IRSEC'16

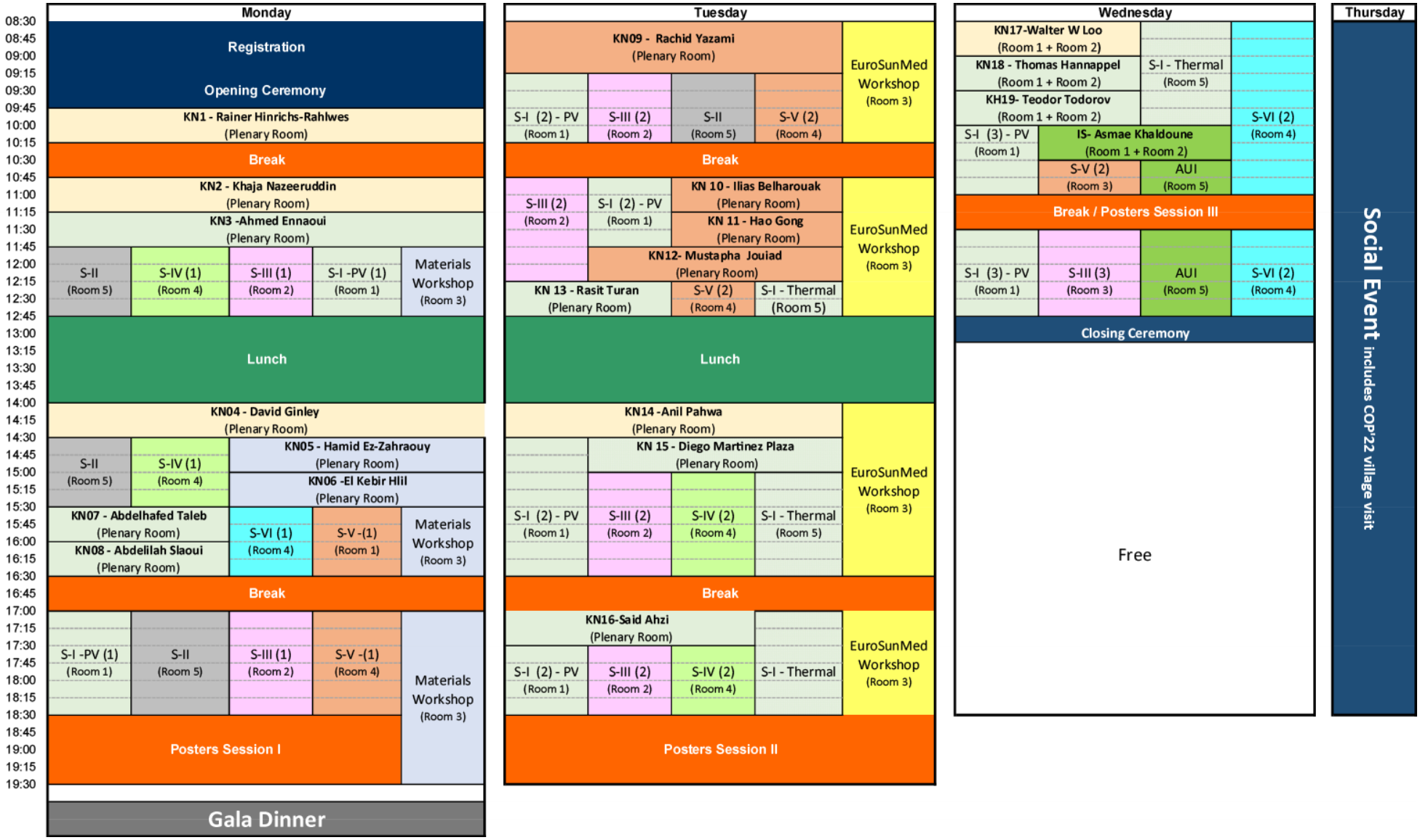
2016 International Renewable and Sustainable Energy Conference (IRSEC)

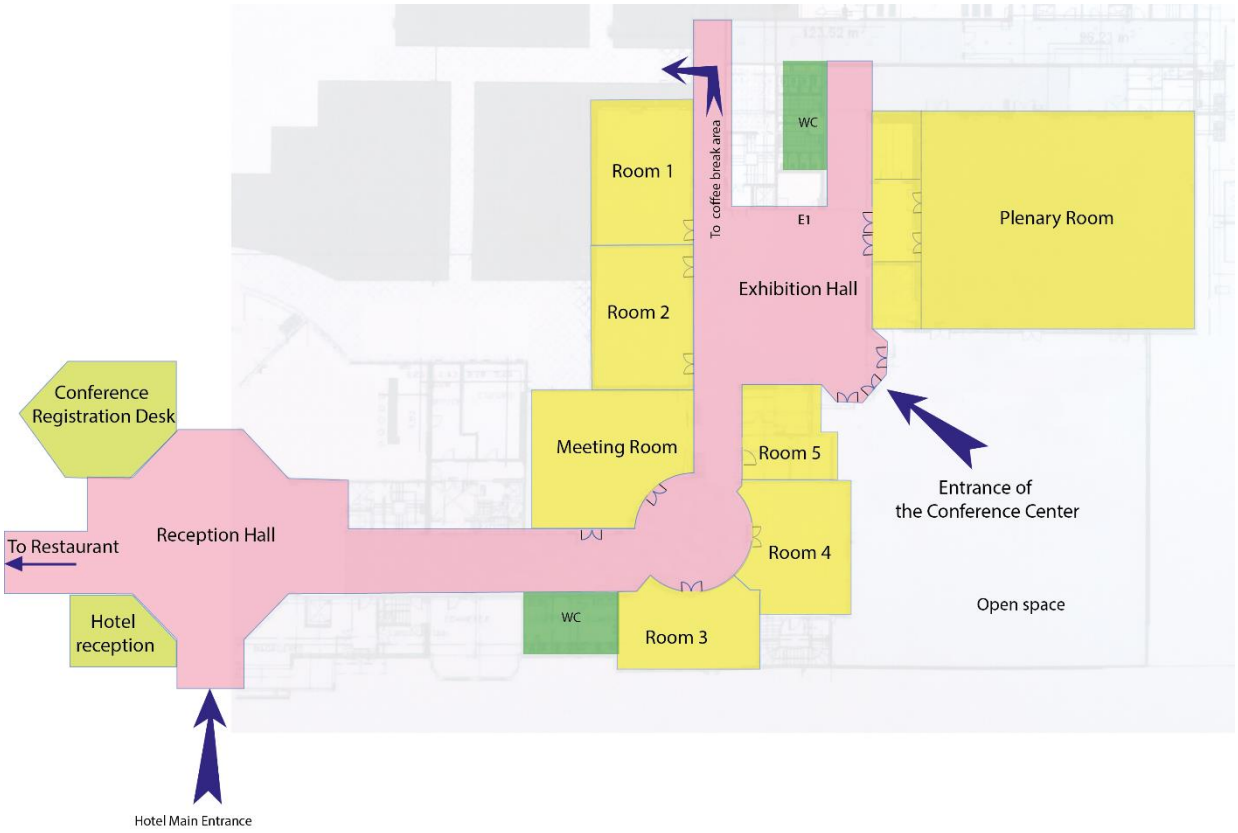
IEEE Conference

November 14-17, 2016, Marrakech-Morocco

Program and useful information

Program overview





Session	topics
S1	Solar Energy - PV
	Solar Energy - Thermal
S2	Wind Energy
S3	Command and control systems for RE
	Simulation and Modelling for RE
S4	Green technology
	Energy efficiency
	Biomass
S5	Energy storage and Batteries
	Energy harvesting
	Hydrogen energy storage
	Power Distribution System
S6	Smart Grid
	IT in Renewable energy
Materials W.	Materials Workshop
EuroSunMed	EuroSunMed Workshop
AUI	Al Akhawayn University section

IRSEC'16 Venue – Palm Plaza Hotel – Marrakech

Foreword

Welcome to the fourth edition of the International Renewable and Sustainable Energy Conference (IRSEC'16) and to the wonderful imperial Moroccan city of Marrakech!

IRSEC'16 is really a very special edition owing to the wonderful opportunity it has to be held among the official events organized within the "Conference of the Parties" (COP22) of the United Nations Framework Convention on Climate Change (UNFCCC).

Sustainable energy should meet today's energy needs without compromising those of the future generations. Technologies that promote sustainable energy are mainly based on renewable energy sources, such as hydroelectricity, solar energy, wind energy, sea waves power, geothermal energy, bio-energy, tidal power and also upon technologies designed to improve energy efficiency.

The cost of these energy technologies have fallen dramatically in recent years, and continue to fall. Most of these technologies are either economically competitive or close to being so. Considerable progress is being made in the energy transition from fossil fuels to ecologically sustainable systems, to the point where many studies support 100% renewable energy.

IRSEC'16 is an international conference that provides an excellent opportunity for networking and for dissemination and exchange of innovative research findings related with different issues and topics relevant to renewable and sustainable energy. These are of essential importance to sustainable development and to climate change effects mitigation.

IRSEC'16 has succeeded to attract a record number of papers submitted by researchers, policy-makers, engineers and other specialists from different backgrounds and from different parts of the world. These papers covered all facets and issues as diverse as renewable energy technology, energy efficiency, green energy, climate change, sustainable energy systems and Smart Grid.

IRSEC'16 has also succeeded to attract international renowned experts and scholars specialized in different key and hot topics covering different aspects and features of renewable and sustainable energy which contribute to the different keynote and invited talks.

The overwhelming success of IRSEC'16, is doubtlessly the result of the commitment, perseverance, implication and hard work of different stakeholders, particularly, the Organizing Committee Members, Technical Program Committee members, keynote and invited talks speakers, technical sponsors and all the participants. We seize this opportunity to address them all our most sincere thanks and gratitude.

Last but not least, we wish all the participants in IRSEC'16 a very successful and fruitful conference and a wonderful and enjoyable stay in the wonderful city of Marrakech.

Mohamed Essaaidi
National Higher School of IT (ENSIAS), Director
Rabat, Morocco

Youssef Zaz
President of MSTI
Abdelmalek Essaadi University, Asso. Prof.
Faculty Sciences, Tetouan, Morocco

IRSEC'16 General Chairs

To get the latest version of the program on your cell phone, please scan the QR code or visit: http://www.med-space.org/docs/program-IRSEC16.pdf

Access to Palm Plaza Hotel

Presentation guidelines:

- All presentations **should be in English**.
- The time provided for oral presentations is 15 min (10 min for the presentation and 5 min for discussion).
- The speakers should give their slides to the session chair before the beginning of each session.
- For poster presentations, the posters should be displayed one hour before the beginning of the poster session and any explanation required should be provided to session chairs and visitors.

List of keynote speakers

Morning Plenary session chairs :

Prof. Rachid Yazami, *Energy Research Institute, Nanyang Technological University, Singapore.*
Dr. Abdelilah Slaoui, *CNRS, Strasbourg, France.*
Mr. Mohamed Bernannou, *MASEN, Morocco.*

Monday Morning

KN01 9:45-10:15 Plenary Room		Recent developments of Renewable Energy – New Champions rising and former frontrunners falling back ***Mr. Rainer Hinrichs-Rahlwes*** *Vice-President of European Renewable Energies Federation (EREF), Germany.*
KN02 10:45-11:15 Plenary Room		Perovskite solar cells: A new paradigm in Energy sector ***Prof. Khaja Nazeeruddin*** *Ecole polytechnique fédérale de Lausanne, Switzerland.*
KN03 11:15-11:45 Plenary Room		Toward Low cost manufacturing and low environmental impacts of PV materials: Inkjet Printing Technology ***Prof. Ahmed Ennaoui*** *Research Director at QEERI, Qatar Foundation & Full Prof. at HBKU, Doha, Qatar.*

Afternoon Plenary session chairs :

Prof. Ahmed Ennaoui, *Research Dir. at QEERI, Qatar Foundation & Full Prof. at HBKU, Doha, Qatar.*
Prof. Anil Pahwa, *Kansas State University, Manhattan, Kansas, US.*

Monday Afternoon

KN04 14:00-14:30 Plenary Room		Computational Design and Realization of Functional Renewable Energy Materials ***Dr. David Ginley*** *Research Fellow/ Chief Scientist, Materials and Chemistry Science and Technology, National Renewable Energy Laboratory (NREL), USA*
KN05 14:30-15:00 Plenary Room		Some Progress On Material Science Engineering Based on Density Functional Theory ***Prof. Hamid Ez-Zahraouy*** *LMPHE, FS, Med V University, Rabat, Morocco.*
KN06 15:00-15:30 Plenary Room		Photovoltaic and thermoelectric properties predicted and improved by using ab initio calculations ***Prof. El Kebir Hlil*** *Institut Néel, CNRS, Université Grenoble Alpes, France.*
KN07 15:30-16:00 Plenary Room		Nanoparticles agglomeration toward new opportunities for energy materials ***Dr. Abdelhafed Taleb*** *Chimie ParisTech, Institut de Recherche de Chimie Paris, Paris, France & Université Pierre et Marie Curie, Paris, France.*
KN08 16:00-16:30 Plenary Room		Advanced Multifunctional Oxides for Photovoltaics ***Dr. Abdelilah Slaoui*** *CNRS, Strasbourg, France.*

Morning Plenary session chairs :

Prof. Khaja Nazeeruddin, *Ecole polytechnique fédérale de Lausanne, Switzerland.*

Dr Mustapha Jouiad, Masdar Institute of Science and Technology, Abu Dhabi, UAE.

