

The 5th International Conference on
Renewable Energy
Generation and Applications



26-28 February, 2018
CIT Auditorium, Male
UAE University



Conference Program

5th INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY GENERATION AND APPLICATIONS, 2018

February 26-28, 2018

UAEU Al Ain, UAE

Monday, February 26

8:00 am	On-site registration (8:00 am-12:00 pm)		
9:30 am -9:45 am	Inauguration		
9:45 am-10:00 am	IEEE Speech <i>Dr. Issa Bastaki</i>		
10:00 am-11:00 am	KN 1: <i>Leveraging the energy transition: Opportunities for mobility, grid, and decarbonization</i> , Dr. Elizabeth A. Kócs, P		
11:00 am-11:15 am	Coffee Break		
11:15 am-12:55 pm	S1D1T1A: <i>Green Technology 1</i>	S2D1T3: <i>Bioenergy</i>	S3D1T7A: <i>Energy and Environment 1</i>
1:00 pm-2:00 pm	Lunch Break		
2:30 pm-3:50 pm	S1D1T1B: <i>Green Technology 2</i>	S2D1T2A: <i>Biofuels and Gasification 1</i>	S3D1T7B: <i>Energy and Environment 2</i>
4:00 pm-4:30 pm	Coffee Break		
4:30 pm-5:50 pm	S1D1T1C: <i>Green Technology 3</i>	S2D1T2B: <i>Biofuels and Gasification 2</i>	S3D1T7C: <i>Energy and Environment 3</i>

Tuesday, February 27

8:00 am	On-site registration (8:00 am-12:00 pm)		
9:00 am-10:00 am	KN 2: <i>Energy Storage for Smart Grid Applications</i> , Dr. Said Al-Hallaj		
10:30 am-11:00 am	Coffee Break		
11:00 am-12:40 pm	S1D2T1A: <i>Green Technology 1</i>	S2D2T4A: <i>Nano Environmental Technologies 1</i>	S3D2T8: <i>Energy Storage towards Sustainable Cities and Buildings</i>
1:00pm-2:00 pm	Lunch Break		
2:30 pm-3:50 pm	S1D2T1B: <i>Green Technology 2</i>	S2D2T4B: <i>Nano Environmental Technologies 2</i>	S3D2T10A: <i>Green Buildings 1</i>
4:00 pm-4:30 pm	Coffee Break		
4:30 pm-5:30 pm	S1D2T1C: <i>Green Technology 3</i>	S2D2T4C: <i>Nano Environmental Technologies 3</i>	S3D2T10B: <i>Green Buildings 2</i>
Banquet Dinner (Transportation between hotel to banquet site will be provided)			7.30 pm – 9.30 pm

Wednesday, February 28

8:00 am	On-site registration (8:00 am-10:00 am)		
9:00 am-10:00 am	Coffee Break		
10:00 am-12:00 pm	S1D3T5A: <i>Sustainable Energy Policies 1</i>	S2D3T6: <i>Green Economy</i>	S3D3T9A: <i>Smart and Green Grid Technology 1</i>
1:00 pm-2:00 pm	Lunch Break		
2:30 pm-3:30 pm	S1D3T5B: <i>Sustainable Energy Policies 2</i>	S3D3T9B: <i>Smart and Green Grid Technology 2</i>	

Monday, February 26

Monday, February 26, 09:30 - 10:30

KN 1: Leveraging the energy transition: Opportunities for mobility, grid, and decarbonization

Elizabeth A. Kócs, P

Room: Auditorium

Chair: Mousa Hussein

Monday, February 26, 11:15 - 12:55

S1D1T1A: Green Technology 1

Solar, Wind and Electric Vehicles

Room: E1-1036

Session chairs: Razzaqul Ahshan

Wind Farm Performance Forecasting with consideration for wind speed fluctuations

Mohsen Ziaei and Sara Kargarnejad

A Low Cost Method to Convert Automotive Alternator for Wind Electricity Generation

