International Conference on Sustainable Renewable Energy Systems and Applications

December 4 - 5, 2019 at University Larbi Tebessi-Tebessa, Algeria

Program Booklet

1st International Conference on Sustainable Renewable Energy Systems and Applications (ICSRESA'19)

Dec. 04 – Dec. 05, 2019

Faculty of Sciences and Technology

University Larbi Tebessi

Tebessa, Algeria

International Conference on
Sustainable Renewable Energy Systems and Applications
Tebessa, Algeria, Dec. 04-05, 2019

Dear Participants

It is our honor and pleasure to welcome you to the 1st International Conference on Sustainable Renewable Energy Systems and Applications (ICSRESA'19).

The conference takes place at The Auditorium, University Larbi Tebessi-Tebessa, Algeria for two days starting from Dec. 04, 2019. The technical program involves oneInvited Keynote, two poster sessions and nine oral sessions. This booklet is intended toguide you throughout the conference. You can find lots of useful information includingcontents of the technical sessions, presentation times and places. Members of the conferencecommittee will also be at your disposal to help you. Being a part of this major event hasbeen a memorable and rewarding experience for us. We hope all the participants will findthe conference enjoyable and informative.

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Information for Session Chairs, Oral Presenters, and Poster Presents

Session Chairs:

Session chairs are listed by name on each session in the technical program. Please check tosee if you are a session chair, and if so, please identify the session(s) you are scheduled tochair. If you have a conflict with another presentation or event you must please contact any organization committee member. It is important that session chairs maintain the schedule asindicated in the technical program to allow the participants to see the papers that they wantto see at the time they want to see them. If you are a session chair, please do your best in thefollowing areas:

1. Come to the room for your session early and if possible identify each of the speakersbefore the session begins.

2. Provide each speaker with 10 minutes of presentation time and 5 minutes to allow forquestioning and transitioning to the next speaker.

3. Do not allow speakers to extend over their time slot, nor allow questions to extend intothe next speaker's time. If there are additional questions, these can be handled during abreak between sessions. Use your best judgment to balance the need to be fair to thepresenter's time and to the participants' time.

4. In the case of paper for which no author or surrogate is available to present ("noshow"),please either use the time for an open discussion of previous paper or questions, or break for 10 minutes and then reconvene. Although significant effort has been made to reduce the number of no-shows, it is always possible that some will occur.

Oral Presenters:

You'll find your presentation time(s) in the technical program in this booklet. Please locateyour times and places and ensure that you know where to go and when to be there. Pleaseensure that you show up early for your oral presentation and identify yourself to the sessionchair. Please also ensure that you are as prepared as possible to make your presentationwhen it is your time. Do not go over 10 minutes for your presentation, allowing for 5minutes of questions and transitioning to the next speaker.

Follow the instructions of the session chair. In the event that a session chair does not show for a session, the last speakershould serve as session chair. In the event that this is not possible, please identify avolunteer in the audience to serve as session chair, or at a minimum identify someone foreach speaker to ensure that each presentation stays within the allotted time.

Poster Presenters:

The poster sessions are scheduled in the Poster Hall. There are no other technical presentations scheduled during these times. Poster boards are already prepared, and you will be able to start assembling your poster presentations during the coffee breaks. Each poster board will have anID number pinned to it. To find the number that corresponds to your poster, please go to the poster paper index in this book. This is also printed next to the paper entry in the main program.

Coffee and refreshment breaks:

Coffee and refresh will be available for the break each day at 11:00-11:30 and 15:00-15:30at the poster Hall.

Soft copies of the Proceedings:

Each registrant receives a soft copy (CDROM) of the ICSRESA'19 edited proceedings with following ISBN: 978-1-7281-5355-1.

IF YOU HAVE A PROBLEM…!

For any conference-related problem, please contact anyorganization committee member, the general chairs or the registration desk.

Plenary Talk 1

Smart grid - The future intelligent energy supply Challenges, Technologies and Opportunities

Prof. Dr. YoucefSoufi

Abstract:

The traditional electrical power grid has served well for the last hundred years. Recently, however, it has been subjected to government deregulation and has suffered from several technical, economic, and environmental issues. Modern society demands this system to be more reliable, scalable, and manageable while also being cost effective, secure, and interoperable and the electric power system of the future needs to address all these needs and concerns by using advanced technologies to create a smarter, more efficient and sustainable grid. Thus, the development and implementation of a smart grid for power supply is one of the pressing issues in modern energy economy and it is promoted by many governments as a way of handling energy independence, global warming and security of supply. The smart grid delivers electricity from producers to consumers using two-way digital technology, and allows control of appliances in the consumers' houses and of machines in factories to save energy, while reducing costs and increasing reliability andtransparency through automated control, high powerconverters, modern communications infrastructure, sensing and metering technologies, and modern energy management techniques based on the optimization of demand, energy and network availability. This presentation addresses critical issues on smart grid Challenges, development and Opportunities where the main objective of this presentation is to provide a contemporary look at the current state of the art in smart grid as well as to provide a better understanding of the technologies, potential advantages and research challenges of the smart grid and provoke interest among the research community to further explore this promising research area.