Tuesday morning

KN09 08:30-09:15 Plenary Room		Lithium Ion Batteries for Clean Energy Storage ***Prof. Rachid Yazami*** *Energy Research Institute, Nanyang Technological University, Singapore.*
KN10 10:45-11:15 Plenary Room		Materials challenges in alternative rechargeable batteries ***Prof. Ilias Belharouak*** *Research Director of the Energy Storage Group QEERI),, and Professor at the College of Science and Engineering at the Hamad Ben Khalifa University (HBKU), Qatar*
KN11 11:15-11:45 Plenary Room		Psudocapacitors in Energy Storage ***Prof. Hao Gong*** *Department of Materials Science and Engineering, National University of Singapore, Singapore.*
KN12 11:45-12:15 Room 3+4		Plasmonic investigation of full spectrum solar energy water splitting devices ***Dr. Mustapha Jouiad*** *Masdar Institute of Science and Technology, Abu Dhabi, UAE.*
KN13 12:15-12:45 Plenary Room		Structuring the Surface of Thin Si Solar Cell by Metal Assisting Etching for Efficient Light Trapping ***Prof. Rasit Turan*** *Center for Solar Energy Research and Applications (GÜNAM) and Dep. of Physics, Middle East Technical University, Ankara, Turkey.*

Afternoon Plenary session chairs :

Dr. Teodor Todorov, IBM T. J. Watson Research Center, Yorktown Heights, USA

Prof. Thomas Hannappel, *Institute of Physics, Ilmenau University of Technology, Germany*

Tuesday Afternoon

KN14 14:00-14:30 Plenary Room		Leveraging Renewable Energy for Electricity Needs of the Growing World Population ***Prof. Anil Pahwa*** *Kansas State University, Manhattan, Kansas, USA.*
KN15 14:30-15:00 Plenary Room		Overview of the current status of CSP in Europe: An R&D point of view and reflections on the commercial roll out ***Dr. Diego Martinez Plaza*** *Director´s Office, Plataforma Solar de Almería-CIEMAT, Almeria, Spain*
KN16 17:00-17:30 Plenary Room		3D Printing Processes, Design and Applications ***Prof. Said Ahzi*** *Qatar Environment and Energy Research Institute (QEERI), Hamad Bin Khalifa University (HBKU), Qatar Foundation, Doha, Qatar.*

Morning Plenary session chairs :

Prof. Rasit Turan, *Middle East Technical University, Ankara, Turkey.*

Dr. Isam Janajreh*, Masdar Institute of Science, United Arab Emirates.*

Wednesday morning

KN17 08:30-09:00 Room 1+2		Four Dimensional Hybrid Solar Electric/Heat/Lighting Systems and Water for Agricultural Greenhouses ***Dr. Walter W Loo*** *21st Century Agricultural and Water Experts, United Nations Peace Ambassador – USA.*
KN18 09:00-09:30 Room 1+2		Challenges of III-V tandem structures for highest solar energy conversion efficiencies ***Prof. Thomas Hannappel*** *Head of Department of Photovoltaics, Institute of Physics, Ilmenau University of Technology, Germany*
KN19 09:30-10:00 Room 1+2		New paradigms in the quest for high-performance tandem thin-film solar cells ***Dr. Teodor Todorov*** *IBM T. J. Watson Research Center, Yorktown Heights, USA.*
IT 10:00-10:30 Room 1+2		Nanocoating and Testing: A Step Towards the Improvement of CSP Reflectors for Less Intensive Maintenance Both in Terms of Labor and Water ***Dr Asmae Khaldoun*** *Al Akhawayn University, Ifrane, Morocco*

Materials Modeling and Simulation Training Workshop
– Program –

Prof. Abdelillah Benyoussef
Physics dep., Faculty of Science, Med V University, Rabat, Morocco.
Workshop Chair.

	Monday, November 14, 2016
11:45	Welcome and Presentation of the speakers, Presentation of the context, Presentation of the Workshop program By ***Prof. Abdelihah Benyoussef, FS, Rabat, Morocco***
12:00	Bridging the gap between theory and practice: fast-track development of future photovoltaic materials and devices By ***Dr. Teodor Todorov, IBM, NY, USA***
12:15	Introduction: Materials Energy Solution
12:30	By ***Prof. Ahmed Ennaoui, QEERI-Doha, Qatar***
12:45	Continuum modeling and FEM simulations By ***Prof. Said Ahzi, QEERI-Doha, Qatar***
13:00 13:15 13:30 13:45	**Lunch**
14:00 14:15 14:30	**David Ginley** (Plenary Room)
14:45	Some Progress On Material Science Engineering Based on Density Functional Theory By ***Prof. Hamid Ez-Zahraouy, FS-Rabat, Morocco***
15:00 15:15	ab initio calculations and their applications to materials for photovoltaic conversion By ***Prof. El Kebir Hlil, Univ. of Joseph Fourier, France***
15:30 15:45 16:00 16:15 16:30	**Practical session on simulation for beginners (Computer time with tutors on hand) :** - Density Functional Theory Studies of Electronic and Optical Properties of Photovoltaic materials. - Electronic and Optical Properties of ZnO, SnO_2 using Wien2K **By Dr Halima Zaari** - Electronic and Optical Properties of Al doped ZnO; Transparent Conductive Oxide using KKR-CPA **By Dr El Mehdi Salmani, Rabat, Morocco**
16:45	**Break**
17:00 17:15 17:30 17:45 18:00 18:15 18:30 18:45 19:00 19:15 19:30	**Practical session on simulation for beginners** **(Computer time with tutors on hand):** - Density Functional Theory Studies of Materials for PV and Storage. - Continuum modeling and FEM simulations - Chalcogenide Perovskites; $BaZrS_3$ for photovoltaic applications - Alloying Chalcogenide Perovskites for Optimized Photovoltaic Application: $BaZr_{1-x}Ti_xS_3$ - Organic/inorganic hybrid perovskite $CH_3NH_3PbI_3$ to improve the solar-conversion efficiency of dye-sensitized solar cells By **Dr Halima Zaari, Rabat, Morocco** - Phosphorene as a promising anode material for different rechargeable Batteries - Hydrogen storage in doubly substituted Mg based hydrides Mg5MH12 (M = B, Li) and Mg4BLiH12 By **Dr Omar Mounkachi, Rabat, Morocco**

EUROSUNMED Workshop on Roadmap

15th November 2016 – 08:30-- 18:00

	Tusday
08:30	
08:45	**Introduction to EUROSUNMED project** - Abdelilah Slaoui (coordinator, CNRS, FR)
09:00	**Introduction to the EUROSUNMED Roadmap** - Paola Mazzucceli (EUREC, BE)
09:15	**Present & Future of RE sector in Morocco -** Amrane Obaid (MASEN, MO)
09:30	**Present & Future of RE worldwide** Moderator: Abdelilah Slaoui (CNRS--ICUBE)
09:45	• **Sunshot 2020 initiative** - David Ginley (NREL, USA)
10:00	• **Renewables 2016 - Global Status Report** - Arthouros Zervos (REN21, FR)
10:15	
10:30	**Break**
10:45	
11:00	**1-- The needs of the solar/RE industry** Moderator: Mohamed Rady (HU)
11:15	• **ORC technology and its applications to the RE sector -** Diego Albrigo (Turboden, IT)
11:30	• **Solar Cluster Initiative,** Mohamed Bernannou (MASEN , MO) • **The Electrical Grid; The past, The present, The Future** - Dr Fahd Hashiesh (ABB, UK)
11:45	
12:00	**2-- Technology transfer and deployment** Moderator: Mohamed Bernannou, (MASEN, MO)
12:15	• **New product development in collaboration with research institutes** - Vitorio Orioli (Soitigua)
12:30	• EDF--EN (FR), *to be communicated*
12:45	• **Innovation and support services for the energy sector** - Paola Mazzucchelli (EUREC, BE)
13:00	
13:15	**Lunch**
13:30	
13:45	
14:00	**3-- Research infrastructures**
14:15	Moderator: Aziz Dinia (Univ. Strasbourg, FR)
14:30	• **PV technology and Energy Grand Challenges (R&D) at QEERI/HBKU** Ahmed Ennaoui (QEERI/HBKU, Qatar)
14:45	• **A Regional Excellence Center on Solar Energy : Center for Solar Energy and Applications** Rasit Turan (GÜNAM, Ankara, Turkey)
15:00	• **Scientific and Technological Alliance for Concentrating Solar Thermal Energy (STAGE--STE)** Marcel Bial (ESTELA, BE)
15:15	• **PV research infrastructures : lessons learned and outlook for the future** Philippe Malbranche (INES, FR)
15:30	**4-- Education and training initiatives**
15:45	Moderator: Paola Mazzucchelli (EUREC, BE)
16:00	• **Solar energy education for sustainable development** - Mohamed Rady (Helwan University)
16:15	• **International Lab of renewable energy and transport between Morocco, France and the USA: A global approach to higher education, research and innovation.** Abdallah OUGAZADEN (Georgia Tech-CNRS, FR)
16:30	• **MEDSOL project** - Aziz Dinia (IPCMS, Université de Strasbourg)
16:45	**Break**
17:00	**5-- Funding instruments and socio economic aspects**
17:15	Moderator: Khalid Afanga (MASEN)
17:30	• **Funding instruments for solar development** - Silvia Pariente-David (FR)
17:45	• **Socio-economic aspects of the energy transition** - *(Tecnalia, SP)*
18:00	**Conclusions and way forward** - Abdelilah Slaoui (Coordinator)