Tuanke Huihui, Mohd Zamri Che Wanik, Hussain Shareef and Zahi Omer

Distributed Wind Systems for Moderate Wind Speed Sites

Razzaqul Ahshan, Muhammad Shafiq, Nasser Hosseinzadeh and Abdullah Al-Badi

Analysis of the Wind Power Generation in Mongolian Central Power System

Ankhzaya Baatarbileg, Bayasgalan Dugarjav and Gae-myung Lee

High correlation models for small scale Magnus wind turbines

Gustavo Richmond-Navarro, Noel Ureña-Sandi and Giancarlo Rodríguez

S2D1T3: Bioenergy

Bioenergy

Room: E1-1028

Session chairs: Ali Abu Odeh

Numerical model estimation of Biomethane production using an anaerobic CSTR: model formulation, parameter estimation and uncertainty/sensitivity analysis

Hatem Yazidi

Analysis of Sugarcane-Ethanol As A Renewable Energy Source

Muhammad Mahmood Ali, Hafeez-ur Rehman and Adnan Afzal

Fabrication, analysis and characterization of CCTS based device using interdigitated electrodes for Bioenergy applications

Ali Abu Odeh, Yurub Al-Douri and Waleed K. Ahmed

Modeling and Optimization of Biodiesel Production from Chlorella Vulgaris in a Batch Reactor

Shahin Mokhtari and Mohammad Talaghat

Blue Laser Excitation of Electrons within the Pathway between Photosystem II and I for Growth Enhancement of Chlamydomonas Reinhardtii Algae

Sadiq Alyasiri, Wamadeva Balachandran, Donald Hooker and Pascal Craw

S3D1T7A: Energy and Environment 1

Energy and Environment

Room: E1-1038

Session chairs: Waleed Ahmed

The impacts of sustainability on society

Thiago Mathheus Martins de Moraes, Lucas de Paula Santos Petri, Felipe Fernandes Jacintho, Ribens Alves Dias and José Feliciano Adami

DESIGN, CONSTRUCTION AND PERFORMANCE EVALUATION OF A TROMBE WALL POULTRY BROODING HOUSE

Ifeanyi Okunlowo

Hydro power Harvesting from Small catchments (Khosar Basin -Case Study)

Kamel Almoheeen

Implementing Green solutions to Recycle UAE Domestic Waste: Aircraft Composite Materials

Ali Hilal-Alnaqbi, Waleed K. Ahmed, Dina Ayman Al Jamal, Farah Genena, Aamna Almazrouei and Lamia Almarzooqi

A review of tidal current energy resource assessment: Current status and trend

Roslynnna Rosli

Monday, February 26, 14:30 - 15:50

S1D1T1B: Green Technology 2

Solar, Wind and Electric Vehicles

Room: E1-1036

Session chairs: Isam Janajreh

Contribution of large scale PV plants to electric power during winter peak times in Jeju island

Jae-bee Kim, Hyung-joon Yang, Suk-young Ko, Ankhzaya Baatarbileg, Hoon Kwon, Seong-Bo Oh and Gae-myung Lee

A Case Study - Solar Powered Metro in UAE

Vidhya Koothupalakkal Viswambaran, Arfan Ghani, Vijay Kumar and Karut Anjad

Modelling-assisted Solar Pond Design and Development for Masdar City Environment

Khadige El Kadi and Isam Janajreh

Regional generation characteristics of MV photovoltaic power plants in Jeju island

Sae-wuon Kang, Hyeon-seong Kim, Ankhzaya Baatarbileg, Jue Sakong, Gae-myung Lee and Seung-beom Kim

S2D1T2A: Biofuels and Gasification 1

Biofuels and Gasification

Room: E1-1028

Chair: Emad Elnajjar

Characterization and Chemical Composition of UAE Date Seeds

Emad Elnajjar, Shereen Hasan, Sulaiman Al-Zuhair, Ali Hilal-Alnaqbi and Salah Al Omari

Biodiesel Production from Date Seeds via Microwave Assisted Technique

Abrar Inayat, Chaouki Ghenni, Farrukh Jamil, Alya Alobaidli, Hiba Bawazir and Noura Ali

