence. Challenges and opportunities associated with the field of robotics will be addressed.

**Pr. Mohamed Benhaddadi, Cegep of Old Montreal, Canada**

Plenary Title: [Place de l'efficacité énergétique dans la lutte face aux changements climatiques](#)

**Abstract:** Climate change is the most important issue for contemporary humanity and air pollution is closely linked to the energy sector.

Global energy consumption and global greenhouse gas (GHG) emissions are steadily increasing, and the goal of limiting global temperature increase to 2 ° C by the end of this century is still possible, but will be extremely difficult to achieve. Contributing to more than 40% of global GHG emissions, the electricity sector will position itself at the heart of the decarbonization of the global economy. In this conference, we will talk about:

1. Analyze the 450 ppm climate scenario and draw a macro portrait of the main sectors of electric power capable of contributing significantly to the reduction of pollution, with particular emphasis on the leading role of renewable sources and energy efficiency.
2. Illustrate the special place of energy efficiency and, through the example of the legislation on electric motors, discuss the main parameters that have led to the emergence of North American leadership. Here, the author will show the global evolution of the energy classification of electrical machines and present experimental results relating to NEMA Premium engines, as well as the efficiency of the introduction of variable speed drives in centrifugal pump systems.
3. Show, with the example of electric machines, that energy efficiency is not the exclusive preserve of developed countries, since some developing or emerging economy countries are taking the lead in legislating, especially since it allows them at the same time to benefit from a transfer of technology and that Algeria can still take the train on the move.

**Pr. Maurice Fadel, ENSEEIHT, INPT Toulouse, France**

Plenary Title: [Approches Commande Prédicative et Commande par Allocation](#)

**Abstract:** Les systèmes de traitement d'énergie à base de convertisseurs statiques et les systèmes de conversion d'énergie électrique utilisant des machines électriques nécessitent des performances élevées de plus en plus exigeantes tout en préservant des conceptions simples et des mises en œuvre rapides. Ceci est d'autant plus vrai que les puissances traitées augmentent et que les convertisseurs possèdent des topologies avec de plus en plus d'interrupteurs que ce soit pour la mise en série ou la mise en parallèle. Dans ce contexte il est important de développer de

nouvelles approches de commande comme la commande prédictive ou encore le contrôle par allocation.

Cette présentation propose de faire un tour d'horizon sur les avancées récentes dans ce domaine en s'appuyant sur de nombreux exemples dans le domaine des convertisseurs statiques multi niveaux et des machines synchrones à aimant dans des applications haute vitesse pour la traction électrique. Les procédures d'implantation seront également mises en avant soit à l'aide de DSPACE ou encore par programmation spécifique sur FPGA.

**Pr. Mohamed Benbouzid, University of Brest, UMR CNRS 3744 IRDL, Brest, France**

**Plenary title: Advances on fault tolerance and resilience of electromechanical systems**

**Abstract:** The growing demand for safety, reliability, maintainability, and survivability in power conversion and power supply systems has drawn significant research in the design of resilient or fault-tolerant systems, namely systems, which are designed to tolerate some faults or able to promptly adapt the control law (fault-tolerant control) in such a way as to preserve pre-specified satisfactory performances in terms of production quality, safety, etc. The need for these resilient or fault-tolerant systems has inspired much research for the particular case of electric machines drives. The majority of these contributions have been focused on faults in the machine, the drive or the power supply components while current trends include sensors and application fault modes. Indeed, the overall performance of electric motor/generator drives with a feedback structure depends not only on the health of the motor itself but also on the performance of the driving circuits and sensors (encoder, voltage sensors, and current sensors). High reliability can indeed be achieved with robust or oversized systems but the industrial tendency, in particular for emerging applications, which are characterized by high survivability requirements such as offshore and marine renewable energy systems or embedded applications (i.e. aircraft, spatial, or marine electrical systems), is to design fault-tolerant power conversion systems. These systems include redundancy by adopting specific machines and drive configurations such as multiphase or multi-windings/multi-converters systems. In this context, the proposed presentation will deal with advances on electromechanical systems fault tolerance and resilience.

**Pr. Djamel Bouchaffra, Center for Development of Advanced Technologies (CDTA) Algiers**

**Plenary title: Incorporating Topology within Machine Learning and Artificial Intelligence**

**Abstract :** The recent achievements in Deep learning (DL) in several fields heralded a change in our perception of traditional Artificial Intelligence (AI) and Machine Learning (ML). Over the past few years, AI has snowballed, and especially since 2014. The reason for this explosion is explained by the wide availability of GPUs and their computational power as well as the Tensor Flow library resources that render parallel processing ever faster, cheaper, and more powerful. The other reason is justified by the infinite storage and the big flood of data – images, structured and unstructured text (living in social media repositories). In this keynote, we first highlight the difference between conventional AI, ML and DL by focusing on novel features in connection with learning theory. We will attempt to justify the success and limitations of DL in some dedicated applications within computer vision and information management. Finally, we show how the subfield of topology known as homology allows gaining insight into learning theory future directions deemed necessary to pursue by students, faculties, researchers and practitioners acting in this fast moving field.



**CISTEM'18 Program**  
**Monday, 29 October 2018**

<b>8h00-9h00</b>	<b>Registration</b>			
<b>9h00-9h30</b>	<b>Opening Ceremony Welcome</b>			
<b>9h30-10h30</b> Room 1	<b>1<sup>st</sup> Plenary: Robotics &amp; Automtation: Opportunities and Challenges</b> by Prof Kamal YUCEF TOUMI			
<b>10h30-11h00</b>	<b>Coffee Break + Posters Session 1</b> Id : 161 ;231 ;74 ;143 ;330 ;175 ;273 ;73 ;158 ;230; 320 ;351 ;56 ;61 ;169 ;199 ;226 ;62 ;66 ;70 ;164			
<b>11h00-12h30</b>	Room 1 <b>Oral Session 1</b> Power Systems & Microgrids Id: 13; 125; 190;291;395;387	Room 2 <b>Oral Session 2</b> Signal image & Video Processing Id: 96 ; 97 ; 257; 284; 286; 81	Room 3 <b>Oral Session 3</b> Modeling & Numerical Methods Id : 322; 283 ;334 ;51 ;55 ;134	Room 4 <b>SSP 1 :</b> Permanent Magnet Machines: Structures and Modeling
<b>12h30-14h00</b>	<b>Lunch</b>			
<b>14h00-15h00</b> Room 1	<b>2<sup>nd</sup> Plenary : Place de l'efficacité énergétique dans la lutte face aux changements climatiques</b> by Prof. Mohamed BENHADDADI			
<b>15h00-16h30</b>	Room 1 <b>Oral Session 4</b> Energy storage and smart grid management Id: 214;238;360;390;221	Room 2 <b>Oral Session 5</b> Materials for energy Id: 68;80;18;34;63;300	Room 3 <b>Oral Session 6</b> Diagnosis and nondestructive testing Id : 383 ; 247 ;272 ;310 ;349	Room 4 <b>SSP 2 :</b> Application of superconductors in electrical engineering Id: 60;146;147;
<b>16h30-17h00</b>	<b>Coffee Break + Posters Session 2</b> Id : 42 ;75 ;90 ;225 ;33 ;40 ;129 ;192 ;53 ;188 ;255 ;336 ;30 ;35 ;65 ;32 ;82 ;160; 321; 355			
<b>17h00-19h00</b>	Room 1 : <b>Workshop 1</b> Technology and highlight the Industry needs and practices in the Maghreb/Pr. Mohamed BOUDOUR			