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S-I (1) - PV	Solar Energy - PV Chairs: Prof. Khaja Nazeeruddin, Ecole polytechnique fédérale de Lausanne, Switzerland. Prof. Ahmed Ennaoui, Qatar Environment and Energy Research Institute, Doha, Qatar. Dr. David Ginley, National Renewable Energy Laboratory, USA.
Monday 11:45-12:45 & 17:00-18:30 Room 1	**Preparation and Characterization of $CuIn_{1-x}Ga_xS_2$ Thin Films Synthesized by Spray Pyrolysis (ID-5)** *A. KOTBI, B. HARTITI, S. FADILI, A. RIDAH, P. THEVENIN* **Short-Circuit Fault Detection of Photovoltaic System (ID-15)** *Moustapha H. IBRAHIM, Dahir.ABDOURAHMAN, O.WAILLY, N. HERAUD* **Elaboration of Transparent Conducting ZnO:Ni for Photovoltaic Applications by Spray Pyrolysis (ID-24)** *Zahira El Khalidi, Bouchaib Hartiti, Salah Fadili, Zahira El Khalidi, Abderazzak Lfakir, Philippe Thevenin, Mariam Siyadat* **InSb/GaAs Quantum Dot Solar Cell for Applications (ID-47)** *Abdelkader Aissat, Fethi Benyettou, Jean Perre Vilcot* **Distribution Network Voltage Unbalance Control under High Penetration of Single-Phase Photovoltaic (ID-57)** *Youcef Bot, Ahmed Allali, Mouloud Denai* **Effect of Gd doping and (Gd, Li) co-doping ZnO thin films on optical properties: Experimental and ab initio study (ID-60)** *M. Rouchdi, A. Mzerd, N. Hassanain, E. Salmani* **Modeling and Simulation of a front Graded Band Gap $CuInGaSe_2$ Solar Cell (ID-69)** *H. Arbouz, A. Aissat, Jean Perre Vilcot* **Growth and characterization of CuO thin films prepared by spray pyrolysis with various precursors (ID-70)** *Abderrahim MOUMEN, Bouchaib HARTITI, Salah FADILI, Maryam SIADAT, Philippe THEVENIN* **Vibrational Study of Hybrid Systems Based on Graphene for Solar Cells (ID-83)** *Mourad Boutahir, Sidi Abdelmajid Ait Abdelkader, Oussama Boutahir, Abdelhai Rahmani, Brahim Fakrach, Hassane Chadli, Abdelali Rahmani* **Structural and optical properties of $CuIn_{1-x}Ga_xS_2$ absorber layer for solar cells synthesized by spray pyrolysis (ID-92)** *Mohamed RAFI, Bouchaib HARTITI, Ahmed ZITI, Abderraouf RIDAH, Soucace Bernabé MARI, Philippe THEVENIN* **Electrical and Optical Properties of InAsP/Si Quantum Dot Solar Cell (ID-51)** *Fethi Benyettou, Abdelkader Aissat, Jean Perre Vilcot* **Thermal Optimization of Poly (ethylene glycol), 2,6-naphthalate (PEN) and its Influence on Growth of ZnO Interfacial Layer and Order of P3HT for Pliable Organic Photovoltaic Devices based P_3HT/PCBM Bulk Heterojunction (ID-141)** *Ahmed Jouane, Reda Moubah, Guy Schmerber, Rodrigue Lardé, Hassan Lassri, Yves André Chapuis, Youssef Jouane*

S-I (2) - PV	Solar Energy - PV Chairs: Prof. Anil Pahwa, Kansas State University, Manhattan, Kansas, USA. Prof. Rasit Turan, Middle East Technical University, Ankara, Turkey. Prof. Abdelillah Benyoussef, Med V University, Rabat, Morocco.
Tuesday 09:15-10:15 & 10:45-11-45 & 14:30-16:30 & 17:30-18:30 (Room 1)	**Growth of nanostructured thin films of $Zn_{1-x}V_xO$ using rf-magnetron sputtering with low and high vanadium loading: physico-chemical characterization, optical and electrical properties evaluation (ID-96)** *K. Medjnoun, K. Djessas, J.L. Gauffier, S. Grillo, A. Solhy, H. Chehouani, L. Essaleh* **Trivacancy defects and their effects on the electronic and vibrational properties of single-walled carbon nanotubes (ID-101)** *Sidi Abdelmajid Ait Abdelkader, Fatima Fergani, Mouhcine Bentaleb, Mourad Boutahir, Brahim Fakrach, Hassane Chadli, Abdelali Rahmani* **Performances Comparison of two Optical Elements for CPV System (ID-112)** *S. EL HIMER, S. EL-YAHYAOUI, A. MECHAQRANE, A. AHAITOUF* **Performance Enhancement of Solar Vehicle by Integration of Supercapacitors in the Energy Storage System (ID-139)** *Zineb CABRANE, Mohammed OUASSAID, Mohamed MAAROUFI* **Improvement of Perturb and Observe Method for PV Array Under Partial Shading Conditions (ID-142)** *Assia SELLAMI, Khalid KANDOUSSI, Rabie EL OTMANI, Mohamed ELJOUAD, Abdelowahed HAJJAJI, Fatima LAKRAMI* **Effect of ITO and Mo Coated Glass Substrates on Electrodeposited Cu_2ZnSnS_4 Thin Films (ID-147)** *El Bachir Benamar, Taoufik Slimani Tlemçani, Fouzia Cherkaoui El Moursli, Mhamed Taibi, Guy Schmerber, Zouheir Sekkat, Aziz Dinia, Abdelilah Slaoui, Mohammed Abd-Lefdil* **A MPPT-based ANN Controller Applied to PV Pumping System (ID-198)** *L. BOUSELHAM, M. HAJJI, B. HAJJI, H. BOUALI* **Simple Preparation of High Transparent Tin Dioxide Thin Films by Spin Coating Method: Effect of Sol Concertation (ID-210)** *Wafaa Azouzi, Hamid Ez-zahraouy, Mohammed Benaissa, Hicham Labrim, Bouchra Belhorma, Mohammed Rabir Bricha, Boujmeraa Jaber* **The Investigations of Electronic and Optical Properties of the Superlattices($BaHfO_3$)/($BiFeO_3$): DFT Study (ID-220)** *C. AZAHAF, H. ZAARI, H.EZ-ZAHRAOUY, A. BENYOUSSEF*

	Fabrication of $Cd_{1-x}Zn_xS$ Buffer Layer Deposited by Chemical Bath Deposition for Photovoltaic Thin Films Solar Cell Applications (ID-222) *S. Ullah, M. Mollar, B. Marí* **Decentralised Control of Dynamic Systems with Continuous States using Multi Agent System (ID-226)** *Soukaina Boudoudouh, Mohamed Maâroufi* **Effect of Nd and Tm Co-doping on Structural, Optical and Electrical Properties of ZnO Thin Films (ID-259)** *Amina El fakir, Mouaad Sekkati, Guy Schmerber, Azzam Belayachi, Mohammed Regragui, Zouheir Sekkat, Aziz Dinia, Abdelilah Slaoui, Mohammed Abd-Lefdil* **Effect of Copper Content on Cu_2ZnSnS_4 Thin Films prepared by Ultrasonic Spray Technique (ID-261)** *Mouaad Sekkati, El Bachir Benamar, Taoufik Slimani Tlemçani, Mhamed Taibi, Safae Aazou, Zineb Edfouf, Fouzia Cherkaoui El Moursli, Guy Schmerber, Zouheir Sekkat, Aziz Dinia, Abdelilah Slaoui, Mohammed Abd-Lefdil* **Soiling Effect on Photovoltaic Modules Performance - New Experimental Results (ID-270)** *Dounia Dahlioui, Bouchra Laarabi, Moulay Abdelmjid Sebbar, Abdelfettah Barhdadi* **Production Study of a Grid Connected PV Plant (ID-283)** *Mustapha ADAR, Amin BENOUNA, Mustapha MABROUKI, Ahmed CHEBAK* **Band-gap Engineering of CdS, CdSe and ZnSe : First-principles Calculations (ID-297)** *Rachida LAMOURI, El Mehdi Salmani, Hamid Ez-Zahraouy, Abdelilah Benyoussef, Abdelilah Benyoussef* **Assessment of Direct and Indirect Coupling Mode in Photovoltaic Pumping System (ID-318)** *Abdessalam Titraoui, Abdelghani Harrag* **Fast Dipping Treatment for Dense Perovskite Thin Films (ID-325)** *Ki-Hwan Hwang, Sang Hun Nam, Dong In Kim, Hyeon Jin Seo, Ji Won Lee, jin-Hyo Boo* **Pulsed laser Deposition of CZTS Thin Films, their Thermal Annealing and Integration into n-Si/CZTS Photovoltaic Devices (ID-328)** *Zakaria Oulad Elhmaidi, Rajesh Pandiyan, Mohammed Abd-Lefdil, My Ali El Khakani* **An experimental study of a new solar air heater with a Linear Fresnel Reflector (ID-258)** *H. KAROUA, M.DEBBACHE, A.TAKILALTE, O.MAHFOUD, A. MOUMMI, N. MOUMMI, K. AOUES* **Experimental Study on the Electrical and the Thermal Behaviors of Shaded PV Cells during Operation (ID-378)** *Zoubeyr Smara, Aissat Abdelkader, Achour Mahrane* **p-and n-type Doping of Zinc Oxide through Electrochemical Methods (ID-52)** *M.Sahal, M. Mollar, B. Marí*

S-I (3) - PV	Solar Energy - PV Chairs: Prof. Miguel Mollar, Universitat Politécnica de Valencia, Spain. Prof. Thomas Hannappel, Ilmenau University of Technology, Germany.
Wednesday 10:00-11:00 & 11 :30-12 :45 (Room 1)	**Multi-physics modelling of PV panels: A computational analysis of heat generation (ID-334)** *Mehdi Sahli, Joao Pedro de Magalhaes Correia, Said Ahzia, Siham Touchal* **Admittance Analysis of Thermally Evaporated-Hole Selective MoO_3 on Crystalline Silicon (ID-335)** *Doğuşcan Ahiboza, Hisham Nasserc, Raşit Turan* **Physical and Chemical Analysis of Outdoor Dust Deposited on Photovoltaic Panels Installed in Rabat (ID-343)** *Fatima CHAOUKI, Wafae ANANA, Bouchra LAARABI, Moulay Abdelmjid SEBBAR, El Mostapha LOTFI, Mohammed El MAHI, Abdelfettah BARHDADI* **Candidates Analysis for an Efficient TCO Window Layer (ID-345)** *Moukkar Zakaria* **Novel Synthesis of Kesterite Cu_2ZnSnS_4 Thin Films by Linear Sweep Voltammetry and Cyclic Voltammetry: Study of Structural, Morphological and Optical Properties (ID-374)** *Hassan Kirou, Lahoucine Atourki, Elhassane Ihalane, Abdeslam Elfanaoui, Khalid Bouabid, Mbark Nya, Ahmed Ihlal* **Design and Implementation An Adaptive Control For MPPT Systems Using Model Reference Adaptive Controller (ID-383)** *N. TARIBA, A.HADDOU, Hafsa EL OMARI, Hamid EL OMARI* **Review of PV Soiling Measurement Methods (ID-391)** *Benjamin Figgis, Ahmed Ennaoui, Said Ahzi, Yves Rémond* **Impact of Deposition and Annealing Parameters on Al-BSF Quality (ID-422)** *LABDELLI Boutaleb, ELAMRANI Abdelkader* **Designing of a Photovoltaic System for Self-consumption at the Faculty of Technical Sciences of Settat (ID-389)** *AbdelfattahTAZARINE, Hamid EL OMARI* **Analysis of low temperature electrical conduction in thin film photoabsorber Cu_2SnS_3 material (ID-99)** *S. Lahlali, M. Belaqziz, H. Chehouani, L. Essaleh, K. Djessas, K. Medjnoun* **Temperature regulation of PV solar cell under PCM cooling system (ID-137)** *Assia Sellami, Rabie El-Otmani, Khalid Kandoussi,Mouhamed Eljouad, M'Hamed Boutaous and Abdelowahed Hajjaji*