Utilizing Recycled Prepreg Carbon Fiber and Date Pit Powder for Detoxification

Ameerah Seyedzadeh, Asel Mwafy, Waleed K. Ahmed and Ali Hilal-Alnaqbi

Thermogravimetric study of the combustion characteristics of diesel and biodiesel

Manar Almazrouei and Isam Janajreh

S3D1T7B: Energy and Environment 2

Energy and Environment

Room: E1-1038

Session chairs: Bobby Mathew

Comparative study of the rheological behavior of palm shell, peanut shell and cashew shell in rotating drum

Lat Grand Ndinye, Philippe Bernard Himbani, Ansoumane Diedhiou and Dionna Kobor

A System Dynamic Based DSS for Ecological Urban Management in Alexandria, Egypt: Urban Metabolism Approach

Mona Salem, Khalid Al-Hagla and Hany Ayad

Thermodynamic Analysis of Lithium Bromide Absorption Chiller Driven by Geothermal Energy

Mamdouh Assad, Muhammad Tawalbeh, Tareq Salameh and Amari Al-Othman

Abu Dhabi Energy Mix using PLEXOS as optimization tool

Moza Salim Al Naimi, Mohamed I Ali and Gento Mogi

Monday, February 26, 16:30 - 17:50

S1D1T1C: Green Technology 3

Solar, Wind and Electric Vehicles

Room: E1-1036

Session chairs: Maamar Bettayeb

Optimal Design of Solar PV/Fuel Cell/ Diesel Generator Power System for Cruise Ship

Chaguidi Cherut, Maamar Bettayeb and Boris Erjanin

Performance of Concentrated Solar Collectors: Studying the absorber pipe outlet temperature variations

Mohammed Ziauddin, Fadi Al Naimat, Bobby Mathew, Tariq Darabseh and Enad Alhseinat

Fractional Nonlinear Synergetic Control for DC-Link Voltage Regulator of Three Phase Inverter Grid-Tied PV System

Abdelbasset Mehiri, Maamar Bettayeb, Abdul-Kadir Hamid and Aghiles Ardjal

Nonlinear Synergetic Control Approach for dc-link Voltage Regulator of Wind Turbine DFIG Connected to the Grid

Aghiles Ardjal, Maamar Bettayeb, Rachid Mansouri and Abdelbasset Mehiri

S2D1T2B: Biofuels and Gasification 2

Room: E1-1028

Session chairs: Salah Al Omari

The Effect of Nanoparticles Addition with Biodiesel-Diesel Fuel Blend on a Diesel Engine Performance and Emission Characteristics

Ahmed I. EL-Seesy

An Investigation on the Thermal Degradation Performance of Crude Glycerol and Date Seeds Blends Using Thermogravimetric Analysis (TGA)

Salah Al Omari, Mohamed Y. E. Selim, Abdallah Ghazal, Hanaa A. E. Abdelrahim, Mahmoud Syam and Rahma Al Najjar

S3D1T7C: Energy and Environment 3

Room: E1-1038

Session chairs: Fadi Ghaith

Important Solar Parameters in Installing Solar Cells Case study of Zanjan city in Iran

Amiraddin Mousavi, Seyed Rasoul Safavi, Ali Naderloo, Hadi Shahmohammadi, Pezhman Tashakkori and Rasoul Abdollahi Shamsigour

Performance and Feasibility of Using An Integrated Solar Powered Desalination System in United Arab Emirates

Fadi Ghaith and Haam Mehmood

Power-dependent Photoluminescence in Strained InxGa1-xN/GaN Multiple-Quantum Wells: Simulations of Alloying and Interface Effects

Naci Tüt

Tuesday, February 27

Tuesday, February 27, 09:00 - 10:00

KN 2: Energy Storage for Smart Grid Applications

Said Al-Hallaj, PhD

Room: Auditorium

Chair: Emad Elnajjar

Tuesday, February 27, 11:00 - 12:40

S1D2T1A: Green Technology 1

Solar, Wind and Electric Vehicles

Room: E1-1028

Session chairs: Addy Wahyudie

Maximising Absorbed Energy using Neuro-Adaptive Controller for Heaving Point Absorbers