About the author:

YoucefSoufi received the B.Eng. (1991) and Doctorate degrees from the University of Annaba, Algeria in Electrical Engineering. Since 2000 he has been with the Department of Electrical Engineering, Laboratory of Electrical Engineering at the University Larbi Tebessi,Tebessa, Algeria .He is currently a Professor in electrical engineering. His main and current major research interests include Renewable energy, electrical machines control, power electronics and drives. He has published and co-authored more than 80 technical papers in scientific journals and conference proceedings since 2000. He is the member of editorial board of 5 journals, and the member of technical program committee / international advisory board / international steering committee of many international conferences. His email address is: **y_soufi@yahoo.fr**

Plenary Talk 2

Robotic system controllers for kid's rehabilitation

Prof. Dr. Nabil Derbal

Abstract:

The rehabilitation of neurological pathologies has progressed considerably in recent years. Indeed, studies have shown that the brain has a certain amount of plasticity. Hence, it is able, in part, to adapt and remodel when certain zones of the brain have been destroyed or damaged by diseases.

Comparing to standard rehabilitation such as vojta, rood, Doman and Delcato, conductive education and Bobath therapies, new researches have proved the efficiency of robotic rehabilitation according to several advantages. This work deals with the problem of lower limb neuro-rehabilitation using robotic exoskeletons, especially, the rehabilitation of children affected by Cerebral Palsy.

There are 3 types of cerebral palsy which are diplegia where both arms or legs are affected, hemiplegia where one side of the body is damaged and quadriplegia which affects all four limbs.

Contrary to standard therapies, exoskeletons have the ability to interact with the human limbs and accurately at hip and knee joints. Moreover, there are three kinds of rehabilitation, passive, resistive and assistance as needed. Passive rehabilitation concerns kids who have totally lost the control of their limbs. Resistive rehabilitation is considered when kids can develop efforts and the exoskeleton's movements are in the opposite direction. Finally, the assistance is needed when a voluntary part of required efforts is developed and the use of exoskeletons allows completing gait movements.

In this work, we are interested in lower limbs rehabilitation especially for kids who have between 2 and 13 years old. For this purpose, several control laws have been implemented to leg joints (hip and knee) aiming to move lower limbs along a predefined gait cycle trajectory. First, we have implemented the adaptive feedback linearization with PID controllers, then, sliding mode control, high order sliding mode control and adaptive approaches. These control laws have been tested while tracking a gait cycle trajectory.

Control and Applications of Multi-phase Induction Machines

Prof. Dr. AbdallahKouzou

Abstract:
Multiphase induction machines are attracting an increasing attention due to their inherent advantages over three-phase machines, e.g. reduced per phase power rating, improved reliability and increased degrees of freedom. Compared with three-phase Induction machines, variable speed multiphase induction machine provide a higher power range by utilizing low-power switching devices, due to the higher number of inverter phase legs and higher torque density. These properties are in particular important for applications in which power supply voltage is limited, the torque oscillation amplitude is required to be decreased and the fault tolerant ability is required. Indeed, the fault-tolerance capability is one of the most attractive properties of multiphase machines for industrial applications. Especially, for drive systems with high reliability in non-stop operation conditions, which are known for high economical and safety repercussions caused by fault occurrence, e.g. in electrical vehicles, traction, ship propulsion, and other safety-critical applications such as electrical helicopters.

The workshop will deliver the base knowledge on multiphase induction motor drives. The mathematical model, exemplary motor constructions, drive control methods including speed sensorless control, multi-phase voltage inverter control and furthermore the operation in faulty states will be shown.

About the author:

KouzouAbdallah (IEEE Senior member & IACSIT Senior member, IFAC,IAENG& IISRO member, IEEE-HKN Alumni Member) was born in Djelfa, Algeria in 1964. He is actually a full professor at Djelfa University. He is a collaborator researcher at Texas A&M University at Qatar. He was the president of the Scientific Council of the faculty of Sciences and Technology from 2014 to 2015 and the Dean of the same faculty from 2015 to 2017. He has participated in several research projects and has led several research projects. He is the founder of the Power Electronics and Power Quality research group at the Applied Automation and Industrial Diagnostic Laboratory, University of Djelfa in Algeria. He is the supervisor of many PhD Students in Algeria. He is a member of the Smart Grid Center at Qatar SGC-Q. He is a member of many editorial boards for several scientific journals and a member of the scientific and steering committees in several national and international conferences. He was the chair of several international conferences. He is the coordinator of the Algerian IEEE Power Electronics Chapter and the chair of the sub-committee on FACTs and HVDC under the international committee PETC/IEEE-IES. He was a plenary and an invited keynote speaker and session chair in several national and international conferences and experts in several national and international scientific activities and project evaluations. He was also a visiting professors at abroad Universities. He participated in many international PHD dissertation committees. He was the leader of several research project in Algeria. He has published more than 300 papers, his main research interests include Active Power Filtering techniques, Power Quality issues, Power Electronics Devices, Application of Power electronics in Renewable Energies, Materials for multi-layers coating in PV cells. Multi-phase machines, Sensorless control, Application of meta-heuristics optimization algorithms, Smart Grid and Smart Buildings, reliability and diagnostics in power electronics converters and in other industrial applications.