S-I - Thermal	Solar Energy - Thermal
	Chairs: Dr Diego Martinez Plaza, Plataforma Solar de Almería-CIEMAT, Almeria, Spain. Dr Mustapha Jouiad, Masdar Institute of Science and Technology, Abu Dhabi, UAE.
Tuesday 12:15-12:45 & 15:00-16:30 & 17:00-18:30 (Room 5) & Wednesday 08:30-10:00 (Room 4)	**Modeling and CFD study of Heat Transfer within the Circulation Pipes of Solar Water Heating Systems (ID-20)** *Tarik Bouhal, Younes Agrouaz, Tarik Kousksou, Abdelmajid Jamil, Youssef Zeraouli, Abdelmajid Elouali, Tarik El Rhafiki, M'bark Bakkas* **Experimental Study of the Effect of Soil Type on Global Warming using Laboratory Thermal Collector (ID-54)** *Nabila Ihaddadene, Razika Ihaddadene, Beghidja Abdel Hadi* **CSP plants optimization in Morocco: Best practices and real challenges (ID-58)** *Tarik Bouhal,Younes Agrouaz, Tarik Kousksou, Abdelmajid Jamil, Youssef Zeraouli, Tarik El Rhafiki, M'bark Bakkas* **Dynamic model validation of the radiant floor heating system based on the object oriented approach (ID-63)** *Abed Al Waheed Hawila, Abdelatif Merabtine, Nadége Troussier, Abdelhamid Kheiri, Salim Mokraoui, Amine Laaouatni* **Thermal Performance of Heat Sink for Cooling High LED Power Applications (ID-114)** *Fadwa HARAKA, Mourad TAHA JANAN, Ahmad ELOUATOUATI* **Some Parameter Effects on the Efficiency of Passive Ventilation System based on Solar Chimney in South Regions of Algeria (ID-190)** *Salah Larbi, Billal Belfugas* **Optical Study of using Ceramic Foams for Volumetric Solar Receivers (ID-195)** *Mahmoud Alaa, Mohamed Rady, Mohamed Attia, Emad Ewais* **Solar Drying of Agro-industrial Wastes using a Solar Greenhouse (ID-224)** *N. Metidji, O. Badaoui, A. Djebli, H. Bendjebbas, R.Sellami* **Evaluation of a Domestic Hybrid Solar Air Conditioner System under Various Climate Conditions (ID-229)** *Azzeddine Laknizi, Mohsine Bouya, Abdellatif Ben Abdellah, Anas El Maakoul, Said Dhimdi, Said Saadeddine* **Optimization of a Solar Thermal System for Low Temperature Industrial Heating Process (ID-311)** *Chaimaa ELMKADMI, Arifeen WAHED* **Thermal Performances Analysis of a Parabolic Trough Solar Collector using Different Nanofluids (ID-359)** *Nabil Basbous, Mohamed Taqi, Moulay Ahmed Janan* **Evaluation of the Behaviour of Different Solar Mirrors Against Soiling Phenomenon (ID-361)** *Mounia KARIM, Sanae NAAMANE, Christine DELORD* **Simulation of the Advances on Concentrating Solar Power Plants Technologies (ID-363)** *Hajar Rharbal, Hamid Mounir, Abdellatif El Marjani, El Mostapha Boudi* **Modeling of thermal performance of a system Cooling using a solar captor based on adsorption - Cooling using a New Conception of Solar Captor Based on Adsorption (ID-66)** *Achraf Rabhi, Hanae EL Kahla, Adil Bouajaj* **Synthesis, Characterization and Thermal Properties of Hybrid-microencapsulated Phase Change Materials based on ZnO Nanoparticles (ID-293)** *Ikram Daou, Latifa El-Kaddadi, Omar Zegaoui, Mohamed Asbik, Nadia Zari* **Effect of Multi-Walled Carbon NanoTubes on Thermal Properties of Nitrate Molten Salts (ID-346)** *Esraa Hamdy, Shaker Ebrahim, Fuad Abulfotuh, Moataz Soliman* **Effects of Temperature in the Performance of the Thermoelectric Devices - Power Generation (ID-364)** *Mejdal Mohamed, Abouhilal Abdelmoula, Chahid El Hadi, Malaoui Abdessamad* **New Method for Optimizing the Necessary Time to Update the Azimut-Elevation Heliostat Position in the Blind Tracking (ID-268)** *A. Takilalte, M. Debbache, O. Mahfoud, H. Karoua, S. Bouaichaoui* **Cost-Payback Period Analysis of a Solar Boiler based on Fresnel Technology: Case Study (ID-140)** *Yousra FILALI BABA, Ahmed AL MERS, Abdelfattah BOUATEM, Badr BOUOULID IDRISSI, Nor-Edine BOUTAMMACHTE, Hamid AJDAD, Ossama MERROUN*

S-II	Wind Energy
	Chairs: Mr. Rainer Hinrichs-Rahlwes, European Renewable Energies Federation, Belgium Dr Rachid El Bachtiri, EST, Fez, Morocco
Monday 11:45-12:45 & 14:30-15-30 & 17:00-18:30 & Tuesday	**Strategy Command and Control Transit of Active and Reactive Power of Wind Turbine, and Remote Management of a Wind Farm in Morocco (ID-16)** *Hassan Faida, Rachid El Bachtiri* **Hybrid Wind Solar Gas Reliability Optimization using Grey Wolf Algorithm Under Performance and Cost Constraints (ID-42)** *Rachid Meziane, Seddik Boufala, Amar Hamzi, Mohamed Amara* **Preventive Maintenance Optimization in Hybrid Wind Gas Power System using Grey Wolf Algorithm (ID-49)** *Seddik Boufala, Amar Hamzi, Rachid Meziane, Mohamed Amara* **Performances Compraison of Wind Turbine Blades Materials (ID-77)** *Rabie El Alaoui, Hamid Mounir, El Mostapha Boudi, Abdellatif El Marjani, Hicham Echab, Abdellah Mohsine*

09:15-10:15 (Room 5)	**Study of a Hybrid Renewable Energy System for a rural school in Tagzirt, Morocco (ID-93)** *Mouna LAMNADI, Mourad TRIHI, Abdelkader BOULEZHAR* **An Electric Circuit Model for Darrieus-Type Vertical Axis Wind Turbine Rotors: The Tchakoua Model (ID-104)** *Pierre Tchakoua, Mohand Ouhrouche, Gabriel Ekemb, René Wamkeue, Ernesto Benini* **Proposal of a Backstepping Control Strategy for Dynamic Performance Improvement of PMSG Wind Farm with Common DC Bus (ID-105)** *Youssef Errami, Abdellatif Obbadi, Smail Sahnoun, Mohammed Ouassaid, Mohamed Maaroufi* **Three-dimensional Modeling of a Horizontal Axis Wind Turbine Blade and Profile Effect Analysis (ID-150)** *JOUILEL Naima, RADOUANI Mohammed, EL FAHIME Benaissa* **Experimental dSPACE Analysis of Three Phase SEIG used in Wind Turbine (ID-160)** *Ahmed ABBOU, Rachid EL AKHRIF* **Sensorless Control of Hybrid Double Excitation Synchronous Aerogenerator in Case of High Wind Speed (ID-166)** *Houssam Eddine CHAKIR, Hamid OUADI, Fouad GIRI* **Preventive Maintenance Optimization in Hybrid Wind Gas Power System using Grey Wolf Algorithm (ID-179)** *Seddik Boufala, Amar Hamzi, Rachid Meziane, Mohamed Amara* *Seddik Boufala, Amar Hamzi, Rachid Meziane, Amara Mohamed* **A New Approach for Investigation of Aerodynamic Performances of a Horizontal Axis Wind Turbine for Different Reynolds Number (ID-191)** *Zakaria Belfkira, Mounir Hamid, Abdellatif El Marjani* **Control of a Doubly-Fed Induction Machine for Wind Energy Conversion (ID-382)** *S. Mansouri, A.benatillah, B.Yaichi* **Wind Energy Output Estimation using Weibull Statistics - Case of Three Parks in Laayoune-Sakia El Hamra Region, Morocco (ID-414)** *Ijjou Tizgui, Fatima El Guezar, Brahim Benaid, Hassane Bouzahir* **Nonlinear Model Predictive Control Applied to a DFIG-Based Wind Turbine with a Shunt APF (ID-28)** *EL KACHANI Abderrahmane, CHAKIR El mahjoub, AIT LAACHIR Anass, JAROU Tarik, HADJOUDJA Abdelkader* **Supervision System of a Wind Farm Based on Squirrel Cage Asynchronous Generator (ID-117)** *Kamal Elyaalaoui, Mohammed Ouassaid, Mohamed Cherkaoui* **Power Quality in Grid Connected Wind Farm (ID-151)** *Mohamed Benchagra*

S-III (1)	- Command and control systems for RE - Simulation and Modelling for RE Chairs: Prof. Abdelilah Slaoui, CNRS, sStrasbourg, France Dr. Teodor Todorov, IBM T. J. Watson Research Center, Yorktown Heights, USA Dr Mohammed Ouassaid, Mohammed V university of Rabat, EMI, Morocco
Monday 11:45-12:45 & 17:00-18:30 (Room 2)	**Neural Network Variable Step Size IC-based MPPT Controller Improving PV System Performances (ID-143)** *Abdelghani Harrag, Sabir Messalti* **Grid Connected Photovoltaic System Operating under Partial Shaded Conditions using an Advanced Backsteping Design Combined with Artificial Bee Colony Algorithm (ID-196)** *Hassan Salmi, Abdelmajid Badri, Aicha Sahel, Abdennaceur Baghdad, Mourad Zegrari* **MPPT Design for Photovoltaic System using Backstepping Control with Boost Converter (ID-202)** *Abderrahim Taouni, Ahmed Abbou, Mohammed Akherraz, Abderrahmane Ouchatti, Radouane Majdoul* **Single Phase Seven-level Inverter for PV Solar Pumping System (ID-243)** *Ayoub Nouaiti, Abdallah Saad, Abdelouahed Mesbahi, Mohamed Khafallah, Moussa Reddak* **Multi Loop Based Control of Photovoltaic System Connected to the Single Phase Grid (ID-279)** *Chaouqi Aouadi, Abdelmajid Abouloifa, Ibtissam Lachkar, Abdelatif Hamdoun, Yasser Boussair, Meriem Aourir, Youssef Mchaour* **Fixed-order H∞ Controller based on HIFOO for a Doubly-Fed Induction Generator Wind Turbine (ID-290)** *Rochdi BACHIR BOUIADJRA, Moussa SEDRAOUI* **Direct Coupled Photovoltaic Solar Pump Adaptation (ID-314)** *Hachemi. Ammar, Noureddine Benbaha, Mohamed Tewfik. Bouziane, Hatem Ghodbane* **Self-Excitation of the Induction Generator used in the Wind Energy: Simulation and Experimental dSPACE Analysis (ID-400)** *Rachid EL AKHRIF, Ahmed ABBOU* **New Digital Method of Direct and Indirect Control Applied to Wind Energy Conversion Systems using a Double Fed induction Generator (ID-3)** *Anass Gourma, Abdelmajid Berdai, Moussa Reddak, Abdelaziz Belfqih, Faisal Elmariami* **Modelling and Designing the RC Snubber Circuit for a Buck Converter and Testing its Effectiveness (ID-6)** *Ali Algaddafi, Khalifa Elnaddab* **Study of Steady State Stability of the Moroccan Power System using Bifurcation Analysis (ID-177)** *Noreddine Citroen, Mohammed Ouassaid, Mohammed Maaroufi*

S-III (2)	- Command and control systems for RE - Simulation and Modelling for RE
	Chairs: Prof. Said Ahzi, Qatar Environment and Energy Research Institute, Doha, Qatar. Prof. Bernabé Marí Soucase, Universitat Politècnica de València, Valencia, Spain.
Tuesday 09:15-10:15 & 10:45-12:15 & 15:00-16:30 & 17:30-18:30 (Room 2)	**Numerical Investigation of Damage Progressive in Composite Tidal Turbine for Renewable Marine Energies (ID-39)** *M. Nachtane, M. Tarfaoui, El Moumen, D. Saifaoui* **Numerical Study of Heat Transfer By Natural Convection In a Large-Scale Cavity Heated From Below (ID-40)** *N. ABOURICHA, M. EL ALAMI, K. SOUHAR* **Modeling a Three-phase Micro Hydropower Plant Prototype using Takagi-Sugeno Fuzzy Approach (ID-136)** *EL HAMDAOUY Achour, SALHI Issam, BELATTAR Abdellatif, DOUBABI Said* **Modeling Approach for a Hydrokinetic Turbine (ID-153)** *S. HAZIM, A. EL OUATOUATI, M. TAHA JANAN* **Parameter Estimation of Photovoltaic Module using Bio-inspired Firefly Algorithm (ID-157)** *Mohamed Louzazni, Ahmed Khouya, Khalid Amechnoue, Aurelian Crăciunescu* **Numerical Analysis of SnS Photovoltaic Cells (ID-164)** *Faisal Baig, Yousaf Hameed Khattak, Hanif Ullah, Bernabé Marí* **The Systematic Design Methodology of a Tidal Turbine Connected to the Electrical Grid (ID-207)** *Rajae Gaamouche, Abdelbari Redouane, Abdennebi El Hasnaoui, Bouchra Belhorma* **Field-Scale Computational Fluid Dynamics Applied to Wind Velocity Profiles of Photovoltaic Plant -Case of the QEERI Solar Test Facility, Doha, Qatar (ID-208)** *Nicolas Barth, Benjamin W. Figgis, Ahmed Ennaoui, Said Ahzi* **On the Flow Simulation Based on Piston Models in OWC Devices for Wave Energy Conversion (ID-217)** *Hafsa Bouhrim, Abdellatif El Marjani* **Design of a New Photovoltaic Panel Cooling System to Optimize its Electrical Efficiency (ID-231)** *Charaf Hajjaj, Houssam Amiry, Rachid Bendaoud, Said Yadir, Ahmed Elhassnaoui, Smail Sahnoun, Mohammadi Benhmida, Abdelhaq EL Rhassouli* **Latent Energy Storage: Effects of Buoyancy-Driven Convection on Melting in a Vertical Cylindrical Capsule (ID-280)** *M. Hlimi, S. Hamdaoui, M. Mahdaoui, T. Kousksou, R. Es-sakhy, A. Ait Msaad, A. Jamil, A. El Bouardi* **New Maximum Power Point Algorithm for Photovoltaic Systems (ID-288)** *Yamina Khlifi* **Autonomous Vehicles for Cleaning Solar Panels (ID-304)** *Nasir K. Memon* **Computational Study of the Mixed Convection Heat Transfer of Ag-water Nanofluid in an Annular Duct (ID-348)** *Mohamed BENKHEDDA, Toufik BOUFENDI* **A process Simulation Model for a Proposed Moroccan Supply Chain of Electricity (ID-349)** *MEZOUAR Houda, EL AFIA Abdellatif* **Numerical Simulation of Photovoltaic Panel Thermal Condition Under Wind Convection (ID-358)** *Houssam ASSILA, Elhachmi Essadiqi, Mustapha Faqir, Mohamed Meziane, Fathi Ghanameh, Said Ahzi* **Simulation of Rooftop Photovoltaic Shading using TRNSYS (ID-408)** *Sleiman Farah, David Whaley, Wasim Saman* **First Principle Study of Strain effect on Structural and Dehydrogenation Properties of Complex Hydride $LiBH_4$ (ID-48)** *H. Benzidi, O. Mounkachi, M. Lakhal, A. Benyoussef, A. El kenz*