<b>8h00-09h00</b> Room 1	<b>3<sup>rd</sup> Plenary : Approches commande prédictive et commande par allocation</b> by Prof. Maurice FADEL			
<b>9h00-10h30</b>	Room 1 <b>Oral Session 7</b> Automation & Control Id : 348 ; 163 ; 43 ; 45 ;69 ;23 ;391	Room 2 <b>Oral Session 8</b> Power Electronics Id : 41 ; 398 ; 52 ; 120 ; 331; 370	Room 3 <b>Oral Session 9</b> Electric Machines & Drives Id :338 ;145 ;198 ;235 ;393 ;236	Room 4 <b>Oral Session 10</b> Renewable Energies and Efficiency Id:394 ;374 ;110 ;195 ;241 ;294
<b>10h30-11h00</b>	<b>Coffee Break + Posters Session 3</b> Id : 275;303;369; 17;19;72;168;239;295;335;177;211;337;345;406;57;93;372;274;292			
<b>11h00-12h30</b>	Room 1 <b>Oral Session 11</b> Power Systems & Microgrids Id: 26;76;117;174;205;216	Room 2 <b>Oral Session 12</b> Electromagnetic Compatibility Id: 223 ;9 ;132 ;319 ;379 ;99	Room 3 <b>Oral Session 13</b> Electric Machines & Drives Id : 79 ;101 ;136 ;165 ;92 ;293	Room 4 <b>SSP 3 :</b> Reliability Assessment of Power Systems Id: 144;329;
12h30-14h00	<b>Lunch</b>			
<b>14h00-15h00</b> Room 1	<b>4<sup>th</sup> Plenary : Advances on fault tolerance and resilience of electromechanical systems</b> by Prof. Mohamed BENBOUZID			
<b>15h00-16h30:</b>	Room 1 <b>Tutorial 1 :</b> Pr. Mohamed BENBOUZID	Room 2 <b>Tutorial 2 :</b> Pr. Mohamed TAREK KHADIR	Room 3 <b>Tutorial 3 :</b> Pr. Amar TILMATINE	Room 4 <b>Tutorial 4 : By</b> Dr. Farid ZIDAT
<b>16h30-17h00</b>	<b>Coffee Break + Posters Session 4</b> Id : 248 ;279 ;356 ;401 ;234 ;306;381 ;405 ;95 ;148 ;222 ;263 ;403 ;213 ;253 ;308 ;386			
<b>17h00-19h00 :</b>	Room 1 : <b>Workshop 2</b> <b>Organisation et Programmes de la recherche au Québec-Canada / Pr. Mohamed BENHADDADI</b>			
<b>20:00</b>	<b>GALA Diner</b>			



<p><b>8h00-9h00</b> Room 1</p>	<p><b>5<sup>th</sup> Plenary : Incorporating Topology within Machine Learning and Artificial Intelligence</b> by Prof. Djamel BOUCHAFFRA</p>			
<p><b>9h00-10h30</b></p>	<p>Room 1 <b>Oral Session 14</b> Automation &amp; Control Id : 105 ;111 ;149;313 ;371 ;378</p>	<p>Room 2 <b>Oral Session 15</b> Modeling &amp; Numerical Methods Id : 182 ; 187 ; 202 ; 228 ; 250 ; 260</p>	<p>Room 3 <b>Oral Session 16</b> Power Systems &amp; Microgrids Id: 219;220;290;302;354;373</p>	<p>Room 4 <b>Oral Session 17</b> Power Electronics Id :249;396 ;399 ;244 ;185 ;392</p>
<p><b>10h30-11h00</b></p>	<p><b>Coffee Break</b></p>			
<p><b>11h00-12h00</b></p>	<p>Room 1 <b>Oral Session 18</b> Modeling &amp; Numerical Methods Id : 280 ; 327 ; 98 ;31 ;94 ;267</p>	<p>Room 2 <b>Oral Session 19</b> Renewable Energies and Efficiency Id : 258 ; 382 ; 407 ; 237 ; 297 ; 342</p>	<p>Room 3 <b>Oral Session 20</b> Diagnosis and nondestructive testing Id : 352 ; 384 ; 140 ; 404 ; 108</p>	<p>Room 4 <b>Oral Session 21</b> Electric Machines &amp; Drives Id : 366 ; 397 ; 224 ; 276 ;288 ;59</p>
<p><b>12h00</b></p>	<p><b>Closing Ceremony</b></p>			
<p><b>12h30</b></p>	<p><b>Lunch</b></p>			
<p><b>14h00</b></p>	<p><b>Social Tour :</b> <b>Trip to Tipaza Historical Roman city</b></p>			

8h00-9h00

Registration

9h00-9h30

**Opening Ceremony Welcome**

Pr. Mohamed GABSI (Cistem Chair), Pr. Mohamed BOUDOUR (Program Chair),  
Pr. Zaia ALIMAZIGHI (FEI Dean), Pr. Mohamed Debyeche (ENP Director), Pr. Mohamed SAIDI (USTHB Rector)

9h30-10h30

Room 1

**1<sup>st</sup> Plenary: Robotics & Automtation: Opportunities and Challenges**

by Prof Kamal YUCEF TOUMI

Chairman: Pr. Mohamed GABSI

9h00-12h30

**POSTER SESSION 1 (21)**

Chairmen: Pr. H. Benahmed, B. Boudraa, M. Hasni

- #id 161 Ahmed Bouchekhlal, Farida Hobar and Mohammed Boulesbaa, Characteristics of Zinc Oxide Varistor Ceramics sintered at high temperature
- #id 231 Hocine Moulai, Abderrahmane Ziani, Salah Belkhir, Seyf Allah Zaanoune and Wahid Ahmed Belarbi, Etude des décharges électriques dans les mélanges soufre-azote-cuivre
- #id 74 Benhadda Nassireddine, Chikhi Nawel, Bendaoud Abdelber, Dahak Abdelkader and Belhenini Soufyane, Conducted EMI Prediction in DC/DC Converter Using Frequency Domain Approach
- #id 143 Nawel Chikhi, Abdelber Bendaoud and Nasreddine Benhadda, Evaluation of Conducted Disturbances Generated by the "Chopper-Rectifier" Association Propagating to the Electrical Network
- #id 330 Hakim Kharroubi, Dihya Mezdad, Tarik. B Berbar and Azzedine Nacer, Antenne micro-ruban directive en utilisant une lentille à base de metamatériau
- #id 175 Abdessalam El Yassini, Saida Ibnyaich and Abdelouhab Zeroual, Design of an UHF RFID Tag Dipole Antenna for RFID Applications
- #id 273 Mohammed Amine Benmahdjoub, Abdelkader Mezouar, Larbi Boumediene and Youcef Saidi, Control and Monitoring of Electrical Embarked Network with Cloud Technology using Raspberry Pi
- #id 73 Yacine Abderrahmane Bencherif, Adelouahab Mekhaldi, Jaques Lobry, Marjorie Olivier and Marc Poorteman, Molecular & Macroscopic Characterization of EPDM's Aging Used for Outdoor High Voltage Insulators
- #id 158 Farid Hadjou, Bekheira Tabbache, Abbas Debdouche and Nouredine Henini, Electric Circuits Coupled Magnetically modelling method for stator fault diagnosis of induction motor
- #id 230 Mohamed Boudiaf Koura, Mohammed-El-Amine Khodja and Ahmed Hamida Boudinar, Compraison entre la Technique Vibratoire et la Technique des Courants Statoriques : Application au Diagnostic des Roulement à Billes
- #id 320 Mustapha Toudji, Guillaume Parent and Stéphane Duchesne, Diagnostic prédictif basé sur une modélisation HF du bobinage des machines électriques
- #id 351 Youcef Benmahamed, Madjid Teguvar and Ahmed Boubakeur, Diagnosis of Power Transformer Oil Using PSO-SVM and KNN Classifiers
- #id 56 Kamel Laidi and Mokhtar Nibouche, On the Performance of FPGA Implementation of Block Matching Algorithms for Video Motion Estimation
- #id 61 Mohamed Amine Hadj-Youcef, Assya Bousbia-Salah and Mourad Adnane, Feature selection applied to wavelet packet transform for an efficient EEG signal classification

- #id 169 Malik Benmansour, Wahida Handouzi and Abed Malti, A neural network architecture for automatic and objective surgical skill assessment
- #id 199 Rym Labdaoui, Khalida Ghanem, Fatiha Youcef Ettoumi and Widad Belaoura, Sum#id Rate Maximization for Cognitive Radios in Multi-User MIMO-OFDM Context
- #id 226 Beddad Boucif and Hachemi Kaddour, Efficient Implementation of An Improved Median Filter on TMS320C6416 Digital Signal Processor
- #id 62 Kharchouche Faïçal and Belkhiat Saâd, The effect of Sb2O3 content on the microstructure and electrical properties of (Mn2O3, V2O3)/ZnO varistor materials
- #id 66 Kaddour Miloudi, Amar Tilmatine, Youcef Benmimoun, Abderrahmane Hamimed, Ahmed Taibi and Yacine Bellebna, Intensification d'extraction de l'huile essentielle d'Artemisia herba alba par champ électrique pulsé
- #id 70 Nassour Kamel, Tilmatine Amar, Brahami Mostefa and Nemmich Said, Etude expérimentale d'un générateur d'ozone à décharge plane double destiné au traitement des eaux
- #id 164 Nawal Bouatia, Samia Slimani, Rabah Boudissa, Stefan Kornhuber and Klaus Dieter Haim, Equivalence de performance électrique entre l'intervalle d'air pointe – pointe avec barrières polluées et celui du plan - plan sous tension continue négative