Muhammad Saleheen Afrah and Addy Wahyudie

On Enhancing Power Conversion for Heaving Point Absorbers with Intelligent Neuro-Adaptive Controller

Muhammad Saleheen Afrah and Addy Wahyudie

Control Force Limitation in Wave Energy Converter using Neuro-Adaptive Hierarchical Control Scheme

Muhammad Saleheen Afrah and Addy Wahyudie

Stability Analysis of Second-Generation High-Temperature Superconductor According to Stabilizer Thickness

Huu Luong Quach, Ji Hyung Kim, Chang Ju Hyeon and Ho Min Kim

S2D2T4A: Nano Environmental Technologies 1

Room: E1-1036

Session chairs: M-Ali AL-Akhras

Combined Electrochemical/Chemical Bath Deposited Metal Selenide Nano-film Electrodes with High Photo-electrochemical Characteristics

Hikmat Hilal, D. Sc., Abed Zyoud, Khaled Murtada, Nour AbdulRahman, Mohammed Helal, Naser Qamhihi and Abdulrazak Hajimohideen

Comparison between TiO₂ and ZnO catalysts in photo-degrading aqueous paracetamol contaminant with solar simulated light

Abed Zyoud

Investigation of optical and structural properties of Cu₂CdSnS₄ quaternary alloy nanostructures deposited on GaN for solar cell application

Ali Abu Dileh, Yaruab Al-Douri and Waleed K. Ahmed

Tuning of the optical band-gap of rare earth doped BiFeO₃ submicron particles for solar cell applications

Chiranjib Nayek, M-Ali AL-Akhras and Hiba Obaidat

Linear Angstrom model applied to weather data collected for the city of Sharjah

AbdulHai Alami, Zhang Di, Muhammad Tawalbeh, Kamilia Aokal, Lamiaa Elsherbiny, Zena Yasser and Areej Abdelghani

S3D2T8: Energy Storage towards Sustainable Cities and Buildings

Room: E1-1038

Session chairs: Fadi Al Naimat

Controlled Active Thermal Storage in Smart PCM Walls for Energy Independent Building Applications

[Richard Wegmüller](#), [Gabriel Magnin](#), [Jacques Robadey](#) and [Elena-Lavinia Niederhäuser](#)

Optimized-GA Fuzzy Logic-based Self-tuning PID Controller in Multi-Source Multi-Area Power Systems for Load Frequency Control

[Davar Mirabbasi](#)

Effect of the PV Position and Orientation on Energy Consumption in a Facility

[Rania Elghamry](#)

The Effect of Incorporating Microencapsulated Phase Change Materials (PCMs) in Brick Sandwiched Walls in Reducing the Thermal Insulation Thickness for Hot Climates

[Abdallah Ghazal](#), [Fadi Al Naimat](#), [Bobby Mathew](#) and [Yousef Zurigat](#)

Enhancement of Concentrated photovoltaic cooling using Phase change material by adding a bulk over regular configuration

[Ramy Rabie](#), [Hamdy Hassan](#), [Shinichi Onkawara](#) and [Mahmoud Ahmed](#)

Tuesday, February 27, 14:30 - 15:50

S1D2T1B: Green Technology 2
Solar, Wind and Electric Vehicles
Room: E1-1028
Session chairs: Addy Wahyudie

Study on EV charging infrastructure in Jeju island

[Hyung-Joon Yang](#), [Jae-won Jung](#), [Ankhzaya Baatarbileg](#), [Kyu-ho Park](#), [Gae-myoung Lee](#) and [Tae-hyung Kim](#)

Effects of Electricity pricing system on EV charging in Jeju island

[Jae-won Jung](#), [Ankhzaya Baatarbileg](#), [Gae-myoung Lee](#), [Seong-Bo Oh](#) and [Hyuk-joo Ko](#)

Distributed Maximum Power Point Tracking (MPPT) for Photovoltaic Systems in Mismatching Condition