S-III (3)	- Command and control systems for RE - Simulation and Modelling for RE
	Chairs: Dr. Abdelhafed Taleb, Chimie ParisTech & Univ. Pierre et Marie Curie, Paris, France Prof. Abdelfettah Barhdadi, ENS Rabat, Morocco Prof. Nedim Tutkun, Düzce University, Düzce, Turkey
Wednesday 11:30-12:45 (Room 3)	**The DC Behavior of the $Al_{0.25}Ga_{0.75}N$/GaN MOS-HEMT (ID-362)** *Hamida DJELTI* **Correlation of Hourly Diffuse Fraction of Global Horizontal Solar Radiation in Tamanrasset, Algeria (ID-379)** *Madjid Chikh, Achour Mahrane, Mourad Haddadi, Ali Malek* **A Vector Controlled Induction Generator Feeding AC Motor for Different Use in Isolated Site (ID-399)** *Rachid EL AKHRIF, Ahmed ABBOU, Youssef MAJDOUB* **An Improved Approach to Minimise Energy Cost in a Small Wind-photovoltaic Hybrid System (ID-321)** *Nedim Tutkun, Numan Çelebi* **Optimum Unit Sizing of Wind-PV-battery System Components in a Typical Residential Home (ID-406)** *Nedim Tutkun, Numan Çelebi, Necati Bozok*

S-IV (1)	- Green technology - Energy efficiency - Biomass
	Chairs: Prof. Ahmed Chebak, University of Quebec at Rimouski, Canada. Dr. Isam Janajreh, Masdar Institute of Science, United Arab Emirates.
Monday 11:45-12:45 & 14:30-15:30 (Room 4)	**Investigation on Structural and Optical Properties of Organic Photovoltaic Thin Films based MEH-PPV/PCBM (ID-322)** *Nada Benhaddou, Ikram Anefnaf, Safae Aazou, Mohammed Abd-Lefdil, Zouheir Sekkat* **Power Quality Command and Control Systems in Wireless Renewable Energy Networks (ID-332)** *Maria Hammouti, El Miloud Ar-reyouchi, Kamal Ghoumid* **Architecture of a CTA Thermal Hot wire Anemometer (ID-86)** *Amina BEKRAOU, Ahmed HADJADJ, Mohamed OULHADJ, Abdelkader HARROUZ* **Effect of emissivity on the thermal behavior of a double wall facade with a closed cavity (ID-89)** *Zakaria AKETOUANE, Abdellah BAH, Mustapha MALHA, Omar ANSARI* **Mitigating the Effect of Heat and Dust to Enhance Solar Panels Efficiency (ID-113)** *Shahzada Pamir Aly, Nicolas Barth, Benjamin Figgis, Elhachmi Essadiqi, Mustapha Faqir, Ahmed Ennaoui, Said Ahzi* **Simulation, Design and Test of a Single Phase Micro Inverter for PV Application (ID-131)** *K. ELKAMOUNY, H. MAHMOUDI, B. LAKSSIR, A. BENYOUSSEF, M. HAMEDOUN* **Thermal Performance and Comfort of a Modern Type House Retrofitted According to the Moroccan Thermal Regulation for Construction (RTCM) in two Climate Zones (ID-175)** *Issam SOBHY, Abderrahim BRAKEZ, Brahim BENHAMOU* **Optimisation of the energy efficiency and the CO_2 reduction, for the NGL separation (ID-1)** *Ahmed Ould Brahim and Souad Abderafi*

S-IV (2)	- Green technology - Energy efficiency - Biomass
	Chairs: Dr. Walter W Loo, 21st Century Agricultural and Water Experts, USA Prof. Abdelkader Aissat, University of Blida, Algeria
Tuesday 15:00-16:30 & 17:30-18:30	**Effect of Biaxial Strain on SnO_2 Bandgap: First-principles Calculations (ID-187)** *Zineb Kerrami, Anass Sibari, Marwan Lakhal, Abdelilah Benyoussef, Mohammed Benaissa, Omar Mounkachi, Mohammed Hamedoun, Abdelilah Benyoussef* **An Experimental Investigation of a new Coiled Heat Exchanger for Solar Domestic Water Heating (SDWH) (ID-368)** *Mokhtar GHAZOUANI, Mohsine BOUYA, Mohammed Benaissa* **2D Simulation of the Oscillating Flow in the Thermoacoustic Engine Swift Backhaus (ID-424)** *Moussa Moindze Ali, Nadia Martaj, Amine Laaouatni, S. Savarese, Rachid Bennacer, Smaîne Kouidri* **Parameteric Study to Enhence Performance of Distillation Process for Bioethanol Production by Surface Response Methodology (ID-4)** *Ahmed TGARGUIFA, Souad ABDERAFI* **A Comparative Study of Separation Processes for Bioethanol Production (ID-50)** *Ahmed TGARGUIFA, Souad ABDERAFI* **Effect of Multiple Piezo-Transducers on Biodiesel Yield in a Sonochemical Reactor (ID-431)** *Mohammed Noorul Hussain, Isam Janajreh* **Numerical Investigation of Solidity for Cambered Darrieus VAWTs: Analysis of Chord Length (ID-432)** *Sayyad Basim Qamar, Isam Janajreh* **Plasma Gasification of Municipal Solid Waste with Variable Content of Plastic Solid Waste for Enhanced Energy Recovery (ID-433)** *Luca Mazzoni, Isam Janajreh* **Technical and Economic Studies of Autonomous Photovoltaic-wind Hybrid System (ID-249)** *Mohammed ER-RAKI, Mohammed HASNAOUI, Mohamed BOURICH*

S-V (1)	- Energy storage and Batteries - Energy harvesting - Hydrogen energy storage - Power Distribution System
	Chairs: Prof. Rachid Yazami, Nanyang Technological University, Singapore. Prof. Harald G. Svendsen, SINTEF Energy Research, Trondheim, Norway. Prof. Ilias Belharouak, Qatar Environment and Energy Research Institute, Doha, Qatar.
Monday 15:30-16-30 (Room1) & 17:00-18:30 (Room 4)	**Gravitational Search Optimization to Shunt Capacitor Allocation in Algerian Radial Distribution Power System (ID-21)** *A. Hamzi, R. Meziane, S. Boufala, M. Amara* **Characterization of OPzV Batteries used in UNMC Solar Cabin (ID-135)** *W. Merrouche, A. Shanmugam, S.Ould-amrouche, I. Gaci, L. Djellal, M. Trari* **Control and Energy Management of Photovoltaic Pumping System with Battery Storage (ID-149)** *Faika Zaouche, Zahra Mokrani, Djamila Rekioua* **A Novel Three-phase Composite PZT/AL/PU for Energy Storage Application (ID-155)** *Sarah Aboubakr, Abdelowahed Hajjaji, Khalil Benkhouja, Mohamed Rguiti, Christian Courtois* **Battery Dynamic Energy Model for use in Electric Vehicle Simulation (ID-173)** *Benabdelaziz Kawtar, Maaroufi Mohammed* **Phosphorene as a Promising Anode Material for Lithium-ion Batteries: a First-Principle Study (ID-194)** *Anass Sibari, Zineb Kerrami, Adil Marjaoui, Marwan Lakhal, Abdelilah Benyoussef, Mohammed Benaissa, Omar Mounkachi, Abdelkader Kara* **Online Parameter Estimation/Tracking for Lithium-ion Battery RC model (ID-317)** *Zhaohui Cen, Pierre Kubiak, Ilias belharouak* **Optimal Design of an Off-Grid Hybrid Solar Photovoltaic-Diesel System in Community Electrification of a Fishing Village in Morocco (ID-324)** *Ndiaga Mbodji, Toky A. A. Arisily, Ali Hajji, Khalil Ababou, Abderrahim Heddouch* **Peformances of Artificial Neural Network Combined with Perturb & Observe Technique in Maximizing the Photovoltaic System Power (ID-385)** *Fayrouz Dkhichi, Benyounes Oukarfi, David Ouoba, Abderrahim Fakkar* **The Effect of Batteries DOD Range Setting Values on Diesel Engine Generator Pollution and Overall Cost of a Hybrid Solar/Diesel/Battery System (ID-402)** *Sana Charfi,Ahmad Atieh, Maher Chaabene* **Implementation of Capless-LDO in an Energy Harvesting Interface for Avionic Applications (ID-289)** *Ameziane Hatim, Zared Kamal,Akhamal Hicham, Lokman ismail, Qjidaa Hassan* **A Novel Synthetic Route Toward a PTA as Active Materials for Organic Radical Batteries (ID-403)** *Mohamed Aqil, Abdelhafid Aqil, Farid Ouahib, Abdelrahman El Idrissi, Christophe Detrembleur, Christine Jérôme*

S-V (2)	- Energy storage and Batteries - Energy harvesting - Hydrogen energy storage - Power Distribution System
	Chairs: Prof. Hao Gong, National University of Singapore, Singapore. Prof. Djamila Rekioua Ziani, University of Bejaia, Algeria.
Tuesday 09:15-10:15 & 12:15-12-45 (Room 4) Wednesday 10:30-11:00 (Room 3)	**Energy Management of Battery-PEM Fuel Cells Hybrid Energy Storage System for Electric Vehicle (ID-80)** *Z. Mokrani, D. Rekioua, N. Mebarki, T. Rekioua, S. Bacha* **Hydrogen Diffusion in the Magnesium Titanium Hydrides (ID-215)** *Laila Salmi, Mohssine El Bachra, Mohamed Bhihi, Mohammed Loulidi, Abdallah El Kenz, Abdelilah Benyoussef* **Sensorless Control Strategy for Fuzzy Direct Power Control (FDPC) of Three-Phase PWM Rectifier (ID-111)** *Lamterkati Jawad, Khafallah Mohamed, Ouboubker Lahcen, Elafia Aziz* **Highly Efficient Distributed MPPT Architecture Driven by α-β Algorithm for Partially Shaded PV Modules (ID-248)** *Mohammed Setti, Mohammed Ouassaid, Mohamed Cherkaoui, El Mamoun Aziz* **Behavioral Electrothermal Model of Silicon Carbide Power Devices (ID-310)** *Abderrazak LAKRIM, Driss TAHRI* **Harmonic Detection Methods of Shunt Active Power Filter under Unbalanced Loads (ID-355)** *Mouna Tali, Essadki Ahmed, Tamou Nasser* **New Conceptual Design and Modeling of an Energy Storage and Recovery Unit (ID-72)** *Nouaamane Kezibri, Chakib Bouallou* **Off Grid PV System for Hydrogen Production Using Methanol Electrolysis and an Optimal Management Strategy (ID-236)** *H. Tebibel, S. Menia, A. Khellaf*