<b>Room 1</b> <b>11h00-12h30</b>	<b>ORAL SESSION 1</b> <b>Power Systems &amp; Microgrids</b> Chairmen: Pr. M. ELLEUCH, Dr. A.A. LADJICI
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- #id 13 Billal Khettaoui and Mohamed Boudour, Synchrophsor Estimation Based on The Combination of The Modulated Sliding DFT and Taylor's Series Expansion.
- #id 125 Abdelhammid Kherbachi, Ahmed Bendib, Aissa Chouder, Kamel Kara and Said Barkat, Experimental Implementation of Droop Control Strategy for Single-Phase Parallel-Connected VSIs Forming Islanded AC Microgrid
- #id 190 Azizou Fethi and Boudour Mohamed, Unit commitment using dynamic programming for planing optimization and emission reduction.
- #id 291 Sofiane Chiheb, Omar Kherif, Madjid Teguvar and Abdelouahab Mekhaldi, Impedance nature of long horizontal grounding electrode employing TLM.
- #id 387 Rabah Gueddouche and Mohamed Boudour, Dynamic Equivalence approach for large-scale wind farms.
- #id 395 Youssouf Amrane, Rabah Gueddouche, Ali Elmaouhab and Mohamed Boudour, Optimal Capacitor Placement and Sizing in Radial Distribution Feeders using evolutionary Algorithm: a case study of the Algerian-Djanet distribution system.

<b>Room 2</b> <b>11h00-12h30</b>	<b>ORAL SESSION 2</b> <b>Signal image &amp; Video Processing</b> Chairmen: Pr. B. BOUDRAA, Pr. M. ADNANE
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- #id 96 Hinda Dridi and Kais Ouni, Applying hybrid "CD-CNN-HMM" model for keywords spotting in continuous speech
- #id 97 Bentahar Abdessamed, Benghanem Yahia and Djendi Mohamed, Hands-Free Communication Improvement in Airplane by a New Dual RNQ Adaptive Algorithm

- #id 257 Manel Benaissa and Abdelhak Bennis, New 2D-Feature Descriptor Free from Orientation Compensation
- #id 284 Djendi Mohamed, Gueraini Imène and Abdi Radhia Decision-Directed Channel Equalizer Scheme Based on the Recursive Non Quadratic Adaptive Algorithm
- #id 286 Fentous Omar, Azouz Sidali and Djendi Mohamed, A New Dual Forward APA Adaptive Algorithm for Speech Enhancement in Airplane Cockpits.
- #id 81 Houria Haneche, Bachir Boudraa and Abdeldjalil Ouahabi, Speech Enhancement Using Compressed Sensing-based method

Room 3  
**11h00-12h30**

**ORAL SESSION 3**  
**Modeling & Numerical Methods**

Chairmen: Pr.Y. AMARA, Pr. Y. OUAZIR,

- #id 51 Mohamed Bouhaouche, Abdelouahab Mekhaldi and Madjid Teguar, Composite Insulators in a 400 kV AC Line in Algeria for Improving Electric Field Distribution
- #id 55 Gacem Yasmina, Hellal Abdelhafid and Ladjici Ahmed Amine, PyPS: An Open Source Large Scale Power System Small Signal Analysis Software Package
- #id 134 Bali Habiba, Hafsaoui Ilhem and Makhlof Badr, A Simultaneous Resolution Method for Coupling Field Circuit Equations for Steady-State Skin Effect Problems
- #id 283 Mohamed Tarek Khadir, Nadir Farah and Kheirredinne Farfar, PREVOS-DZ: A Short-Mid Term Algerian Electric Load Forecasting Software
- #id 322 Ahmed Kasdi, Experimental and numerical modeling of corona discharge generated in an electrostatic precipitator
- #id 334 Abdelghani Boukreris, Abdelkader Mekri and Ali Hennad, Two-dimensional modeling of negative streamer by using QUICKEST with SUPERBEE limiter method

Room 4  
**11h00-12h30**

**SPECIAL SESSION 1**  
**Permanent Magnet Machines: Structures and Modeling**

by: Pr. Y. Amara Pr. R. Ibtouen

- SS11 Amal Souissi, Imen Abdennadher, Ahmed MASMOUDI, On the Enhancement of the Thrust Production of LPMSMs: Application to Ropeless Elevators
- SS12 Amal Souissi, Imen Abdennadher, Ahmed MASMOUDI, An Approach to Reduce the Detent Force of Double-Sided Flat Linear PMSMs
- 13SS Nouredine TAKORABET, L'utilisation des aimants permanents dans les machines électriques
- SS14 Sami HLIQUI, SATIE, Machine à double excitation : état de l'art et exemples d'applications
- 15SS Yacine AMARA, Linear Tubular PM machines



## POSTER SESSION 2 (20)

14h00-17h00

Chairmen: Pr. R. Ibtouen, Pr. Affef Bennani-Ben Abdelghani, Pr. A. Mekhaldi

- #id 42 Saad Khadar and Abdellah Kouzou, Commande Tolérante aux défauts de la Machine Asynchrone en Tenant Compte des Défauts
- #id 75 Salah Nadj, Samira Benaicha, Nassereddine Sabeur and Faradla Mohd Zaihidee, Robust Backstepping Control With Integral Action of IPM Synchronous Motor
- #id 90 Moulay Fatima and Habbati Assia, The Non Linear Multivariable Control of an Asynchronous Machine
- #id 225 Bouali Khadidja, Kadid Fatimazohra and Abdessemed Rachid, A Hybrid Algorithm By Combination Of Genetic Algorithm And Local Optimization For Constrained MHD Pump Optimization
- #id 33 Seghir Samira, Bouthiba Tahar, Boukhari Rebiha and Bouricha Abdelhakim, Fault Arc Resistance Impact on Fault Location in High Voltage Transmission line
- #id 40 Yacine Ayachi Amor, Noureddine Ayachi Amor, Hamid Bentarzi and Farid Hamoudi, Implementation of a Numerical Over-current Relay Using LabVIEW and Acquisition Card
- #id 129 Yousfi Boutheina, Delassi Abdelmouméne and Arif Salem, Synthesis of swarm based algorithms for the design of LFC in interconnected power Systems
- #id 192 Saad Bella, Aissa Chouder, Ali Djeriou, Azeddine Houari, Mohamed Machmoum, Mohamed-Fouad Benkhoris and Kaci Ghedamsi, Circulating Currents control for Parallel Grid-Connected Three-Phase Inverters
- #id 355 Manef Bourogaoui, Azeddine Houari, Houda Ben Attia Sethom and Mohamed Machmoum, Modeling and Resonance Analysis of Parallel Grid-Connected Inverters with LCL Filters
- #id 53 Nair Nouria, Gasbaoui Brahim and Ghezouani Abdelkader, Temperature and Pressure Effect of PEM Fuel Cell Behavior for Urban Electric Vehicle Moving in Hottest Region Under Several Road Topologies.
- #id 188 Mohammed Tsebia and Hamid Bentarzi, Analysis of small signal in North Africa Inter-Area Power System
- #id 255 Nabti Zineb, Bordjiba Tarik, Bezzazi Sara and Saidia Imane, Électrodéposition de l'Oxyde de Manganèse sur le Papier de Carbone et Leurs Applications en Énergies Renouvelables
- #id 336 Mustapha Habib, Ahmed Amine Ladjici and Elmar Bollin, Practical Implementation of Energy Management Algorithm on a Microgrid System
- #id 30 Talbi Khaoula and Harrouni Samia, Evaluating semi-empirical models for global solar radiation on inclined surfaces in south of Algeria
- #id 35 Nessim Abderrahim Bourahla, Mustapha Benghanem and Hamid Bouzaboudja, Conception and Analysis of a Photovoltaic Microgrid in the USTO Campus
- #id 65 Brahim Elkhailil Youcefa, Ahmed Massoum, Said Barkat, Saad Bella and Patrice Wira, DPC Method For Grid Connected Photovoltaic System Acts as a Shunt Active Power Filter Implemented with Processor in the Loop
- #id 321 Ibrahima Ngom, Sondes Skander-Mustapha, Ilhem Slama Belkhodja, Alioune Badara Mboup and Lamine Thiaw, An adaptive DC-link voltage control for Doubly Fed Induction Generator Wind Turbine System
- #id 32 Zaidi Elyazid, Marouani Khoudir and Mabrek Abdelhakim, Fuzzy Logic Control of Multi-Phase Induction Machine Drives Based on Cascaded Hybrid Multi-level Inverters
- #id 82 Hanane Zermane and Rachad Kasmi, Automation and Advanced System Control of an Industrial Production Process using Fuzzy Logic
- #id 160 Boudjana Said, Tadjine Mohamed and Ghribi Djamila, Loop-Shaping Control Of Boost/Buck High Voltage Gain For Photovoltaic Applications