[Fahad Althobaiti](#) and [Dhafer Al-Makhles](#)

A Plasmonic Nanoantenna Array for Solar Energy Applications

[Mousa Hussein](#), [Syed Jehangir](#), [Tri B. Susilo](#) and [Addy Wahyudie](#)

S2D2T4B: Nano Environmental Technologies 2
Room: E1-1036
Session chairs: AbdulHai Alami

Efficiency and high-temperature response of dye-sensitized solar cells using natural dyes extracted from Calotropis

[Zhang Di](#), [AbdulHai Alami](#), [Muhammad Tawalbeh](#), [Kamilia Aokol](#), [Alya Alhammadi](#), [Aya Taieb](#) and [Reinad Abu Rahab](#)

Investigating the effect of nanofluid on optimal design of Solar Flat Plate Collector

[Hassan Hajabdollahi](#)

Graphene Oxide - Nafion composite membrane for effective methanol crossover reduction in passive direct methanol fuel cells

[Muhammad Tawalbeh](#), [Amani Al-Othman](#) and [Mamdouh Assad](#)

Thermal Efficiency of a Direct Absorption Solar Collector Using Magnetic Nanofluids

[Sawsan Dagher](#), [Ali Hlail-Alnaqbi](#), [Nadir Titi](#), [Saad Khashan](#), [Fadi Al Naimat](#) and [Bobby Mathew](#)

Tuesday, February 27, 14:30 - 15:30

S3D2T10A: Green Buildings 1
Room: E1-1038
Session chairs: Mohammad Hamdan

Green Building Using Nano Materials for High Performance Cement Mortar Composite

[Wail Al-Rifaie](#), [Omar Mahdi](#) and [Waleed K. Ahmed](#)

Tapping to Geothermal Energy through a High Performance Earth-to-Water Heat Exchanger Design

[Mohammad D. Hamdan](#)

Evaluation of the daylighting performance in UAE traditional buildings turned into museums

[Khaled Al-Sailal](#) and [Amira AbouElhamd](#)

Analysis of Energy Reduction through HVAC Commissioning: A Case Study of a LEED Certified New Building

[Young Ki Kim](#) and [Hasim Altan](#)

Tuesday, February 27, 16:30 - 17:30

S1D2T1C: Green Technology 3
Solar, Wind and Electric Vehicles
Room: E1-1028
Session chairs: S Sherif

Design of A Laboratory Scale Linear Hydraulic Wave Energy Converter
[Addy Wahyudie and Tri B. Susilo](#)
Design of A 100 W Mini Permanent Magnet Linear Generator for Wave Energy Converter System
[Addy Wahyudie, Tri B. Susilo and Syed Jahangir](#)

Tuesday, February 27, 16:30 - 17:50

S2D2T4C: Nano Environmental Technologies 3
Room: E1-1036
Session chairs: Nacir Tit

Experimental and numerical study on heat transfer enhancement of concentric tube heat exchanger using water based nanofluids
[Tareq Sulameti, Muhammad Tawalbeh and Mamdouh Assad](#)
Selective Adsorption of H₂ on N-doped ZnO Nano-ribbons: First-Principle Analysis
[Wael Othman, Alaa Shaheen, Younes Aitladi, Sultan Atatri, Yahya Abdelhadi, Golibjon Berdiyev and Nacir Tit](#)

Tuesday, February 27, 16:30 - 17:30

S3D2T10B: Green Buildings 2
Room: E1-1038
Session chairs: Hamza Mukhtar

Retrofit Evaluation of a Residential Building in UAE: Energy Efficiency and Renewable Energy
[Boshra Akhezhaya, Rahma Abdelghani, Kheira Anissa Tabet Aoul and Monaya Syam](#)
Dynamic Performance of Solar Powered Vapor Absorption Cooling System in Dhahran - Saudi Arabia
[Hamza Mukhtar and Syed Said](#)
Energy Storage Technologies and Projections of Grid Parity: A Case Study of Singapore
[Dina Azhgaliyeva](#)