S-VI	- Smart Grid - IT in Renewable energy
	Chairs: Prof. Ahmad Atieh, University of Jordan, Amman, Jordan. Prof. El Kebir Hlil, University of Joseph Fourier, Grenoble, France. Dr. Boo Jin-Hyo, Sungkyunkwan University, Su-won, Korea. Dr. Hisham Nasser, Center for Solar Energy Research and Applications, Ankara, Turkey.
Wednesday 08:30-11:00 & 11:30-12:45 (Room 4)	**A multiagent Based Hierarchical Control for Microgrid Cluster Stability Enhancement (ID-110)** *Fatima Zahra Harmouch, Nissrine Krami, Nabil Hmina* **Power Quality Control for Grid Connected Photovoltaic System with Neutral Point Converter (ID-146)** *Mehdi Et-taoussi, Hamid Ouadi* **Big Data Based Management for Smart Grids (ID-168)** *Atimad EL KHAOUAT, Laila BENHLIMA* **Smart Home Appliances Modeling and Simulation for Energy Consumption Profile Development - Application to Moroccan Real Environment Case Study (ID-176)** *El Hassan Et-Tolba, Mohammed Ouassaid, Mohamed Maaroufi* **Adaptive Backstepping Control of Three-phase Three-level Neutral Point Clamped Shunt Active Power Filter with LCL Output Filter (ID-183)** *Bouchaib BENAZZA, Hamid OUADI* **Performance of Different Silicon PV Technologies Based on Experimental Measurements: A Case Study in Marrakech (ID-264)** *Noura AARICH, Amin BENNOUNA, Nourdine ERRAÏSSI, Mustapha RAOUFI, Mohammed AKHSASSI, Issam SOBHY* **Sustainable Energy Improvement Model using Demand-side Appliance-based Parametric Convolution Effect on Overall Energy Performance (ID-275)** *Majid Al Jasmi, Ahmed Kiani* **A Novel High Power Factor PWM Rectifier with Push-pull Control for Harmonic Reduction in Industrial Areas Networks of Smart Grid (ID-276)** *Sana Sahbani, Hassane Mahmoudi, Abdennebi Hasnaoui, Mustapha Kchikach, Abdelbari Redouane* **A Comparative Study of Energy Management Systems for PV Self-Consumption (ID-291)** *Khawla ETTALBI, Hanan ELABD, Mohammed OUASSAID, Mohamed MAAROUFI* **Short-term PV Power Forecasting using Support Vector Regression and Local Monitoring Data (ID-294)** *Ayoub Fentis, Lhoussine Bahatti, Mohamed Mestari, Mohamed Tabaa, Abderrahmane Jarrou, Brahim Chouri* **Appliance Scheduling in a Smart Home Using a Multiobjective Evolutionary Algorithm (ID-316)** *Zineb GARROUSSI, Rachid Ellaia, El-Ghazali Talbi* **Comparing Performance of PI and Sliding Mode in Control of Grid Connected Doubly Fed Induction Generator (ID-353)** *Marouane El Azzaoui, Hassane Mahmoudi, Chafik Ed-dahmani, and Karima Boudaraia* **Analysis and Control of Grid Connected DFIG and solar PV Based Hybrid Energy System (ID-354)** *Marouane El Azzaoui, Hassane Mahmoudi, and Karima Boudaraia* **Design and Implementation of Intelligent PI-Fuzzy Logic Control for Grid Connected Inverters (ID-384)** *N. IKKEN, A.BOUKNADEL, Hafsa EL OMARI, Hamid EL OMARI* **Design and Optimization of a Smart Meter to Meet the Growing Needs of Energy in Morocco (ID-404)** *Youssef Amry, Mehdi El Gaidi, Morad Nachtane* **Solving Redundancy Allocation Problem Applied to Electrical Systems (ID-407)** *Abdellah Idrissi, Abdelquoddouss Laghrissi, Mustapha Essadqi* **Reducing Carbon Footprint in Redundancy Allocation Problem Applied to Multi-state Systems (ID-410)** *Abdellah Idrissi, Mustapha Essadqi, Abdelquoddouss Laghrissi* **Design of Distributed Solar Energy for Smart Grid Taking Into Account the Moroccan Energy Regulations (ID-440)** *Moaad Aboumalik, Mohamed El Brak, Driss Benhaddou and Mohamed Essaaidi*

AUI	Al Akhawayn University section
	Chair: Dr Asmae Khaldoun, Al Akhawayn University, Ifrane, Morocco
Wednesday 10:30-11:00 & 11:30-12:45 (Room 5)	**Microstructure Based Simulation of Clay Composites Thermal Properties (ID-125)** *Anas Lahrichi, Houda Ennaciri, Anas Bentamy, Asmae Khaldoune* **Building of a PV DSSC Small Scale Prototype based TiO_2 Nano Coating with Natural Pigment (ID-232)** *Ayoub El Baraka, Sofia Abida, Asmae Khaldouna* **Modeling and Material Selection for Gravity Storage using FEA Method (ID-271)** *Asmae Berrada, Khalid Loudiyi* **Integration of renewable energy and the benefit of storage from a grid and market perspective – results from Morocco and Egypt case studies (ID-360)** *Harald G Svendsen, Ahmed A Shetaya, Khalid Loudiyi* **Assessment of Wind Energy Potential using Generic Models (ID-386)** *Lhoussaine Tenghiri, Yassine Khalil, Farid Abdi, Anas Bentamy*

	Preparation of an Amorphous Optically Transparent and Hydrophobic Al_2O_3 Top -Protective Layer for First-Surface CSP Reflectors (ID-417) *Houda Ennaceri, Asmae Khaldoun, Abdelilah benyoussef, Tristan Köhler, Rodrigo Sáez-Araoz, Ahmed Ennaoui* **Towards a Simple Sand and Dust Abrasion and Soiling Prediction on Solar Components: Design of a Sand and Dust Accelerated Abrasion Chamber based on a Vertical Particle Blower (ID-427)** *Houssame Houmy, Asmae Khaldoun, Houda Ennaciri, Abdellatif Ghennioui, Ahmed Ennaoui*

Posters Session I	
	Chairs: Dr. Walter W Loo, 21st Century Agricultural and Water Experts, USA. Prof. Hamid Ez-Zahraouy, Mohammed V Rabat University, Morocco
Monday 18:30 – 19:30	**Harmonics Compensation Using an Active Power Filter Shunt Five Level Controlled by Sliding Mode Connected to a Photovoltaic (ID-8)** *Abdelkader Yousfi, Tayeb Allaoui, Abdelkader Chaker* **Preparation and Characterization of Cu_2ZnSnS_4 thin films deposited by spray assisted CVD process (ID-26)** *Samira Bouzida, El Bachir Benamar, Manal Battas, Zakaria Laghfour, Zouheir Sekkat, Abdelilah Slaoui, Mohammed AbdLefdil, Mohammed Regragui* **The Energetic potential of Algeria - Study and Analysis of a State Strategy (ID-27)** *Zhour Abada, Djalel Dib, Malek Bouharkat, Lazhar Achour* **Solar radiation estimate calculated using two models (ID-30)** *Djelloul Benatiallah, Ali Benatiallah, Kada Bouchouicha , AEK Harouz* **Comparative study of Est-West and North-South Parabolic trough sun tracking (ID-37)** *Mohammed Boukhalfa, Mustapha Merzouk* **SVM DTC-PMSM Drive Scheme for Photovoltaic Water Pumping System (ID-43)** *F. BENCHABANE, A. GUETTAF, K. YAHIA, O. BENNIS, A. TITAOUINE* **Determination of Linke turbidity factor from solar radiation measurement in Adrar city (ID-62)** *Yacine Marif, Djamel Bechki, Hamza Bouguettaia, Moussa Zerrouki, Mohammed Mustapha Belhadj* **Synthesis and characterisation of Cu_2ZnSnS_4 thin films prepared by sol gel method for photovoltaic applications (ID-68)** *Ahmed ZITI, Bouchaib HARTITI, Salah FADILI, Mohamed RAFI, Abderraouf RIDAH, Soucace Bernabé MARI, Philippe THEVENIN* **Simulation Study of the Influence of Aging and Weather Conditions on the Electrical Production of a Photovoltaic Module (ID-75)** *Abdelhak Bouchakour, Idriss.H.Mahammed, Amor Fezzani, Layachi Zaghba, Abdelhalim Borni, Mostéfa Brahami* **Improvement and Realization of a Solar Tracker for increasing Efficiency of Photovoltaic Energy (ID-78)** *Mohammed El Alami, Hanane Hadlach, Abdesslam Hajri, Mohamed Habibi, Seddik Bri* **Study the performance of PV cells during the summer solstice and the winter (ID-87)** *BLAL Mohamed, Benattilah Alli, Bellassri Ahmed* **Investigation of the Structural, Optical and Electrical properties of Sb doped SnO_2 Thin Films Deposited by Spray Pyrolysis (ID-88)** *Chourouk NASSIRI, Adil HADRI, Fatima Zehra CHAFI, Mustapha ROUCHDI, Abderrahim EL HAT, Boubker FARES, Laarbi LAANAB, Najem Hassanain, A. MZERD* **Influence of Silver Doped Indium Sulfide on the Structural and Optical Properties of Spray Pyrolyzed Indium Sulfide Thin Films (ID-138)** *Samira ELFARRASS, Bouchaib HARTITI, Abderraouf RIDAH, Philippe THEVENIN* **Bi-directional Crystallization of $Cu_2ZnSnSe_4$ Assisted with Back/Front Ge Nanolayers (ID-152)** *S. Giraldo, M. Neuschitzer, V. Izquierdo-Roca, F. Oliva, P. Pistor, A. Pérez-Rodriguez, E. Saucedo* **Effect of F-doping on Structural, Electrical, and Optical Properties of ZnO Thin Films for Optoelectronic Application (ID-170)** *Youssef AMMAIH, Bouchaib HARTITI, Abderraouf RIDAH, Abderrazak LFAKIR, Youssef AMMAIH, Bernabé Marí Soucase, Philippe Thevenin* **Formation of Microcrystalline Silicon Layer for Thin Films Silicon Solar Cells on Aluminium Substrates (ID-181)** *Sunil B S, P.Bellanger, S.Roques, A.Slaoui, A.G.Ulyashin, C. Leuvrey, A. R.Bjorge* **Temperature Influence on Performance of a Solar Cell Receiving Direct Sunlight and a Halogen Lamp Irradiations (ID-188)** *Houssam Amiry, Rachid Bendaoud, Charaf Hajjaj, Said Bounouar, Said Yadir, Khalid Rais, Mohammadi Benhmida* **Growth and Characterization of ZnO and Al-doped ZnO Thin Films by a Homemade Spray Pyrolysis (ID-257)** *Youssef Larbah, Boutaleb Labdelli* **Optimization the Performance of a Synchronization Controller for a 3-phase Photovoltaic Grid-connected System (ID-267)** *BENNIS Ghita, KARIM Mohammed, LAGRIOUI Ahmed* **Soiling Impact on Energy Generation of High Concentration Photovoltaic Power Plant in Morocco (ID-342)** *Wafae ANANA, Fatima CHAOUKI, Bouchra LAARABI, Dounia DAHLIOUI, Moulay Abdelmjid SEBBAR, Abdelfettah BARHDADI*