14h00-15h00 Room 1	2 <sup>nd</sup> Plenary : Place de l'efficacité énergétique dans la lutte face aux changements climatiques by Prof. Mohamed BENHADDADI Chairman: Prof. Rachid IBTIOUEN
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Room 1 15h00-16h30	<b>ORAL SESSION 4</b> <b>Energy storage and smart grid management</b> Chairmen: Pr. M. BENBOUZID, Pr. I. Slama BELKHODJA
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- #id 214 Sihem Djebbri, Samir Ladaci, Abderezzak Metatla and Hanane Balaska, Robust MRAC Supervision of a Multi-source Renewable Energy System Using Fractional-Order Integrals
- #id 221 Mehdi Sellali, Achour Betka, Said Drid, Mourad Tiar and Sabrina Abdedaim, Implementation of new adaptive Power-Split management strategy in a battery-super capacitor electric vehicle
- #id 238 Sadoudi Slimane, Mohamed Boudour and Nour El Yakine Kouba, Optimal Combined Dynamic Economic and Emission Dispatch Including Wind and Photovoltaic Power Systems
- #id 360 Maddouri Mohamed, Amen Debbiche, Elkhorchani Habib and Grayaa Khaled, Game Theory and Hybrid Genetic Algorithm for Energy Management and Real Time Pricing in Smart Grid
- #id 390 Wahib Khiari, Mehdi Turki and Jamel Belhadj, Dynamic Energy Management For Real Time Control Of Batteryless PV-Wind Powered Desalination Unit

Room 2 15h00-16h30	<b>ORAL SESSION 5</b> <b>Materials for energy</b> Chairmen: Pr. H. MOULAI, Pr. S. BOUAZABIA
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- #id 18 Abdeslem Beldjilali, Abdelhamid Ouslimane, Nadia Saidi Amroun and Mohamed Saidi, Conduction and FT-IR spectroscopy to Study the Metal/liquid Contact
- #id 34 Aboura Faouzi and Touhami Omar, Modeling and Analyzing Energetic Hysteresis Classical Model
- #id 63 Kharchouche Façal and Belkhiat Saâd, The effect of BaTiO<sub>3</sub> content on the microstructure and electrical properties of Bi<sub>2</sub>O<sub>3</sub>/ZnO varistor materials
- #id 68 Hedir Abdallah, Moudoud Mustapha, Rondot Sébastien, Jbara Omar, Slimani Ferhat and Bellabas Ferhat, Behaviour of Cross-linked Polyethylene Used as High Voltage Power Cables Insulation Due to Environmental Constraints
- #id 80 Aida Moussaoui, Nouredine Zouzou, Miloud Kachi, Ayyoub Zouaghi and Abdelhafid Bouchelkha, Influence of the Waveform on the Elimination of Charges by a Dielectric Barrier Discharge (DBD)
- #id 300 Djamel Maadjoudj, Abdelouahab Mekhaldi and Madjid Teguvar, Wavelet transform of the leakage current to monitoring the insulator surface under non-uniform desert pollution

Room 3  
15h00-16h30

**ORAL SESSION 6**  
**Diagnosis and nondestructive testing**

Chairmen: Pr. D. BOUKHETALA, Pr. A. NAITSEGHIR

- #id 247 Tarek Adnane, Ilhem Amoura, Ahmed Badji, Abdo Fall and Hocine Moulai, Discharges Current, Emitted Light and Radiated Field in Power Transformer Insulating Oils
- #id 272 Mohamed Gueraichi, Hocine Moulai and Azzedine Nacer, Selection of Variables by the Algorithm F-Score for Discrimination of Radiated Magnetic Field Signals Related to Electrical Discharges
- #id 310 Tarak Benkedjough, Gearbox faults classification Based on short time Fourier transform and deep learning
- #id 349 Ala Eddine Lakhdari, Ahmed Cheriet, Belkacem Lamamra, Belkacem Bellouti, Samir Bensaid and Islam Nacereddine El Ghoul, Gap Estimation of Disbanding Failure Appears in Hybrid Laminate Material by Means of an Eddy Current Evaluation
- #id 383 Smail Haroun, Amirouche Nait Seghir and Said Touati, Self-Organizing Map and feature selection for of IM broken rotor bars faults detection and diagnosis

Room 4  
15h00-16h30

**SPECIAL SESSION 2**  
**Application of superconductors in electrical engineering**

Chairmen: Pr. B. DOUINE, Pr. E.H AILAM, Pr. Kevin BERGER

- SS21 Bruno Douine, Hocine Menana, Yazid Statra and Elhadj Ailam, Caractérisation de rubans supraconducteurs HTC
- SS22 Moussa Kelouaz, Youcef Ouazir, Larbi Hadjout, Smail Mezani, Thierry Lubin, Kévin Berger and Jean Lévêque, Modeling of a Superconducting Radial Flux Inductor by a 3D Reluctance Network
- SS23 Elbaa Mohamed, Berger Kévin, Douine Bruno, Halit Mohamed, Bentriddi Salah-Eddine and Ailam El Hadj, Calcul analytique de l'inductance d'une bobine dans un circuit ferromagnétique en présence d'une pastille supraconductrice

Room 1  
17h00-19h00

**WORKSHOP 1**  
**Research and Innovation for Industrial needs in the Maghreb / Pr. Mohamed BOUDOOR (Panel Moderator)**

<b>8h00-09h00</b> <b>Room 1</b>	<b>3<sup>rd</sup> Plenary : Approches commande prédictive et commande par allocation</b> <b>by Prof. Maurice FADEL</b> <b>Chairman: Prof. Mourad HASNI</b>
<b>Room 1</b> <b>9h00-10h30</b>	<b>ORAL SESSION 7</b> <b>Automation &amp; Control</b> <b>Chairmen: Pr. L. GUENFAF, Pr. M. MANSOUR</b>

- #id 23 Halima Medjoubi, Hassam Abdelouahab and Touafek Mohamed Yaakoub, Leader-follower formation control using PI controller
- #id 43 Mustapha Boudjellal, Omar Benzineb, Chouki Boultifat and Mohamed Tadjine, Direct Active and Reactive Power Control of DFIG Using an Adaptive Fuzzy Sliding Mode Controller
- #id 45 Chems Eddine Boudjedir, Djamel Boukhetala and Mohamed Bouri, Nonlinear, PD control of a Parallel Delta robot: Experimental Results
- #id 69 Bilel Aichi, Mohammed Bourahla and Khedidja Kendouci, Real-Time Hybrid Control of Induction Motor Using Sliding Mode and PI Anti-Windup
- #id 163 Mouad Kahouadji, Adaptive Super Twisting Control for Attitude Tracking based on Quaternion
- #id 348 Ismat Meslouli, Quadrotor Design Procedure and PID Control for Outdoor Free Flight