Fuzzy Logic Type 2

Prof. Dr. KheireddineChafaa

Abstract:
The principal problem encountered with uzzy systems is that they can deliver nonsatisfactory performances in face of uncertainty and imprecision. There are many sources of uncertainty facing the FLSs, such as uncertainties in inputs (uncertainties in the antecedent membership function); uncertainties in outputs (uncertainties in the consequent membership functions) and linguistic uncertainties as the meaning of words that are used in the antecedents and consequents. Linguistic labels can be uncertain as words mean different things to different people. All of these uncertainties translate into uncertainties about fuzzy set membership functions. Type-1 FLCs have the common problem that they cannot fully handle the linguistic and numerical uncertainties with an unknown, uncertain and perturbed nonlinear dynamical system as they use precise type-1 fuzzy sets. The uncertainty of a given unknown system causes problems in determining the exact and precise antecedents and consequent membership functions during the FLC design, and this can cause degradation in the FLC performance. A type-2 fuzzy logic system is a system in which the antecedent or consequent membership functions are type-2 fuzzy sets. Type-2 fuzzy sets have grades of membership that are themselves fuzzy. Type-1 FLSs, whose membership functions are type-1 fuzzy sets, are unable to directly handle rule uncertainties. Type-2 FLSs are very useful in circumstances where it is difficult to determine an exact membership function for a fuzzy set; hence they are useful for incorporating rule uncertainties.
The workshop is about the general theory of fuzzy logic and it is divided to two parts :

- In part A, Type 1 fuzzy logic is introduced with a simple example.
- In part B, the talk is about type-2 fuzzy logic.

Workshop Program:

<u>Session 1 :</u>   Fuzzy Logic
                Application Example
                Introduction to type-2 fuzzy logic

 <u>Session 2:</u> Type-2 fuzzy logic
                Application Example

About the author:

KheireddineChafaa received the Ph.D. degree from Batnauniversity, Algeria, in 2006. Currently, he is a Professor with the Faculty of Technology of Batna 2 University. He has participated in several research projects with *Batna 2 University, Algeria, Carlos III University, Madrid and IUT de Troyes, France*. He has authoredmore than 60 internationalcommunicationsandpublications and 2 book chapters. He isa supervisor of 12 PhD thesisandmore than 50 master students and engineershave been graduated under his supervision. He was the head of Electronics department in M'sila University from 2003 to 2008. He was the head of the scientific committee of Electronics department in M'sila University from 202 to 2003 and vice head of the of Electronics department in Batna 2 University from 2017 to 2019. He serves as a peer reviewer for Electronics Letters Journal, IET (Institute of Engineering and Technology), Transactions on fuzzy systems IEEE, Fuzzy sets and systems Elsevier, Transactions on Systems, Men and Cybernetics IEEE, International Journal of Systems Assurance Engineering and Management Springer, Electrical engineering Springer, Optimal control and applications. His research interests include modeling and identification of nonlinear systems, nonlinear adaptive control, soft computing, Fuzzy logic, machine learning, stochastic estimation theory and biomedical signal processing.

ConferenceProgram

ICSRESA'2019-December 4 - 5, 2019 – Tebessa, Algeria

	Tuesday, December 03	Wednesday, December 04	Thursday, December 05
08:00-08:30		**Registration** (Location: Poster Hall)	**Registration** (Location: Poster Hall)
08:30-09:00			**Oral Session 3** (Location: Auditorium, Rooms A,B)
09:00-09:30		**Opening Ceremony** (Conference Room)	
09:30-10:00		**Plenary talk 1** (Conference Room)	**Workshop 1** (Location: Room C)
10:00-10:15			**Poster session 2** (Location: Poster Hall)
10:15-11:00		**Plenary talk 2** (Conference Room)	
11:00-11:30		**Coffee break**	**Coffee break**
11:30-12:30		**Poster session 1** (Location: Poster Hall)	**Closing Ceremony** (Conference Room)
12:30-13:30		**Lunch**	**Lunch**
13:30-15:00	**Registration**	**Oral Sessions 1** (Location: Auditorium, Rooms A,B) **&** **Workshop 2 /Parte 1** (Location: Room C)	
15:00-15:30		**Coffee break**	
15:30-17:00		**Oral Sessions 2** (Location: Auditorium, Rooms A,B) **&** **Workshop 2/Parte 2** (Location: Room C)	

December3,2019

12h30– 18h30	Welcoming of participants Registration (At the University of Tebessa)

December4, 2019

08h30– 09h00	Registration
09h00– 09h30	OpeningCeremony \ROOMA
09h30– 10h15	**Plenary talk 1** <u>Speaker:</u> **Pr. YoucefSoufi (ALG)** Pr. Abdallah Kouzou, Pr. Nabil Derbal, Pr. Amer Zerek
10h15– 11h00	**Plenary talk 2** <u>Speaker:</u> **Pr. Nabil Derbal (Tun)** Pr. M. S. Boucherit, Pr. LazharRahmani,Pr. Djalel Dib