Monday 18:30 – 19:30	**Sol Gel Preparation of Er^{3+}/Yb^{3+}co-doped SnO_2 - Application in Solar Photovoltaic Cell up Conversion (ID-365)** *Nouhaila Haddou, Jamal El Khamkhami, Zobair El Afia, Mohamed Youssef Messous, Bouchra Belhorma, Ahmed Moussaif, Mounia Tahri, Adil El Yahyaoui, Mohamed Rabie Bricha* **Study of the Performance of High Concentrator Photovoltaic Module using Three Prediction Models (ID-366)** *Merouan Belkasmi, Mensah K. Anaty, Khalid Bouziane, Mohamed Akherraz, Mohamed Elouahabi, Tayeb Sadiki, Mustapha Faqir* **Solar Panel Monitoring using a Video Frames Mosaicing (ID-426)** *Sara Lafkih, Youssef Zaz* **Optimization tilts angle of flat plate reflectors placed in Left-Right side of hybrid photovoltaic thermal collector (ID-25)** *I.Tabet, K.Touafek, A.Khelifa, M.T.Baissi, N.Bellel* **Modeling and Simulation of a Solar Oven Box-Type with Thermal Storage (ID-82)** *Sofian Talbi, Rachid Malek, Khalil Kassmi* **Bacterial Foraging Algorithm for Hybrid Wind Gas Power System Reconfiguration (ID-180)** *Rachid Meziane, Seddik Boufala, Mohamed Amara, Amar Hamzi* **Modeling of a Single Effect Evaporation Desalination Process using a Micro-CSP Plant (ID-204)** *Hassan MAHACH, Abdelkader OUTZOURHIT* **Multiple Solutions for Free Convection Flow in Inclined Enclosures (ID-253)** *Miloud Zellouf, Noureddine Moummi, Kamel Aoues, Adnane Labed* **Comparison of Two Methods used to Evaluate the Aggressivity of a Moroccan Marine Site on Solar Mirrors (ID-370)** *Mohamed GUERGUER, Zineb EDFOUF, Olivier RACCURT* **Backstepping and Sliding Mode Control of a DFIG Wind Turbine (ID-19)** *A. Bennouk, A. Nejmi, A.Benamou, M. Ramzi* **Analysis and Design of Wind Energy System based on Nonlinear Speed Controller (ID-29)** *Samir BELLARBI, D. SAHEB KOUSSA, A. DJOUDI* **RBF Neural Network Sliding Mode Control of a PMSG based Wind Energy Conversion System (ID-59)** *Sabri Boulouma, Hocine Belmili* **Power Comparison between DFIG and SCIG for Wind Energy System (ID-97)** *Samir BELLARBI, D. SAHEB KOUSSA, A. DJOUDI* **Wind Resources Estimation and Performance Evaluation of Two Wind Farms in an Algerian Arid Zone (ID-239)** *S. Louassa, O. Guerri, N. Kasbadji Merzouk, M. Merzouk* **Modelling and Control of Doubly Fed Induction Machine, Application for a Wind Turbine System (ID-266)** *Ibrahim Yaichi, Abdelhafid Semmah, Mourad Djlaila, Abdelkader Harrouz, Smail Mansouri, Y. Bakou* **Modeling of Noise Generated from a Scaled Model Wind Turbine by using CFD and Acoustic Analogy(AA) (ID-329)** *Mohamed Maizi, Rabah Dizene, Ouahiba Guerri* **Modeling and Simulation of Hybrid Power System Integrating Wind, Solar, Biodiesel Energies and Storage Battery (ID-375)** *Soro S. Martin, Ahmed Chebak, Abderazak El Ouafi, Mustapha Mabrouki* **Modeling and Structural Analysis of Planetary Gear of a Wind Turbine (ID-415)** *Abdellah Mohsine, El Mostapha Boudi, Abdellatif El Marjani* **Effects of Sulfur Concentration on Structural, Optical and Electrical Properties of Tin Oxide Thin Films Deposited by Spray Pyrolysis Technique (ID-120)** *Abderrahim EL HAT, Mustapha Rouchdi, Adil Hadri, Chourouk Nassiri, Fatima Zahra Chafi, Boubker Fares, Larbi Laanab, Najem Hassanain, Hicham Labrim, Ahmed Mzerd* **New Transparent Conducting Oxide Based on Doped SnO_2 for Solar Cells (ID-277)** *M. Boujnah, H. Ennaceri, K. Belasfar, A. El Kenz, A. Benyoussef, M. Loulidi, Ennaoui Ahmed* **The effect of Additives on the Polymeric Protective Coating for Heliostat (ID-230)** *Enas Moustafa, Moataz Soliman, Shaker Ebrahim* **Evaluating the Self-consumption of a Solar House in Coastal Region of Bou Ismaïl, Algeria (ID-256)** *Rachid Belaidi, Mohamed Fathi, Mehamed Mghezzi Larafi, Guania Mohand Kaci* **Preparation of Intrinsic and Al-doped ZnO Thin Layers by Spray Pyrolysis (ID-439)** *Mustapha Sahal, Bernabé Marí Soucase, Redouan Sersar* **Modeling of Decoupling Concentrated Solar Power Plant (ID-218)** *Mohamed M.Abousaba, Hatem Abdelraouf, Fuad Abulfotuh, Javier García-Barberena*

Posters Session II	
	Chairs: Prof. Said Ahzi, Qatar Environment and Energy Research Institute, Doha, Qatar Dr Asmae Khaldoun, Al Akhawayn University, Ifrane, Morocco Prof. Hamid El Omari, FST Settat, Morocco
Tuesday 18:30 – 19:30	**Comparison of two MPPT Methods Fuzzy Logic and Ripple Correlation Control for the Application of LED Lighting supplied by Photovoltaic Panels Grid (ID-17)** *Abdellah Ziouh, Ahmed Abbou* **Three Phase Load Connected Photovoltaic System Using MPPT Approach In Buck Converter (ID-23)** *Taoufik Laagoubi, Mostafa Bouzi, Mohamed Benchagra*

Tuesday 18:30 – 19:30	**Control Strategy based on SPWM Switching Patterns for Grid Connected Photovoltaic Inverter (ID-133)** *L. Hassaine, A. Mraoui, A. Guellal* **Backstepping Control of Wind Energy System with Multilevel Inverter (ID-144)** *A. BARRA, H. OUADI* **Control Strategy of DFIG for Wind Energy System in the Grid Connected Mode (ID-209)** *Hicham Lhachimi, Youssef El Kouari, Yassine Sayouti* **Nonlinear Control Strategy for Wind Turbine Based on DFIG to Enhance the LVRT Capability (ID-216)** *Moussa REDDAK, Abdelmajid BERDAI, Anass GOURMA, Ayoub NOUAITI* **Nonlinear Control of Grid Connected Photovoltaic System based on a Half Bridge Inverter (ID-219)** *Hajar Dammah, Ibtissam Lachkar, Saad Lissane Elhaq* **Optimization of the Energy Efficiency of a Solar System by Controlling a Two-Axis Tracker (ID-313)** *Raouf HAMDAOUI, Chemes Eddine ROUABHIA, Lotfi FARAH* **Hybrid Renewable Energy System to Maximize the Electrical Power Production (ID-336)** *Kamal Anoune, Mohsine Bouya, Abdelali Astito, Abdellatif Ben Abdellah* **Automatic Inspection of Solar Panels Based on Images Stitching Technique (ID-416)** *Hicham Tribak, Youssef Zaz, Omar El Kadmiri* **Factors affecting the Performance of Polymer Electrolyte Membrane Fuel Cells (PEMFC): Modeling, Validation and Simulation (ID-2)** *Mohamed Blal, Ali Benatiallah, Ahmed Belasri* **Comparing the Performance of Bipolar and Unipolar Switching Frequency to Drive DC-AC Inverter (ID-7)** *Ali Algaddafi, Khalifa Elnaddab, Abdullah Al Ma'mari, Abdelrahim Nasser Esgiar* **Performance of Five-Level Flying Capacitor Inverter with Multicarrier SPWM Strategies (ID-14)** *Rachid TALEB, M'hamed HELAIMI, Djilali BENYOUCEF, Zinelaabidine BOUDJEMA* **The Oscillatory Free Water Surface Motion inside OWC Chamber for Wave Energy Conversion (ID-31)** *Abdelhamid EL BARAKAZ, Abdelatif EL MARJANI* **LCL Filter with Passive Famping for PV System connected to the Network (ID-38)** *CHTOUKI Ihssane, ZAZI Malika, FEDDI Mustapha, RAYYAM Marouane* **Optical and Magnetic Properties of Mn Doped 4H-SiC: First Principal Calculations (ID-45)** *M. Houmad, A. Benyoussef, A. El Kenz, A. Benyoussef* **Modeling and Simulation of 15MW Grid Connected Photovoltaic System Using PVsyst software (ID-71)** *Adel Soualmia, Rachid Chenni* **Modeling and Prediction of reflectance loss in CSP plants using a nonlinear autoregressive model with exogenous inputs (NARX) (ID-73)** *Sahar Bouaddi, Ihlal Ahmed, Omar Ait mensour* **Study of Melting of Nano-Enhanced Phase Change Material inside a Spherical container (ID-79)** *M. Bechiri, K. Mansouri* **MPPT Control for a Photovoltaic Pumping System to Efficiency Improvement Using PSIM (ID-85)** *Hachemi Ammar, Noureddine Benbaha, Seif Eddine Boukebbous, Adouane Mabrouk* **MPPT Design for Photovoltaic System using Sliding Mode Control with Buck Converter (ID-107)** *Abderrahim Taouni, Ahmed Abbou, Mohammed Akherraz, Abderrahmane Ouchatti* **SARIMA-SVM Hybrid Model for the Prediction of Daily Global Solar Radiation Time Series (ID-108)** *Belaid Boualit Sabrina, Mellit Adel* **Design of a Solar System Installation in Marrakesch using the Skelion Software Tool (ID-163)** *Bernabé Marí Soucase, Inmaculada Guaita, Juan Pons Aleman* **Photovoltaic System Output Simulation under Various Environmental Conditions (ID-165)** *Arar Hemza, Chenni Rachid, Haouam Abdeslam* **Parametric Study on the Influence of Geometrical Characteristics of Horizontal Wavy Surface on Nusselt Number: Solar Application (ID-225)** *Y. Agrouaz , T. Bouhal, M. Bakkas, A. Jamil, T. Kousksou, T. El Rhafiki ,Y. Zeraouli,* **Parametric Study of a Wood Solar Dryer with Glazed Walls in a Moroccan Climate (ID-273)** *Naoual Bekkioui, Abdelilah Hakam, André Zoulalian* **SeaWater GreenHouse Modeling Simulation and Analysis of Inputs Impact (ID-301)** *Oumaima Choukai, Driss Zejli* **Modeling and Forecasting energy demand (ID-303)** *Ismail El kafazi, Rachid Bannari, Abdellah Abouabdellah* **Prediction and Analysis of Heat Affecting the Efficiency of the Aerodynamic of Wind Turbine (ID-306)** *Mohamed MOHAMED LEMINE, Larbi EL BAKKALI, Abdel Kader MAHMOUD* **Modeling and Simulation of a C3MJ+ Triple Junction Solar Cell using Matlab/Simulink (ID-373)** *Mensah K. Anaty, Merouan Belkasmi, Khalid Bouziane, Mohammed Aggour, Mohamed El Ouahabi* **Positive Energy Office Building: A Case Study in Casablanca, Morocco (ID-116)** *Oumayma BENNANI, Ibtissam BENSAADOUT, Mohammed OUASSAID* **Synthesis and Characterization of Cellulose Acetate Extracted from Paper Waste (ID-298)** *Fatima Zahra BERAICH, Moha AROUCH, Mina BAKASSE* **Photocatalytic Study of Nanoferrites Elaborated by Sol-gel Process for Environmental Applications (ID-326)** *Samir Briche, Mohammed Belaiche*