<b>Room 2</b> <b>9h00-10h30</b>	<b>ORAL SESSION 8</b> <b>Power Electronics</b> <b>Chairmen: Pr. E. BERKOUK, Pr. K. YAZID</b>
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- #id 41 Yacine Ayachi Amor, Aissa Kheldoun, Brahim Metidji, Farid Hamoudi, Abdeslam Merazka and Youssef Lazouche, Implementation of Modified SVPWM for Three-level Inverter Using STM32F4
- #id 52 Noureddin Farkash, Abdelhadi Ramdan, Sami Alsahly and Mohamed Elrais Tamasas, Comparison of Three Modulation Techniques for Single Phase Half Bridge 5-Level Inverter Based on Level Shifted PWM
- #id 120 Mohamed Lamine Hamida, Hakim Denoun, Arezki Fekik, Nabil Benyahia and Nacerddine Benamrouche, Cyclic Reports Modulation Control Strategy for a Five Cells Inverter
- #id 398 Sabir Ouchen, Steinhart Heinrich, Frede Blaabjerg, Mohamed Benbouzid and Nassima Bekhouche, Improved Direct Power Control Applied to Parallel Active Filtering Based on Fuzzy Logic Controller
- #id 331 Marwa Ben Said Romadhane, Manel Jebali Ben Ghorbal, Sondes Skander-Mustapha and Ilhem Slama-Belkhodja, Indirect Sliding Mode Power Control for Power Converter based Three-phase Load Emulator
- #id 370 Afef Bennani-Ben Abdelghani, Jihen Sakly, Hafedh Ben Abdelghani and Ilhem Slama-Belkhodja, Reliable, efficient and fault tolerant power converter for grid-connected PV system

Room 3  
9h00-10h30

**ORAL SESSION 9**  
**Electric Machines & Drives**

Chairmen: Prof. E. ZAIM, Pr. B. DOUINE

- #id 145 Abdelmalik Djebli, Omar Touhami and Rachid Ibtouen, Configuration of Three-phase to Eleven-phase Power Transformer
- #id 198 Islam Benhamida, Aissa Ameer, Katia Kouzi and Hocine Sayaf, Predictive Direct Torque Control Based on New Formulation and Fuzzy Logic for Permanent Magnet Synchronous Machine
- #id 235 Abdelkarim Ammar, Aissa Kheldoun, Brahim Metidji, Billel Talbi, Tarek Amied and Younes Azzoug, An Experimental Assessment of Direct Torque Control and Model Predictive Control Methods for Induction Machine Drive
- #id 236 Mohammed Messadi, Larbi Hadjout, Youcef Ouazir, Noureddine Takorabet, Thierry Lubin and Smail Mezani, 3D Analytical Computation of the Torque in Axial Flux Permanent Magnets Couplings Based on Charges Model and Images Method
- #id 338 Daniel Roger, Ewa Napieralska, Stéphane Duchesne and Jean-Philippe Lecoite, Analyse de la distribution de la tension entre les bobines des moteurs à pas fractionnaires alimentés en MLI, influence des connexions à la terre
- #id 393 Arezki Chibah, Mohamed Menaa, Krim Yazid, Ahmed Boufertella, Djadi Hammou and Mohamed Boudour, A New Sensorless Control Of Doubly Fed Induction Motor Using A High Frequency Carrier Signal Injection Based On Non Linear Third Order Angle Tracking Observer

Room 4  
9h00-10h30

**ORAL SESSION 10**  
**Renewable Energies and Efficiency**

Chairmen: Pr. H. BENAHMED, Pr. M. BENHADDADI

- #id 110 Brahim Khalil Oubbati, Mohamed Boutoubat, Mohammed Belkheiri and Abdelhamid Rabhi, Global maximum power point tracking of a PV system MPPT control under partial shading
- #id 195 Nassima Bekhoucha, Nadhir Mesbahi and Sabir Ouchen, Predictive current control of Three Level Neutral Point Clamped Grid Connected Inverter in Photovoltaic Generation Systems
- #id 241 Hamza Afghoul, Fateh Krim, Antar Beddar and Anouar Ounas, Real-time implementation of fractional order controller for PV emulator supplied shunt active power filter
- #id 294 Meriem Ghodbane-Cherif, Sondes Skander-Mustapha and Ilhem Slama-Belkhodja, Reconfiguration of Control under Unbalanced Grid Voltage Sags for DFIG Wind System Using Power Harmonic Components
- #id 374 Abdesslem Nekkache, Belkacem Bouzidi, Kaabeche Hamid and Yahia Bakelli, Hybrid PV-Wind based water pumping system optimum sizing: a PSO-LLP-LPSP optimization and cost analysis

#id 394 Mohamed Amine Djema, Mohamed Boudour, Kodjo Agbossou, Alben Cardenas and Mamadou Lamine Doumbia, Optimized PID for Direct Power Control with an improved LCL filter design using GWO for Three-Phase Inverters

9h00-12h30

## POSTER SESSION 3 (20)

Chairmen: Pr. M. TEGUAR, Pr. L. HADJOUT, Dr. F. Z. CHELLALI

- #id 275 Asma Ouardas and Sid Ahmed Elahmar, Performance of UWB Linked Relay Network Systems With Antenna Selection in the Presence of Multiple Access Interference
- #id 303 Bentoumi Ahmed, Mezache Amar and Taha Hocine Kerbaâ, Performance of Non-Parametric CFAR Detectors in Log-Normal and K Radar clutter
- #id 369 Mokeddem Fatima and Debbel Sidi Mohemmed, A Comparative Study Between Linear Filter And Discrete Wavelet Transform For Denoising Heart Sounds Signal
- #id 177 Samia Slimani, Nawal Bouatia, Rabah Boudissa, Stefan Kornhuber and Klaus Dieter Haim, Evolution du volume des gouttes d'eau de pluie naturelle sur une isolation en silicone inclinée et mise hors tension
- #id 211 Kaci Meziane and Ait Said Hakim, Experimental study of the high voltage electrode to generate a corona discharge in charging system
- #id 337 Djamel Eddine Fekir, Mohamed Miloudi and Abdelber Bendaoud, Comparaison technico-économique entre deux nouveaux procédés de chargement triboélectrique des produits granulaires isolants et leur application dans la séparation électrostatique des DEEE
- #id 345 Yassamine Hadji, Bachir Lehouidj, Sihem Sahra, Azzeddine Nacer and Hocine Moulai, Etude comparative des signatures électriques liées à la propagation de streamers dans les liquides diélectriques.
- #id 406 Nezha Kadous, Amar Tilmatine and Farid Miloua, Particle Distribution Analysis Along The Collection Electrode Of a "Wire to Cylinder" Electrostatic Precipitator
- #id 17 Mohamed Abdelghani Benziada, Ahmed Boubakeur and Abdelouahab Mekhaldi, Influence of Insulating Barrier on the Electric Field Distribution in a Point-Plane Air Gap using COMSOL Multiphysics
- #id 19 Mounira Ali, Abdelaziz Talha and El Madjid Berkouk, A neutral point balancing problem in a three- Level inverter analyzed using a redundant Algorithm
- #id 72 Yacine Abderrahmane Bencherif, Adelouahab Mekhaldi, Jaques Lobry and Marjorie Olivier, Assessment of composite insulator's behavior during the aging of its housing material
- #id 168 Nesrine Amieur and Zehira Ziari, Simulation of a Positive dc Corona Discharge in a Needle-Plane Electrode Configuration
- #id 239 Mankour Mohamed, Sekour M'Hamed and Ahmed Wahid Belarbi, Electrical Equivalent Circuit And Glow Discharge Atmospheric Pressur
- #id 295 Abdelkader Mekri, Abdelghani Boukreris and Ali Hannad, Two-dimensional modeling of plasma actuators by ADBQUICKEST scheme
- #id 335 Daniel Roger, Ewa Napieralska, Jean-Philippe Lecoite and Piotr Napieralski, Etude numérique 2D et 3D d'une machine électrique haute température fonctionnant à 500°C
- #id 57 Kamel Laidi, Khelifa Benmansour and Ouahid Bouchhida, Modulated Duty Cycles PWM for Multicellular Converters Control
- #id 93 Ali Teta, Mohamed Mounir Rezaoui, Abdellah Kouzou, Abdelkader Azzeddine Laouid and Bensaoucha Saddam, Analysis of reference current identification strategies for shunt active filter under distorted load conditions
- #id 372 Mohamed Lamari, Mohamed Boudour, Bouziane Boussahoua and Youssouf Amrane, A Single-phase Asymmetrical Multi-Level Inverter with a Low THD
- #id 274 H. Mehida, M.Y. Ayad, R. Saadi, O. Kraa and A. Aboubou, Multi-Stack Fuel Cells and Interleaved DC/DC Converters Interactions for Embedded Applications
- #id 292 M.Y. Hammoudi, O. Kraa, R. Saadi, M.Y. Ayad and S. Bacha, Non linear control of a Fuel Cell Interleaved Boost Converter using Weighted Mixed Sensitivity H-infini