11h30–12h30\Poster Session 1(Main Hall)	
Chairs: Pr. S. Chenikher, Pr. D. Rekioua, Pr. T. Bahi, Pr. A. Lachouri, Pr. T. Bouden, Dr. L. Louazen	
ID-03	MRAS-based Sensor less Speed Vector Control for Dual Star Induction Machine with Fuzzy Logic Controller *Saad Khadar, Thiziri Ben Ali, Abdellah Kouzou, Ali Teta, Aicha Djalab and Fadhila Mekhalfia*
ID-12	Supervision of Hybrid Renewable Energy Systems *Hanane Hassani, Djamila Rekioua, Faika Zaouche and Seddik Bacha*
ID-17	Modellinggraphene/n-Si Schottky junction solar cells by artificial neural networks *Mourad Rahmani and Zahra Meziani*
ID-21	Soft Computing Methods for Tracking the Global Maximum Power Point of Photovoltaic System Subjected to Partial Shaded Conditions *Yahia Houam, Amel Terki, D36Daoud Rezzak, Khaled Touafek and Abdelkader Si Tayeb*
ID-24	Analysis of Solar Photovoltaic Array Interconnection Schemes Working Under Partial Shading Conditions *Ben Si Ali Nadia, Merah Ahmed, Benalia Nadia and Zerzouri Nora*
ID-41	Analysis of Statistical Features Based on Start-Up Current Envelope for Broken Rotor Bars Fault Detection in Squirrel Cage Induction Motor *Thamir Deghboudj, Abdellah Derghal and Abdelhalim TlemÇani*
ID-46	Maximization and management energy of a hybrid system (Wind/Photovoltaic) for Pumping system by using fuzzy logic *Bensmail Samia, Rekioua Djamila and Benbouya Amel*
ID-47	Comparative study between the Sliding Mode Control and Proportional-Integral Control applied to a STATCOM *Belila Hassen, Boudjerda Nasserdine and Boubakir Ahsene*
ID-61	Multilayer Perceptron Neural Networks Adaptive Control of Building HVAC Systems *Ahmed Ouaret, Hocine Lehouche, Boubekeur Mendil and Hervé Gueguen*
ID-71	An enhancement of grid connected PV system performance based on ANFIS MPPT control and dual axis solar tracking *Layachi Zaghba, Messaouda Khennane, Abdelhalim Borni, Amor Fezzani, Abdelhak Bouchakour, Idriss Hadj Mahammed and Samir Hamid Oudjana*
ID-72	New Photovoltaic Pumping System Configuration With Direct Torque Control *Ahmed Mohammedi, Djamila Rekioua, Toufik Rekioua, Nasser Eddine Mebarki and Adel Oubelaid*
ID-74	Fractional Order and classical PI Controls Application to Wind Energy Conversion System *Nouar Aoun, Hassane Dehbi, Izzeddine Saouane and Abla Chaker*

ID-79	Study and Analysis of Electrical Faults in PV panels and their impact on production *Djalab Aicha, Terki Amel, Zouzou Salah Eddine and Teta Ali*
ID-81	Modeling and Characteristics Study of Photovoltaic Generator *Khouloud Bedoud, Tahar Bahi and Hichem Merabet*
ID-04	Advanced Fault-Tolerant Control of Multiphase Induction Motor Drives in EV *Saad Khadar, Abdellah Kouzou and Thiziri Ben Ali*
ID-89	Practical finite time adaptive robust control system application on quadrotor UAVs *Karam Eliker, Nora Kacimi, Youcef Soufi, Mohamed Tadjine, Said Grouni and Weidong Zhang*
ID-93	Surface potential behavior of corona charged polyimide films under controlled humidity conditions *Nesrine Amiour and Zehira Ziari*
ID-109	Possible efficiency boosting of tandem solar cell by using Single antireflection coating and BSF layer *Abderrahim Yousfi, Hichem Bencherif, Lakhdar Dehimi, Fortunato Pezzimenti, Lamir Saidi, Mohamed Amir Abdi, Faycal Meddour and Djamel Khezzar*
ID-123	Investigation of properties thin films ZnO and SnO2 prepared with spray pyrolysis *Noubeil Guermat, Warda Daranfed, Kamel Mirouh, Zahra Toumiat and Hedda Brabri*
ID-129	Performance Evaluation of The Blackout and Power Outages in Libyan Power Grid AlZawia Combined Cycle Power Plant Case Study *Khaled Alkar, Moad Meto, Mohammed Jamjum and Kamal Amar*
ID-133	MPPT Fuzzy Controller & Pitch Fuzzy Control of a Wind Turbine System Using DFIG *Lakhdar Saihi, Youcef Bakou, Brahim Berbaoui, Fateh Ferroudji and Larbi Djilali*
ID-153	Overall efficiency of PV/T system traversed by natural convection airflow in hot climate *Naoui Khenfer, Boubekeur Dokkar and Mohamed Taher Messaoudi*
ID-154	Maximum power point tracking optimized by genetic algorithms for photovoltaic systems *Sofiane Zebiri, Kheireddine Lamamra and Youcef Soufi*
ID-159	Fault diagnosis of Tennessee Eastman process based on static PCA *Soraya Berbache, Mohamed Faouzi Harkat and Abderrazak Lachouri*
ID-160	Detailed Study of Inverter Control for Three Phase Grid Connected Solar PV System
ID-161	Techno-economic Feasibility Study of Hybrid PV-Electrolyzer-Fuel Cell System: Parametric and Sensitivity Analysis *Abd Essalam Bouaoud*
ID-166	Adaptive Command Filtered Backstepping Control and its Application to Permanent Magnet Synchronous Generator Based Wind Energy Conversion System *Y Soukkou, S Labiod, M Tadjine, Q. M Zhu and M Nibouche*
ID-167	Experimental analysis and numerical modeling of the thermophysical behavior of date palm natural fibers designed for thermal insulation *Khelifa Hocine, Bezazi Abderrezak, Haddad Abdelkrim, Haithem Boumdiri and Bouhemame Nacer*