Tuesday 18:30 – 19:30	**CZTS thin film with simple sol-gel method - Thickness effect on structural and on optical properties of CZTS thin films - (ID-327)** *Zakaria Laghfour, Mohammed Bouzbib, Safae Aazou, Mouad Sekkati, Mohammed Abd-lefdil, Mhamed Taibi, Guy Schmerber, Aziz Dinia, Abdelilah Slaoui, Alexander Ulyashin, Zouheir Sekkat* **Kesterite / wurtzite Cu_2ZnSnS_4 Nanocrystals: synthesis and characterization for PV applications (ID-339)** *T. Ajjammouri, S. Aazou, O. Mahboub, Z. Laghfour, M. Abd-Lefdil, A. Ulyashin, A. Slaoui, Z. Sekkat* **Optical and structural characteristics of M EH -P P V /P 3HT blend with fullerene (ID-344)** *Ikram Anefnaf, Nada Benhaddou, Safae Aazou, Mohammed Abd-Lefdil, Zouheir Sekkat* **Modelling and Optimal Control of The Doubly Fed Induction Generator Wind Turbine System Connected to Utility Grid (ID-351)** *Anass Bakouri, Hassane Mahmoudi, Ahmed Abbou* **Modeling and Control of Three Phases Grid Connected Photovoltaic System (ID-356)** *Karima Boudarai, Hassane Mahmoudi, Marouane El Azzaoui* **Synthesis and Characterization of Vanadium Doped TiO_2 for the Visible Light-Driven Photocatalytic Activity (ID-398)** *Jung-Hoon Yu, Sang-Hun Nam, Ji Won Lee, Dong In Kim, Jin-Hyo Boo* **Photovoltaic Panels Characteristics under Shadows (ID-148)** *K Tadjine, D Rekioua* **Analysis of the Passive Thermal Response of Test Building Located in Subtropical Climate: Comparison with Moroccan Building Energy Efficiency Code (RTCM) (ID-162)** *Zahra NAJAM, Mustapha EL ALAMI, Mostafa NAJAM, Mustapha FARAJI, Didier SAURY* **The benefic Effect of Moroccan Oil Shale's Ash on Blended Cement(CMII) (ID-119)** *Nour El Houda Hamsi, Khadija Nabih, Redwan Barbach* **Numerical and Experimental Investigation of Air Gap Membrane Distillation (AGMD): Quantitative Comparison with DCMD (ID-437)** *Isam Janarjeh, Khadije El Kadi, Rizwan Ahmed* **$Li_{1.5}Fe_{0.5}Ti_{1.5}(PO_4)_3$/C Phosphate as Promising Electrode Material for Electrochemical Energy Storage (ID-299)** *Abdelhaq NASSIRI, Younes CHAALI, Abderrahim SOLHY, Ismael SAADOUNE* **Hydrogen Production on Ni Loaded Apatite Synthesized by Dissolution-precipitation of Moroccan Natural Phosphate (ID-203)** *Farah Mesrar, Mohamed Kacimi, Mahfoud Ziyad, Leonarda F Liotta* **Shape Optimization of a Planetary Gear Based on the Minimum Weight (ID-84)** *Kaoutar Daoudi, El Mostapha Boudi* **Improvement of Direct Torque Control Performance of Induction Machine by using Self Tuning Fuzzy Logic Controller for Elimination of Stator Resistance Variation Effect (ID-103)** *Chaymae LAOUFI, Ahmed ABBOU, Mohammed AKHERRAZ* **Design and Control of Single Phase Photovoltaic Systems for AC MicroGrid (ID-32)** *El hassane Margoum, Nissrine Krami, Fatima Zahra Harmouch, Houssine Al montaser, Luis Seca, Carlos Moreira* **Performance Analysis and Power Evaluation of Hybrid Off-grid System (ID-238)** *Mohammed Boussetta, Rachid Elbachtiri, Maha Khanfara, Karima Elhammoumi* **Power Control of Three Phase Single Stage Grid Connected Photovoltaic System (ID-323)** *Akel Fethi, Bendib douadi, Laour Mohammed, Berkouk El-madjid* **Modelization of Smart Grid: Managing the local level (ID-430)** *Rim Marah, Abdelaaziz EL Hibaoui* **Synthesis of Doped and Undoped TiO_2 Thin Films Prepared by Sol Gel (ID-130)** *Z. ESSALHI, B. HARTITI, A. LFAKIR, M. SIADAT, P.THEVENIN* **Solar Air Flat Plate Collector Performance. Experimental Study in Biskra, Algeria (ID-158)** *Kamel Aoues, Miloud Zellouf, Adnane Labed* **Green Cloud computing: Opportunities and Challenges (ID-371)** *Abdelhamid El Alami, Hicham Sadok, Naima Elhaoud* **Solar Powered Transportation - A Case for Africa (ID-409)** *Christen Roger, El Omari Hamid, Bekhtair Said* **Real-time Harmonic Elimination PWM for PV Inverters, Co-simulation Approach (ID-115)** *Bendib Douadi, Akel Fethi, Laour Mohamed, Chikh Madjid, Larbes Cherif* **Thermal Properties of Composites of Octadecane/Carbon Imbedded with Graphite Derivatives Thermal Energy Storage (ID-227)** *Marwa Aiman, Shaker Ebrahim, Fuad Abulfotuh* **Performance of Grid-connected PV System based on SAPF for Power Quality Improvement (ID-436)** *Rachid Belaidi, Mohamed Fathi, Mehamed Mghezzi Larafi, Guania Mohand Kac* **Dynamic Modelization of Heat Transfer Between the Ground and Shallow Basement of a Villa in Marrakesh Area (ID-122)** *Naima Sakami, Lahcen Boukhattem, Hassan Hamdi* **A Novel Compact CPW OCSRR Structure for 2.45 GHz Rectenna Application (ID-420)** *M. Bajtaoui, A. Abraray, O. EL Mrabet, Mariem Aznabet, M. Essaaidi* **Energy Management Strategy of Hybrid Photovoltaic-Battery Generator (ID-376)** *H. ASSEM, T. AZIB, F. BOUCHAFAA* **Study on Effects of Window with an External Shutters For Natural Ventilation for Buildings in Hot Climates (ID-172)** *M.Hamdani, S.M.A. Bekkouche, M.K. Cherier, T. Benouaz, R. Belarbi*

	Modeling of Water Transport Phenomena in A PEM Fuel Cell using Finite Volume Method (ID-320) *Mohammed JOURDANI, Hamid MOUNIR, Abdellatif EL MARJANI* **Numerical Simulation of Flow Boiling Insude Microchannel (ID-438)** *Rachid El Amraoui, Hicham El Mghari, Mhamed Mouqallid* **Reducing energy consumption, operation cost, environmental impact for LPG separation unity, by using process energy integration (ID-193)** *Ahmed Ould Brahim, Souad Abderafi*

Posters Session III	
	Chairs: Prof. Ahmed Ihlal, FS, Ibn Zohr University, Morocco Prof. Nadia Martaj, EPF, Troyes, France
Wednesday 11:00 – 11:30	**Performance Monitoring of PV Modules of Different Technologies under Outdoor Conditions (ID-161)** *Aboubakr Benazzouz, Badr Ikken, Zakaria Naimi, Ahmed Benlarabi, Kawtar Belrhiti Alaoui, Abdellah El Hassan El Alaoui, Abdelfettah Barhdadi* **Artificial Neural Networks Maximum Power Tracking Control of Grid-connected PV Systems (ID-240)** *K. Roummani, B. Mazari, M. Hamouda* **Investigation on the Ce/Yb Doped Titanium Preparation and Characterization for Down Conversion Process in Photovoltaic Cell (ID-350)** *Z. El Afia, M. Y. Messous, B.Belhorma, A. Moussaif, M. Tahri, M. R. Bricha, M. Cherkaoui, N. Haddou* **The Thermal Experimental Study of a Parabolic Trough Solar Concentrator in several cases, with the new perspectives of Solar Energy in Algeria (ID-12)** *LAHLOUR Rafik, BELLEL Nadir, BOUGUETAIA Nadia* **Analytical and Numerical Study of Heat Transfer in a Parabolic Trough Concentrator (ID-18)** *Nadia BOUGUETAIA, Nadir BELLEL , Rafik LAHLOUR* **Solar Flux Distribution on the Receiver Of the Solar Tower Power Plant (ID-56)** *M. Bouamra, M. Merzouk, N. Said* **Design of energetic system based on solar photovoltaic thermal hybrid collector (ID-91)** *Mohamed Tahar Baissi, Khaled Touafek, Ismail Tabet, Abdelkarim Khelifa* **Study of heat flux density distribution of a trapezoidal cavity absorber for the Linear Fresnel Reflector considering Meknes city (Morocco) (ID-98)** *Louiza RABHI, Ahmed KHMOU, Noureddine BOUTAMMACHTE* **Extended Voltage-Sag Method For fault location in EPDS in presence of DG (ID-64)** *Hamid Touijer, Mustapha Zahri, Mohamed Habibi, Youssef Menchafou, Hassan El Markhi* **Les spécificités managériales et comptables de la gestion d'un projet éolien au Maroc (ID-286)** *BOUNGAB Souad* **Wind Characteristics and Wind Energy Potential in Libya (ID-295)** *Farag Ahwide, Yaser Aldali , Souhel Bousheha* **Fuzzy Sliding Mode Control of a Doubly-Fed Induction Machine Supplied by Seven Level Inverter (ID-10)** *Mohamed BENKAHLA, Rachid TALEB, Zinelaabidine BOUDJEMA* **Fuzzy Direct Torque Control for a Three Level Inverters fed Induction Machine with Fuzzy Controller of Speed (ID-121)** *Lahcen Ouboubker, Mohamed Khafallah, Jawad Lamterkati, Aziz El afia* **Variable Structure Control of Direct Drive Permanent Magnet Synchronous Generator Wind Power (ID-145)** *Chafik Ed-dahmani, Hassane Mahmoudi, Marouane El Azzaoui* **An Advanced Control Approach for Current Harmonic Cancellation using Three-Level Shunt Active Filter Controlled by Fuzzy Logic (ID-9)** *Ibrahim.Bentchikou, Abdelkader.Yousfi, Tayeb.Allaoui, Fares. Boudjema, Abdelkader.Chaker, Djamel.Boukhetala* **Potentiel Eolien dans le sud d'Algére (site d'Adrar) (ID-33)** *A. BENATIALLAH, M. DAHBI, M. SELLAM* **Modeling and Optimization of a Photovoltaic Water Pumping System (ID-55)** *Debili Narimene, Haouam Salim, Chenni Rachid* **Van der Waals effect on Raman-active modes in bundled C70 peapods (ID-74)** *F. Fergani, H. Chadli, B. Fakrach, A. H. Rahmani, A. Rahmani* **3D modeling and simulation of IBC heterojunction silicon solar cell by ATLAS SILVACO (ID-94)** *ZAREDE TOUFIK, LIDJICI HAMZA, MAHRANE ACHOUR, FATHI MOHAMED* **Thermal Dispersion Effect on Possible Improvement of Laminar Forced Convection of Nanofluids in Uniformly Heated Tube (ID-124)** *Boualit Abdelhamid, Zeraibi Noureddine, Laouar Salima, Chergui Toufik* **Natural Convection in Rectangular Enclosure with Heating and Cooling by Sinusoidal Temperature Profiles on two Vertical Sides (ID-250)** *Azzouz Khaddoudja, Djezzar Mahfoud* **Novel DE-based Routing Protocol using Adaptive Hello Messaging Scheme (ID-246)** *Nassir Harrag, Allaoua Refoufi, Abdelghani Harrag*

Etudes de l'influence de la nature des substrats sur le dépôt des couches minces de CdS déposée par la technique du bain chimique (CBD) (ID-392)
M. Melouki, M. Adnane, D. Chaumont, S. Hamzaoui
Improvement of Parametric Variations Impact on the Performances of a UPFC System using a Decoupled Neural Network Controller (ID-156)
A. Bouanane, M. Amara, R. Meziane, M.Yahiaoui, Chaker Abdelkader

Hybrid Photovoltaic – Battery Energy Management System using Multiport DC-DC Converter (ID-296)
Sarab Jwaid AL-Chlaihawi, Mohamed Louzazni
Analysis and Evaluation the Maximum Power Point Tracking Efficiency of Photovoltaic with Different DC-DC Converter Topologies for Photovoltaic Application (ID-251)
MOUHOUB BIRANE, CHERIF LARBES, ALI CHEKNANE
A Novel Architecture of Smart Street Lighting Distributed in a Smart Grid Structure (ID-369)
Youssef MOUBARAK, Mohamed SADIK, Aziz MAZIRI
The Impact of the Variation of Inputs and Sample Size on the Prediction Accuracy of Multi-Layered Artificial Neural Networks (ID-434)
Hajar Abjeg, Ilham Kissani
Quantitative Analysis of the Stress Effects on the Performance Enhancement of Silicon Solar Cells (ID-435)
A. El Boukili
Stress Distribution Dynamic Study Due to the Bending Mode of the Wind Turbine Blade (ID-312)
IMANE ED-DOKKALI, LARBI EL BAKKALI
Stabilization of MoS_2 Nano-additives Prepared by One-pot Solvothermal Route in Wind Turbine Oil (ID-81)
H. Akram, O. Achak, M.Z. Saidi, C. Elmoujahid, D. Elmessoudi, A. Elmouakibi, S. Bensemlali, T. Chafik
A First Step towards Germanene Layer Decoupling (ID-441)
Adil Marjaoui, Règis Stephan, Marie-Christine Hanf, Mohamed Zanouni, Mustapha Diani and Philippe Sonnet
Modeling and Simulation of 15MW Grid -Connected Photovoltaic System using PVsyst Software (ID-442)
Adel Soualmi,Rachid Chenni

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