Room 1  
11h00-12h30

**ORAL SESSION 11**  
**Power Systems & Microgrids**

Chairmen: Pr. A. HELLAL, Pr. M. BENBOUZID

- #id 26 Abdelhakim Bouricha, Tahar Bouthiba, Rebiha Boukhari and Samira Seghir, High Impedance Faults Location in the Distribution Networks using Adaptive Neuro-Fuzzy Inference System
- #id 76 Toufik Tarif, Ahmed Amine Ladjici and Yasmina Chabane, Optimal PMU placement for small-signal stability assessment using Genetic algorithm
- #id 117 Benmiloud Omar and Arif Salem, Optimal Dynamic Equivalence Based on Multi-Objective Formulation
- #id 174 Mosbah Mustafa, Rabie Zine, Arif Salem, Mohammedi Ridha Djamel and Bacha Seddik, Optimal Power Flow for Transmission System with Photovoltaic Based DG Using Biogeography-Based Optimization
- #id 205 Hadjidj Salim and Bibi-Triki Nacer-Eddine, Study and optimization of a renewable system of small power generation
- #id 216 Youssouf Amrane, Messaoud Belazzoug, Ali Elmaouhab, Ahmed Amine Ladjici, Mohamed Boudour and Lamari Mohamed, Optimal Reactive Power Flow In The Presence of Wind Power For Active Power Loss Minimization

Room 2  
11h00-12h30

**ORAL SESSION 12**  
**Electromagnetic Compatibility**

Chairmen: Pr. R. TAHMI, Pr. A. TILMATINE

- #id 9 Merizgui Tahar, Hadjadj Abdechafik and Kious Mecheri, Modelling and Measurement of Electromagnetic Shielding Effectiveness
- #id 99 Djekidel Rabah, Hadjadj Abdechafik and Bessedik Sid Ahmed, Optimized passive and active shielding of magnetic induction generated by EHV overhead power lines
- #id 132 Benazza Baghdadi, Bendaoud Abdelber and Jean Luck Schanen, Etude Expérimentale de l'influence des Longueurs de Câble sur les Perturbations Conduites d'un Convertisseur DC/DC de type Buck
- #id 223 Omar Kherif, Sofiane Chiheb, Madjid Teguar and Abdelouahab Mekhaldi, Impulse Analysis of Interconnected WTGS under Single and Multiple Lightning Discharges
- #id 319 Rabiaa Gamoudi, Dhia Chariag and Lassaad Sbita, Impact of the Used Chaotic Map on the EMI Reduction Level
- #id 379 Nadir Idir, Kotny Kotny and Thierry Duquesne, Méthode de dimensionnement des filtres CEM pour un convertisseur GaN fonctionnant à 500kHz



Room 3  
11h00-12h30

**ORAL SESSION 13**  
**Electric Machines & Drives**

Chairmen: Pr. N. TAKORABET, Pr. B. DOUINE

- #id 79 Fateh Abdoune, Kaddour Abdoune and Djamel Aouzellag, Improved control strategy for a stand-alone DFIG under unbalanced load conditions
- #id 92 Fayçal Mehedi, Lazhari Nezli and Mohand Oulhadj Mahmoudi, Speed Control of Series-Connected Five-Phase Two PMSM using Sliding Mode Control
- #id 101 Noureddine Layadi, Samir Zeghlache, Ali Djerioui, Azeddine Houari, Mohamed-Fouad Benkhoris and Fouad Berrabah, Integral Backstepping Control for Double Star Induction Machine (DSIM)
- #id 136 Khaled Sahraoui, Aissa Ameer and Katia Kouzi, Neural Networks trained with Sliding Mode Control for DSIM Supplied by Two Voltage Inverters on Three Levels
- #id 165 Wissam Dehina, Mohamed Boumechraz and Frédéric Kratz, Diagnosis of rotor and stator faults by Fast Fourier Transform and Discrete Wavelet in Induction machine
- #id 293 Sokni-Sita Alli, Mohammed El Hadi Zaim, Nicolas Bracikowski and Luc Moreau Magnetic Reluctance Method for Modeling a Low Speed Doubly Salient Permanent Magnet Machine

Room 4  
11h00-12h30

**SPECIAL SESSION 3**  
**Reliability Assessment of Power Systems**

Chairmen: Pr. M. BOUDOUR, Dr. R. BENABID

- SS31 Rabah Benabid, Djemai Merrouche, Aissa Bourenane and Robertas Alzbutas, Reliability Assessment of Redundant Electrical Power Supply Systems using Fault Tree Analysis, Reliability Block Diagram, and Monte Carlo Simulation Methods
- SS32 Kemikem Dallal, Boudour Mohamed and Benabid Rabah, Reliability Modeling and Evaluation of Repairable Electrical Power Supply Systems using Reliability Block Diagram
- SS33 Billal Nazim Chebouba, Multi-objective System Reliability Optimization in a Power Plant
- SS34 Bouziane Boussahoua, Analyse de la Fiabilité des Réseaux de Production- Transport d'Énergie Électrique
- SS35 BENDIB Riad, Design Of an integration Frame HAZOP-SIL for safety Optimization of a Fired Heater

14h00-17h00

## POSTER SESSION 4 (17)

Chairmen: Pr. S. BOUAZABIA, Pr. M. HASNI, Pr. A. NAITSEGHIR

- #id 248 Hesna Aberkane, Djamel Sakri and Djamel Rahem, Improvement of Direct Torque Control Performances Using FCS-MPC and SVM Applied to PMSM: Study and Comparison.
- #id 279 Kari Mohammed Zakaria, Mechernene Abdelkader, Meliani Sidi Mohammed and Guenoune Ibrahim, Super-twisting strategy based indirect field oriented control without using the currents sensor: application to IM
- #id 356 Adel Zarifi, Hamou Ait Abbas and Abdellatif Seghiour, Design of Real-time PID tracking controller using Arduino Mega 2560 for a permanent magnet DC motor under real disturbances.
- #id 401 Housseem Eddine Khelif, Mouna Ben Hamed, Mehdi Dhaoui and Lassaad Sbita, Sliding mode-indirect vector control of double star induction motor using SVM technique
- #id 234 Oumaïma Garfi, Helmi Aloui and Nadia Chaker, Impacts Of Photovoltaic Power Source Intermittence On a Distribution Network
- #id 306 Mourad Naidji, Mohamed Boudour and Farid Achouri, Modeling and Control of Photovoltaic Systems Integrated to Distribution Networks
- #id 381 Abdenour Tebib and Mohamed Boudour, An Improved Synchronverter based HVDC System Considering Damper Windings Effect
- #id 405 Ikram Nacef, Khadija Ben Kilani and Mohamed Elleuch, Understanding Interarea Oscillations in Power Systems Integrating Wind Power
- #id 95 Ahmed Bendib, Abdelhammid Kherbachi, Kamel Kara, Aissa Chouder and Said Barkat, SOGI-FLL Based Optimal Current Control Scheme for Single-Phase Grid-Connected Photovoltaic VSIs with LCL Filter
- #id 148 Kaddour Abdoune, Fateh Abdoune and Djamel Aouzellag, Vector control of doubly-fed induction machine for stand-alone variable speed energy system
- #id 222 Youcef Saidi, Abdelkader Mezouar, Yahia Miloud and Mohammed Amine Benmahdjoub, A Robust Control Strategy for Three Phase Voltage Source PWM Rectifier Connected to a PMSG Wind Energy Conversion System
- #id 263 Mohamed Hallak, Mourad Hasni and Mohamed Mena, Modeling and Control of a Doubly Fed Induction Generator Base Wind Turbine System
- #id 403 Fekkak Bouazza, Mena Mohamed, Bousahoua Bouziane and Loukriz Abdelhamid, PIL Test for Voltage Source Inverter control used in Off-grid PV system
- #id 213 Bouziane Keziz, Samir Ladaci and Abdelbaki Djouambi, Design of a MRAC-Based Fractional order  $PI\lambda D\mu$  Regulator for DC Motor Speed Control
- #id 253 Youcef Zennir, Comparison of PID and Fuzzy Controller for Path Tracking Control of Autonomous Electrical Vehicles
- #id 308 Nssira Zerari, Mohamed Chemamchema and Najib Essounbouli, Adaptive Neural-network Output Feedback Control Design for Uncertain CSTR system With Input saturation
- #id 386 Saad Chaouch, Mourad Hasni, Amar Boutaghane, Badreddine Babes, Mohamed Mezaache, Salah Slimane and Mahieddine Djenaihi, DC-Motor Control Using Arduino-Uno Board for Wire-Feed System

14h00-15h00 Room 1	4 <sup>th</sup> Plenary : Advances on fault tolerance and resilience of electromechanical systems by Prof. Mohamed BENBOUZID Chairman: Prof. Mohamed BOUDOUR
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Room 1 15h00-16h30	<b>TUTORIAL 1</b> Advanced signal processing techniques for electric machines and drives faults detection and diagnosis, by Pr. Mohamed Benbouzid; Univ. Brest
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**Abstract:**

Condition monitoring is of high concern in industrial applications since it minimizes the downtime and improves the reliability, availability, safety and productivity of these systems. Among the various available techniques for electromechanical systems condition monitoring, current analysis has several advantages since it is a noninvasive technique that avoids the use of extra sensors. Moreover, the electrical signals (for instance, the stator current) are usually available and inexpensive to measure.