ID-170	Position Control of an Induction Machine Using the Fuzzy Passivity Mode *Aissi Salim and Aouadj Mounir*
ID-50	Modeling, Detection and Diagnosis of Rotor and Stator Faults in Open end Winding Induction Motor *Saad Khadar, Thiziri Ben Ali and Abdellah Kouzou*
ID-191	Performance study of using Earth-Air Heat Exchanger for Heating and Cooling of Greenhouse Under Algerian Climate *Salhi Khelifa, Salima Ouali and Hadjiat M. Moundji*

Lunch(12h30–13h30)

13h30 – 15h00\Auditorium– Oral Session 1

Renewable, Sustainable Energyand Applications

Chairs:**Pr. M.S. Boucherit, Pr. H. Labar, Dr. A. Aouiche**

ID-15	Real Time Implementation of Grid Connected Wind Energy Conversion System: Predictive Current Controller *Noureddine Hamouda, Badreddine Babes, Sami Kahla and Youcef Soufi*
ID-26	Optimal Fuel Consumption Planning and Energy Management Strategy for a Hybrid Energy System with Pumped Storage *Okba Djelailia, Kelaiaia Mounia Samira, Labar Hocine, Salah Necaibia, Faycel Merad and Hichem Chouial*
ID-32	Implementation of Integral LQR Controller with Anti-Windup on FPGA *Samet Ahmed and Kord Yahya*
ID-38	Maximum Power Point Tracking for Photovoltaic System under partial shading conditions using Particle Swarm Optimization and Model predictive control *Nora Kacimi, Said Grouni and Youcef Soufi*
ID-43	Optimal Static State-Feedback Controller Design for Multivariable Bidirectional IPT System Using Block Roots and Harris Hawks Optimizer *Bachir Nail and Belkacem Bekhiti*
ID-164	Stand-alone Photovoltaic System with integrated Energy Storage using Cascaded Predictive Direct Power Control. *Seif El Islam Remache, Soundous Remache, Ali Yahia Cherif, Kamel Barra and Abdellatif Reama*

13h30 – 15h00\ROOMA– Oral Session 1

Power Electronics and Power Systems

Chairs: Pr. LazharRahmani, Pr. Djalel Dib, Dr. L. Houam

ID-113	Using FTC for a 7-Leg Inverter to Ensure Operational Continuity of Two Machines in Case of Fault *Youcef Aboub, Farid Bouchafaa, Bekhe¨ıra Tabbache, Saad Mekhilef, Mohamed Benbouzid and Boualam Benlahbib*
ID-120	Power wind turbines control based on a doubly fed induction generator *Larafa Ahcene, Rehem Djamel and Bahi Tahar*
ID-132	Passivity-based Current Control Strategy for PMSG Wind Turbine *Youcef Belkhier and Abdelyazid Achour*
ID-147	Improvement of Direct Torque Control of Wind Energy Conversion System Based on Dual Stator Induction Generator using Matrix Converter *Yahia Moati, Katia Kouzi and Khalil Mokhtari*
ID-148	Fixed Switching Direct Torque Control of Dual Stator Induction Motor Powered by NPC- Matrix Converter *Yahia Moati, Katia Kouzi and Khalil Mokhtari*

13h30 – 15h00\ROOMB– Oral Session 1

Fault detection and monitoring

Chairs: Pr. M. F. Harkat, Pr. M. Mansouri , Dr. A. Djeddi

ID-60	Effect of ELF fields on Public Health Case Study (220 and 400 KV lines) *Amer Daeri, Samir Hamoda and Rajab Ibsaim*
ID-97	Fault detection in fivephase permanent magnet synchronous machine affected by inter-turn short circuits *Ahmed Amine Kebir and Mouloud Ayad*
ID-102	Voltage Stability Improvement by Optimal Location of Wind Sources *Yahia Bakelli, Mustafa Mosbah, Abdelhamid Kaabeche and Manel Acimi*
ID-135	Diagnosis and Localization of Fault PMW Inverter in Energy Conversion System Using Fuzzy Logic *Merabet Hichem, Bahi Tahar, Soufi Youcef, Bedoud Khouloud, Drici Djalel and Boukerche Ghania*
ID-176	Comparative study between several controller approaches: application to gas turbine system *Nadji Hadroug, Hafaifa Ahmed, Bachir Nail and Choayb Djeddi*
ID-175	Improved kernel principal component analysis for online fault detection of Photovoltaic systems *Radhia Fezai, Majdi Mansouri, Hazem Nounou, Mohamed Nounou and Nasreddine Bouguila*

13h30 – 15h00\ROOMC– Workshop2

FuzzyLogic Type 2 / Part 1

Organiser: **Pr. KheireddineChafaa**

COFFEE BREAK   (15h00–15h30)