Wednesday, February 28

Wednesday, February 28, 10:00 - 12:00

S1D3T5A: Sustainable Energy Policies 1

Room: E1-1038

Session chairs: Adeleh Ashraf hesari

Modeling of solar thermal cooling system in Hatta-Dubai

[Mohammad Almahmood and Ayman Odch](#)

Combined heat and power economic dispatch problem using Three different evolutionary algorithms

[Adeleh Ashraf Hesari](#)

A numerical study on the effect of the heat sink as condenser on the performance of passive solar still

[Ayman Refat Abd Elbar, Hamdy Hassan and Shunichi Ootawara](#)

Clean Energy for Future Energy Policy in Turkey

[Ibrahim Yuksek, Hasan Arman and Ibrahim Halil Demirel](#)

Correlated Capacity Factor Strategy for Yield Maximization of Wind Turbine Energy

[Ayman Al-Quraan](#)

Differences in Locational Marginal Prices: Deterministic vs. Stochastic Market Formulations

[Yousef Al-Abdullah and Mostafa Sahraei-ardakani](#)

S2D3T6: Green Economy

Room: E1-1036

Session chairs: Issah Alhamad

An overview of people's behavior towards water saving policies at Abu Dhabi Emirate

[Issah M. Alhamad](#)

Renewable Energy Management: Technical and Economic Evaluation of an Optimized Photovoltaic System

[Hamed Allaham, Abdul-Kadir Hamid and Ali Chenitou](#)

Optimizing the production of ammonia as an energy carrier in the UAE

[Ola Osman and Sgouris Sgouridis](#)

The Feasibility of Applying Effluent Taxation in Abu Dhabi Residential Sector

[Issah M. Alhamad](#)

S3D3T9A: Smart and Green Grid Technology 1

Room: E1-1028

Session chairs: Hafiz Ashraf

Re-energizing of single phase by Protective scheme of parallel bi-Transmission Lines Using Fuzzy Logic Technique

Hafiz Ashraf

Operation of DC Series Connected Offshore Wind Farm by Using Tap Changing Transformer with MMC-HVDC

Ei Hoon Kim, Mink Hyeok Kang, Jin Hong Ahn, Sang Heon Chae and Eel-Hwan Kim

Future Load Profiles Under Scenarios of Increasing Renewable Generation and Electric Transport

Michael Allison, Emmanuel Akakabeta and Gebind Pillai

A study into the efficiency of embedded solar photovoltaic cells in double roman shaped roof tiles

Raul Ferreira, Andre Nel and Nickey Janse van Rensburg

Investigation on the Performance of PV-UPQC under distorted current and voltage conditions

Santanu Kumar Dash and Pravat Ray

Performance of Virtual Synchronous Machine in Autonomous Mode of Operation

Tunati Vijay Kumar, Vinu Thomas, Kumaravel S and Ashok S

Wednesday, February 28, 14:30 - 15:30

S1D3T5B: Sustainable Energy Policies 2

Room: E1-1038

Session chairs: Hasan Arman

Predictive Energy Management in large-Scale Grid Connected PV-Batteries System

Sumayya Almazrouei, Abdul-Kadir Hamid and Mohammad Shamsuzzaman

Water Resources Planning Hydropower for Sustainable and Green Energy in Turkey

Ibrahim Yuksek, Hasan Arman and Ibrahim Halil Demirel

S3D3T9B: Smart and Green Grid Technology 2

Room: E1-1028

Session chairs: Falah Awwad

parameter optimization of simple PEMFC model using Backtracking Search Algorithm

Saad Khan, Muhammad Awaiz Rafiq, Hussain Shareef and Muhammad Sultan

Review of Real-Time Load of H.A Fibers® Grid with Distributed Fuel Cells Renewable Generation Unit

Muhammad Sheikh, Muhammad Ramzan, Saad Khan and Imad Barhumi

A DQ Droop Control Strategy for Fixed Frequency VSI-Based AC Microgrids

Mohamed Toub, Wayne Weaver, Rosh Robinett, Mohamed Maaroufi and Ghassane Aniba