Stator currents processing-based faults detection and diagnosis of electromechanical systems has received intense research interest for several decades. Moreover, the International Standard "ISO FDIS 20958" dealing with "Condition monitoring and diagnostics of machine systems - Electrical signature analysis of three-phase induction motors" sets out guidelines for the online techniques recommended for the purposes of condition monitoring and diagnostics of machines, based on electrical signature analysis. Hence, many studies have shown that supervising the current spectrum could perform fault monitoring. Most of the used faults detection and diagnosis techniques perform spectral analysis, such as Fourier or MUSIC techniques. Although these techniques exhibit good results in stationary conditions, they are not well suited for a majority of electromechanical systems. Indeed, these applications environment is predominantly non-stationary due to transients or variable speed operations. In this context, the involved signals are usually non-stationary, embedded in noise, and can contain closely spaced frequencies. It is then obvious that faults detection and diagnosis in such applications are challenging tasks that need using specific signal processing tools.

In this challenging context, this tutorial aims to present the main advanced signal processing techniques for electric machines and drives faults detection and diagnosis. It will focus on presenting advanced tools from time-frequency representation and time-scale analysis to demodulation techniques. All these techniques will be evaluated and compared and their advantages and drawbacks highlighted. Afterward, it will be introduced the parametric spectral analysis, which aims to handle some of the main raised drawbacks.

Room 2  
15h00-16h30

## TUTORIAL 2

Modélisation et prévisions de séries temporelles en utilisant les RNA,  
by Pr. Mohamed Tarek Khadir, Univ. Annaba

### Abstract:

Most of industrial, natural, economic and social phenomena and events may be described as a time series when they are deterministic. A time series is, then, a sequence of data points being recorded at specific times, often containing a trend, a seasonality, a variance and a stochastic component. The so called stochastic component is most of the time considered as such, as it is caused by unknown or immeasurable exogenous variables. Time series modeling and forecasting has fundamental importance to various practical domains. Thus a lot of active research works is going on in this subject during several years. Many important models have been proposed in literature for improving the accuracy and efficiency of time series modeling and forecasting. More recently, Artificial Neural Networks (ANN) have been studied as an alternative to linear model-driven approaches because of their generalization ability to well approximate nonlinear functions. The strength of ANNs derives from the connections between neurons, which provides the ability to solve non-linear problems based on connections between the different units, several topologies have been proposed in the literature, such as Feed Forward, the Recurrent Neural Network, the Self Organizing Map (SOM), etc.

The aim of this tutorial is to present a comprehensive introduction to time series, as well as the existing modeling approaches focusing on Artificial Neural Networks. Steps for modeling a given time series are detailed, from data collection, input data choice (choice of the regression vector), network topology to training and validation of the obtained models. A practical application of forecasting electrical load, considered as a time series, is presented covering all modeling steps. Electrical load is a major input factor in economic development, in order to support daily demand and meet the customer daily needs. The practical example is developed using Python and Anaconda, a package manager, an environment manager, a Python distribution, and a collection of over 1,000+ open source packages with specific scripts used for each modeling step.

Room 3  
15h00-16h30

## TUTORIAL 3

Aperçu sur les applications du champ électrique intense,  
by Amar Tilmatine, Univ. Sidi-Bel-Abbes

### Abstract:

Ce tutoriel concerne un aperçu sur des applications utilisant la haute tension allant de 2 à 70 kV. Ces applications développées dans les laboratoires APELEC et IRECOM de l'Université Djillali Liabes de Sidi-Bel-Abbes, utilisent un champ électrique intense compris entre quelques kV/cm et plusieurs dizaines de kV/cm. Les procédés suivants seront décrits et discutés durant le tutorial.

- Générateurs d'ozone à Décharge à barrière diélectrique  
Application pour traitement de l'eau et de l'air
- Séparateur électrostatiques de mélanges de particules  
Séparateur à décharge couronne  
Séparateur tribo-électrostatique classiques (à chute libre et à tapis roulant)  
Nouveaux séparateurs tribo-électrostatiques
- Electrofiltres de poussières
- Procédés à champ électrique pulsé  
Application pour la pasteurisation  
Application pour l'extraction des jus et huiles végétales
- Convoyeur à ondes voyageuses  
Transport et séparation des particules micronisées

<p>Room 4 <b>15h00-16h30</b></p>	<p><b>TUTORIAL 4</b> Simulation Driven Design of Electrical Rotating Machines By Dr. Farid ZIDAT, Altair Engineering, France</p>
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**Abstract:**

The aim of the tutorial is to review the practical methods to perform Pre-design studies, Multiphysic and Optimization of Permanent Magnet Synchronous Motors using finite elements methods or Analytical computation.

<p>Room 1 <b>17h00-19h00</b></p>	<p><b>WORKSHOP 2</b> Organisation et Programmes de la recherche au Québec-Canada / Pr. Mohamed BENHADDADI</p>
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<b>8h00-9h00</b> <b>Room 1</b>	<b>5<sup>th</sup> Plenary : Incorporating Topology within Machine Learning and Artificial Intelligence</b> <b>by Prof. Djamel BOUCHAFFRA</b> <b>Chairman: Prof. Bachir BOUDRAA</b>
<b>Room 1</b> <b>9h00-10h30</b>	<b>ORAL SESSION 14</b> <b>Automation &amp; Control</b> <b>Chairmen: Pr. N. BALI, Pr. A. NAITSEGHIR</b>

- #id 105 Kheira Kahili, Omar Bouhali and Nassim Rizoug, Wavelet Functions Performances in Intelligent Direct Adaptive Control of Uncertain Nonlinear Systems
- #id 111 Soraya Bououden, Brahim Brahmi and Saad Maarouf, Flatness-based control of a 2-DOF (TRMS) Helicopter
- #id 149 Jalal Eddine Benmansour, Boulanouar Khouaneand Rima Roubache, Vibration suppression for flexible satellite during attitude stabilization
- #id 313 Abdelkader Dairi, Fouzi Harrou and Ying Sun, A Deep Stacked Autoencoder-based Obstacle Detection in Driving Environments
- #id 371 Abanou Hacene and Mansour Moufid, Quadrotor UAV dynamics modeling based on subspace identification system
- #id 378 S. Bacha, M.Y. Ayad, R. Saadi, O. Kraa, A. Aboubou and M.Y. Hammoudi, Autonomous Vehicle Path Tracking Using Nonlinear Steering Control and Input-Output State Feedback Linearization

<b>Room 2</b> <b>9h00-10h30</b>	<b>ORAL SESSION 15</b> <b>Modeling &amp; Numerical Methods</b> <b>Chairmen: Pr. E. ZAIM, Pr. Y. OUAZIR</b>
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- #id 182 Roukia Abidat, Fouzi Bouanaka and Saida Rebiai, Computational Study of Surface Dielectric Barrier Discharge Plasma Actuator for Flow Control using COMSOL Multiphysics
- #id 187 Samia Dadda, Tahar Bouthiba and Samira Seghir, Primary Arc Modeling in Transmission Line
- #id 202 Mohammed Mehdi Bouchene and Rachid Hamdi, The effect of facets reflectivity on the static characteristics of (DFB) semiconductor laser
- #id 228 Lazhar Roubache, Mohammed Ben Yahia, Kamel Boughrara, Frédéric Dubas and Rachid Ibtouen, Analytical Modeling of Electromagnetic Noise in Spoke-Type Permanent-Magnet Machines
- #id 250 Azzaoui Seddik, Srairi Kamel and Regaz Amar, Optimization of Magnetic Hysteresis by Coupled Algorithm Applied to MHD Pump
- #id 260 Salheddin Kahleras, Ahmed Boubakeur and Larbi Boukezzi, Numerical study using FVM of three cavities within XLPE insulation of HV cables