15h30 – 17h00\Auditorium – Oral Session 2

Smart Grids, Smart Cities and Smart Building

Chairs: **Pr. A. Zerek, Pr. T. Bahi, Dr. MayacheHichem**

ID-56	Modeling and Performance Analysis of the Transceiver Duplex Filter using Simulink *Kenz Bozed, Amer Zerek, Amer Daeri and Yousef Jaradat*
ID-57	Design and Performance Evaluation of Frequency Reconfigurable Antenna for 5G Wireless Communication Applications *Abdalnaser Kaeib, Nafaa Shebani and Amer Zerek*
ID-62	Smart Hybrid AC-DC Distribution System for Solar Electric House: Case of an Air Conditioner System *Ssadik Charadi, Adil Salbi, Abdelbari Redouane and Abdennebi El Hasnaoui*
ID-136	A comparative study of multilevel topologies using predictive control technique *Wassim Boudja and Kamel Barra*
ID-182	Power Management of Grid Connected PV System with Integrated Energy Storage *Soundous Remache, Seif El Islam Remache and Kamel Barra*
ID-149	Next Generation of Indoor Navigation Systems for the Blind *Moeid Elsokah and Amer Zerek*

15h30 – 17h00\ROOMA– Oral Session 2

Electrical Machines Control and Drives

Chairs: **Pr. DjamilaRekioua, Pr. Said Grouni, Dr. Med Saaidia**

ID-19	Control of Asymmetrical Six-Phase Permanent Magnet Synchronous Generator Dedicated to Standalone Marine Current Energy Conversion *Mohamed Amine Bettouche, Mohamed Fouad Benkhoris, Djamal Aouzellag, Jean-Claude Le Claire, Mourad Ait-Ahmed and Kaci Ghedamsi*
ID-29	Control of a standalone wind energy conversion system with storage battery based on asynchronous generator *Toufik Laddi, Zakari Maddi, Oussama Khoudour, Nabil Taib and Djamal Aouzellag*
ID-39	Sensorless Control of Induction Motor Using Second-Order Sliding Mode Algorithms *Salaheddine Farhi, Djamel Sakri and Noureddine Goléa*
ID-59	Maximum Power Point Tracking in Power Photovoltaic System Using Indirect Adaptative Control *Ahmed Ouaret, Hocine Lehouche, Lamia Haddoufi and Meriem Mecherouh*
ID-64	A Fractional Order PI Controller Based Predictive Direct Torque Control for a Five-Phase PMSM *Noureddine Bounasla and Said Barkat*
ID-75	Predictive Control of a Grid Connected PV Systems Incorporating Active Power Filter Functionalities *Noureddine Hamouda, Badreddine Babes, Sami Kahla, Youcef Soufi, Jurgen Petzoldt and Thomas Ellinger*

15h30 – 17h00\ROOMB – Oral Session 2

Technologies, Policies, Energy efficiency and Strategies

Chairs: **Pr. Messaoud Louafi, Pr. Gadri Larbi, Dr. Aziz Boukadoum**

ID-118	A Comparison between a Passive and Active Suspension Vehicle using PID and Fuzzy Controllers with Two Entries. (Applied on Quarter Vehicle Model) *Soudani Mouhamed Salah, Aouiche Abdelaziz, Chafaa Kheireddine, Aouiche Elmoundher, Taleb Mounia and Fares Zaamouche*
ID-181	Modeling of a Resistant Earth Protection Relay and comparison of the neutral regimes on the HV / MV transformers. *Soudani Mouhamed Salah, Abdelaziz Aouiche, Dib Djalel, Daouadi Rabah, Hamma Abdelmalek and Oomairi Laaroussi*
ID-30	Optimization and design of gallium gradient for CIGS thin film solar cells high efficiency *Abdelkader Khadir, Ahmed Gueddim, Mohamed Kamel Abdelhafidi and Lakhdar Gacem*
ID-54	Analysis of Al2O3 high-k gate dielectric effect on the electrical characteristics of a 4H-SiC low-power MOSFET *Hichem Bencherif, Abderrahim Yousfi, Lakhdar Dehimi, Fortunato Pezzimenti and Francesco Giuseppe Della Corte*
ID-98	A comparison of the productive energy of PV (5MW) in ten different cities to connect with the grid. Sudan case study *Osman Abdeen, Mordjaoui Mourad and Haddad Salim*
ID-138	Adequate wind speed extrapolation model for the region of the Algerian highlands *Abdallah Touaibia, Nachida Kasbadji Merzouk and Mustapha Merzouk*

15h30 – 17h00\ROOMC– Workshop2

FuzzyLogic Type 2 / Part 2

Organiser: **Pr. KheireddineChafaa**

December 5, 2019

08h00– 08h30	**Registration** (Location: Poster Hall)
08h30 – 10h00	**Oral Session 3** (Location: Auditorium, Rooms A,B) **Workshop 1** (Location: Room C)
10h00 – 11h00	**Poster session 2** (Location: Poster Hall)
11h00 – 11h30	**Coffee Break**
11h30 – 12h00	**Closing Ceremony**
12h00 – 13h30	**Lunch**