Room 3  
9h00-10h30

**ORAL SESSION 16**  
**Power Systems & Microgrids**

Chairmen: Pr. M. ELLEUCH, Pr. A. HELLAL

- #id 219 Messaoud Belazzoug, Karim Sebaa and Hassan Nouri, Restructuration of distribution power system using Genetic Algorithms and Branch exchange method
- #id 220 Billal Khettaoui and Mohamed Boudour, Synchrophasor Estimation Using the Three-point Interpolated DFT Based on Polynomial Approximation
- #id 290 Sofiane Chiheb, Omar Kherif, Madjid Teguar and Abdelouahab Mekhaldi, Longitudinal behaviour of grounding electrodes subjected to lightning currents using SSR based TLM
- #id 302 Samir Abdelmalek, Ali Dali and Maamar Bettayeb, An Improved Observer-based Integral State Feedback (OISF) Control Strategy of Flyback Converter for Photovoltaic System
- #id 354 Saboune Souheil, Ladjici Ahmed Amin and Tiguercha Ahmed, Optimal adaptive under frequency load shedding using Neuro-Evolution Algorithm
- #id 373 Amine Benseddik and Nour El Yakine Kouba, Wind Farm Integration Intermittency Impact on Power System Transient Stability

Room 4  
9h00-10h30

**ORAL SESSION 17**  
**Power Electronics**

Chairmen: Pr. M. MENAA, Pr. K. YAZID

- #id 249 Behlouli Asma, Berkouk El Madjid and Mahmoudi Mohand Oulhadj, Sliding mode control of DC link ZSI
- #id 185 Lamine Makhouloufi, Samira Chouiref, Seddik Hadji, Said Mekhtoub and Omar Touhami, Application de la stratégie VOHEPWM à un système onduleur connecté au réseau
- #id 244 Ibtissam Chaib, El Madjid Berkouk and Jaun Paul Gaubert, Study of Fuzzy Logic controller based MPPT and the P&O for the Z-source inverter integrated in PV system
- #id 392 Yehya Amari, Mourad Hasni and Mohamed Mena, Comparative study of different PV inverter topologies and proposal of a new boost inverter topology
- #id 396 Chabane Hammouma, Houcine Zeroug and Abdelkader Attab, A New Approach for Adaptive Frequency in series resonant inverter for Induction hardening
- #id 399 Amel Lachichi, LCL Filter Design Optimization for LV Modular Multilevel Converters in Hybrid ac/dc Microgrids Application

Room 1  
11h00-12h00

**ORAL SESSION 18**  
**Modeling & Numerical Methods**

Chairmen: Pr. T. KHADIR, Pr. A. TILMATINE

- #id 31 Hichem Felouat and Saliha Oukid-Khouas, Graph Matching and Generalized Median Graph for Automatic Annotation of Cortical Sulci
- #id 94 Khaled Lounnas, Lyes Demri, Hocine Teffahi and Leila Falek, Automatic Language Identification for Berber and Arabic languages using Prosodic Features
- #id 98 Meriem Zoulikha, Mohamed Djendi and Abderezzak Guessoum, A New Efficient Backward BSS Structure Under Control of a New Automatic Voice Activity Detection System for Speech Enhancement
- #id 267 Wafa Derouaz and Thouraya Merazi Meksen, Compressed Sensing based Speech Compression using Dictionary Learning and IRLS algorithm
- #id 280 Asma Bouchair, Abderrahmane Amrouche, Sid-Ahmed Selouani and Hamidia Mahfoud, Empirical Mode Decomposition for Speech Enhancement
- #id 327 Assia El Mahdaoui, Abdeldjalil Ouahabi and Mohamed Said Moulay, Multilevel Fast Multipole Acceleration for Fast ISAR Imaging based on Compressive Sensing

Room 2  
11h00-12h00

**ORAL SESSION 19**  
**Renewable Energies and Efficiency**

Chairmen: Pr. H. BENAHMED, Pr. M. BENHADDADI

- #id 237 Adil Yahdou, Zinelaabidine Boudjema, Rachid Taleb and Abdelkadir Belhadj Djilali, Backstepping Sliding Mode Control of a Dual Rotor Wind Turbine System
- #id 258 Zoubir Zeghdi, Linda Barazane and Abdelkader Larabi, Field oriented Control of doubly fed induction generator integrated in wind energy conversion system using artificial neural networks
- #id 297 Ali Dali, Samir Abdelmalek and Maamar Bettayeb, A New Combined Observer-State Feedback (COSF) Controller of PWM Buck Converter
- #id 342 Hocine Lila, Mena Mohamed and Yazid Krim, Sensorless Control of Direct Drive PMSG Wind-Power Generator
- #id 382 Abdenour Tebib and Mohamed Boudour, Optimal Design of Synchronverter Virtual Capacitor to Achieve Capacitive Output Impedance
- #id 407 Fatma Ben Youssef, Ahlem Ben Youssef and Lasaad Sbita, Diagnosis and compensation of line Current Measurements for Grid Side Converter in PV Application



Room 3 11h00-12h00	<b>ORAL SESSION 20</b> <b>Diagnosis and nondestructive testing</b> Chairmen: Pr. D. BOUKHETALA, Pr. M. BENBOUZID
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- 108 Dihya Mezdad, Hakim Kharroubi, Tarik Berbar and Azzedine Nacer, Microscopie en champ proche pour le diagnostic et la caractérisation de matériaux
- 140 Zine Ghemari, Decrease of the resonance phenomenon effect and progress of the piezoelectric sensor correctness
- 352 Khalfi Hamid, Hamdani Samir, Nacereddine Kamel and Chibani Youcef, Stator Current Demodulation Using Hilbert Transform for Inverter-Fed Induction Motor at Low Load Conditions
- 384 Seghiour Abdellatif, Chouder Aissa, Ait Abbas Hamou, Salmi Chawki and Ben Saadia Oussama, A Deep Learning Based on Sparse Auto-Encoder with MCSA for Broken Rotor Bar Fault Detection and Diagnosis
- 404 Yasmine Gabi, Olivier Martins, Bernd Wolter and Christian Conrad, 3MA Non-destructive analysis on hardened material by finite element simulation and experiment

Room 4 11h00-12h00	<b>ORAL SESSION 21</b> <b>Electric Machines &amp; Drives</b> Chairmen: Pr. H. ZERROUG, Pr. M.E MAHMOUDI
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- #id 59 Abdelkader Ghezouani, Brahim Gasbaoui and Jemal Ghouili, Modeling and Sliding Mode DTC of an EV with Four InWheel Induction Motors Drive
- #id 224 Mohammed Ben Yahia, Kamel Boughrara, Lazhar Roubache, Frédéric Dubas, Zakarya Djelloul-Khedda and Rachid Ibtouen, A 2-D Exact Subdomain Technique in Switched Reluctance Machines Taking Into Account of Finite Soft-Magnetic Material Permeability
- #id 276 Arezki Chibah, Mohamed Mena, Krim Yazid, Ahmed Boufertella, Hammou Djadi and Mohamed Boudour, A New Sensorless Control of Doubly Fed Induction Motor Based on Extended Complex Kalman Filter
- #id 288 Abderrahmane Kadrine, Zoheir Tir, Mohamed Assaad Hamida, Om Malik, Azeddine Houari and Abdelali El Aroudi, High Gain Observer with Updated Gain for Sensorless Induction Motor
- #id 366 Tarek Zine-Eddine Benhacine, Nesba Ali, Said Mekhtoub and Rachid Ibtouen, A Balancing Method for Three-Phase SEIG Feeding a Single-Phase Load by using Switched Capacitors
- #id 397 Zeroul Aziz, Hadjout Larbi, Ouazir Youcef, Bensaidane Hakim, Benbekai Amine and Chaouch Othmane, 3D Analytical Model to Compute the Electromagnetic Torque of Axial Flux Magnetic Coupler with A Rectangular-Shaped Magnet

12h00	Closing Ceremony
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