08h30 – 10h00\Auditorium – Oral Session 3

Sustainable, Renewable Energy and Applications

Chairs: **Pr. KhereddineChafaa, D. Mahmoud Maamri, Dr. Djamel Ounnas**

ID-02	Comparison Between Artificial Neural Network and Fractional Order Controller for DTC Control Switched Reluctance Motor 8/6 use for the Hybrid and Electric Vehicles *Sihem Ghoudelbourk, Djalel Dib and Abdelkrim Rechach*
ID-09	Sliding mode control of a permanent magnet synchronous generator based wind power conversion systems applied to battery charging *Messaoud Mayouf*
ID-22	Modeling of partial shading in photovoltaic systems by MLP artificial neural networks *Fethi Khelaifa, Kheireddine Lamamra and Youcef Soufi*
ID-127	Robust control of an associated PMSG-Matrix converter wind plant *Oudina Sofienne, Ghodbne Hatem and Bahi Tahar*
ID-139	Detailed design of a 6 KWp grid connected PV plant with storage batteries: Part-II- Active & reactive power controllers optimization *Messaoud Khelif*
ID-121	Economic Dispatch on a Power System Network Interconnected With Solar Farm *Aicha Mallem and Omar Boudebbouz*

08h30 – 10h00\ROOMA– Oral Session 3

Technologies, Policies, Energy efficiency and Strategies

Chairs: **Pr. Mourad Mordjaoui, Pr. Lachouri A. Razak, Pr. HarkatiElhadi**

ID-05	Design and Implementation of a Solar Tracker System with Dual Axis for Photovoltaic Panels in El Oued Region of Algeria *Youcef Bekakra, Laid Zellouma and Hicham Serhoud*
ID-76	Investigation of Harmonics Problems in Grid Connected PV-Wind-Battery for Household Applications *Yacine Djeghader, Zoubir Chelli, Marwa Hachichi and Sara Djellabi*
ID-67	Early fault detection of gear system based on Wavelet Packets Transform *Mouloud Ayad*
ID-108	Energy performance and sizing of a heating installation *Mouna Kassim, Mustapha Merzouk and Nachida Kasbadji Merzouk*
ID-134	Data driven photovoltaic power station monitoring using robust sparse representation *Toumi Riadh, Kourd Yahia and Messaoud Ramdani*

ID-155	In-plane shear moduli of a new curved cell walls honeycomb plates for application in wings of wind turbines *Amine Harkati, El-Haddi Harkati, Abderrezak Bezazi and Scarpa Fabrizio*

08h30 – 10h00\ROOMB– Oral Session 3

Electrical Machines Control and Drives

Chairs: **Pr. Soufi Youcef, Pr. Nabil Derbal, Dr. MeraomiaAbdallah**

ID-106	Control of a Doubly Fed Induction Generator (DFIG) in a Wind energy system using a fractional order adaptive control (FOMRAC) approach *Youcef Bekakra, Laid Zellouma and Hicham Serhoud*
ID-116	Energy-Reliability Optimization of Wind Energy Conversion System Using High Order Sliding Mode Control *Sami Kahla, Mohcene Bechouat, Moussa Sedraoui, Youcef Soufi, Badreddine Babes and Noureddine Hamouda*
ID-122	Direct torque control and FLC for SRM 8/6 poles used for electric underground mining vehicles *Abdelkrim Rechach, Sihem Goudelbourk, Aoulmi Zoubir and Djallel Dib*
ID-145	Separately Excited DC motor Speed Control Simulation Case Studies *Majd Hareb, Mohamed Ekhail and Fathi Hareb*
ID-171	Predictive Control of Matrix Converter based Grid Connected Wind Energy Conversion System *Amar Bouafassa, Badreddine Babes, Lazhar Rahmani and Tarik Zabaiou*
ID-198	Control by fuzzy logic with adaptive gain of a photovoltaic pumping system *Chafiaa Serir, Djamila Rekioua, Samia Bensmail, Katia Tadjine and Samia Taguelmimt*

08h30 – 10h00\ROOMC– Workshop1

Control and Applications of Multi-phase Induction Machines

Organiser: **Pr. Abdallah Kouzou**

10h00–11h00 \ Poster Session 2 (Main Hall)
Chairs: Pr. A.Bouzaouit, Pr. M.Mordjaoui, Pr. T.Bahi, Pr. A. Aissat, Dr. L. Youcefi, Dr.D.Samai, Dr.M. R. Kafi

ID-06	An Effective Approach for Severity Fault Diagnosis of Rolling Bearings *Tawfik Thelaidjia, Salah Chenikher and Abdelkrime Moussaoui*
ID-27	MPPT /power limitation" optimization strategy to Extend Optimal Energy Management in Hybrid Wind Turbine *Meghni Billel, Dib Djalel and Mehdi Ouada*
ID-28	Optimal Control of Variable Speed Air Conditioning System Fed by Solar PV System *Mehdi Ouada, Meghni Billel and Dib Djalel*

ID-31	Efficiency improvement of thermal photovoltaic hybrid system optimized by ANN *Abdelmalek Bouden, Abdeslam Haouam, Ounnas Djamel and Guiza Dhaouadi*
ID-36	Techno-economic Analysis and Feasibility Study of a Hybrid Photovoltaic/Fuel Cell Power System *Abdelmoumen Gougui, Ahmed Djafour, M Bilal Danoun, Narimane Khalfaoui and Youcef Rehouma*
ID-37	Simulation of Low cost Incremental Conductance MPPT control based SEPIC converter in solar application under fast-changing solar irradiation level *Hichem Chouial, Hocine Labar, Kelaiaia Mounia Samira, Salah Necaibia, Okba Djelailia and Faycel Merad*
ID-51	Three-level Direct Torque Control Based on Vector Control Decoupling of Double Star Synchronous Machine *Elakhdar Benyoussef, Said Barkat, Toufik Amieur and Billel Meghni*
ID-52	One day ahead prediction of PV power production: case study of Oued-Elkebrit's station (Algeria) *Mohammed Saaidia, Nedjem-Eddine Benchouia, Talal Belhouchet and Kaltoum Achibi*
ID-58	A Comparison Study: Direct and Indirect Mode Control of Perturb and Observe-MPPT Algorithms for Photovoltaic System *Bechouat Mohcene, Amieur Toufik, Feraga Chams Eddine, Sedraoui Moussa and*
ID-65	Increasing the Order Of Nonlinear Systems To Eliminate External Disturbance *Abdelaziz Aouiche, Mouhamed Salah Soudani and Youcef Soufi*
ID-66	Quasi-Static Parameters of Multilayer Asymmetrical Coplanar Stripline Using Fuzzy Model Systems and Artificial neural networks *Abdelaziz Aouiche, Mouhamed Salah Soudani and Abdelghani Djeddi*
ID-73	Evaluation Performance of Mono- and Polycrystalline Photovoltaic Modules Installed in Outdoor Environment *Nouar Aoun, Hassane Dehbi, Izzeddine Saouane and Abla Chaker*
ID-82	Optimal angle of a photovoltaic roof placed in a building using the ant colony optimization algorithm *Izzeddine Souane and Abla Chaker*
ID-88	Contribution to the analysis of the maintenance function for the continuous optimization of the reliability of an industrial system *Azzedine Bouzaouit, Imed Boufedj and Mohamed Boudiaf*
ID-94	Valorization Of Agricultural Waste For The Production Of Biogas In The Framework Of Renewable Energy Development In Algeria *Chafik Belghit and Abdelghani Djeddi*
ID-99	Implementation of Modified Perturb and Observe Based MPPT Algorithm for Photovoltaic System *Dhaouadi Guiza, Djamel Ounnas, Youcef Soufi, Abdelmalek Bouden and Mahmoud Maamri*
ID-103	Design and Implementation of a Digital PID Controller for DC-DC Buck Converter *Djamel Ounnas, Guiza Douadi, Dhaouadi Rabah, Soufi Youcef and Bouden Abdelmalek*

ID-115	A Maximum Power Point Tracking Controller for Photovoltaic Systems Using Takagi–Sugeno Fuzzy Models *Dhaouadi Rabah, Soufi Youcef, Djamel Ounnas, Metatla Abderrezak, Melkia Chaouki and Attia Moussa*
ID-119	Bearing Faults Diagnosis Using Discrete Wavelets and Artificial Intelligence Approaches *Jalel Khelil, Khaled Khelil, Messaoud Ramdani and Nadir Boutassita*
ID-126	InGaAsN Carriers impulse response investigation *Amraoui Rachid and Abdelkader Aissat*
ID-140	Recursive Parameter Estimation Algorithm for a Fractional Order PIλ Controller Design Using MRAC Configuration *Bouziane Keziz, Abdelbaki Djouambi and Samir Ladaci*
ID-141	Performance improvement of Matrix Converter under Open-Switch Fault *Aziz Boukadoum, Tahar Bahi and Abla Bouguerne*
ID-144	New structure AlGaAsNSb/Ge for solar cell Applications *Abdelkader Aissat*
ID-158	The High Performances of an Eleven Levels Active Power Filter with a Fuzzy Logic Controller under a High Voltage *Djebbar Mohamed Salah, Rahab Abderrezak and Benalla Hocine*
ID-163	Discrete Wavelet transform for inter-turn short circuit diagnosis in variable speed control *Rouaibia Reda and Arbaoui Fayçal*
ID-173	PID controller Design for a Wind Turbine with the Backlash Phenomenon *Arab Mohamed, Lachouri Abederrazek and Mehennaoui Lamine*
ID-194	The role of legislation in launching and diversifying sustainable development projects: Case Study Algeria *Naouel Nouioua, Abdelghani Djeddi and Tarek Fares*
ID-197	HVDC electricity transportation technology: Study of feasibility (Algeria). *Mohammed Saaidia, Nedjem-Eddine Benchouia and Lekhmissi Derardjia*
ID-195	Solar energy in Algeria between exploitation policies and export potential *Tarek Fares, Abdelghani Djeddi and Naouel Nouioua*
ID-196	Robust Angle Droop Controller based on Pilot Point Voltage Measurement in Low-voltage Microgrid *Allal El Moubarek Bouzid, Mohamed Assaad Hamida, Mohamed Redouane Kafi and Hicham Chaoui*
ID-200	Design and Control Strategy of Hybrid Photovoltaic Battery systems for automotive applications *Houria Assem, Toufik Azib, Farid Bouchafaa, Nasreddine Belhaouas, Given Cherif Laarouci and Amar Hadj Arab*
ID-204	Fault detection and diagnosis of induction motor using support vector machine classifier. *Abdallah Faleh and Ammar Medoued*

(11h00–11h30)

11h30 – 12h00	**Closing Ceremony**

Lunch(12h00–13h30)