The 5th International Conference on Renewable Energy Generation and Applications

ICREGA 2018

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**

<table>
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<tr>
<th>Day</th>
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<td><strong>Monday, February 26</strong></td>
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<tr>
<td>8:00 am</td>
<td><strong>On-site registration (8:00 am-12:00 pm)</strong></td>
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<tr>
<td>9:30 am -9:45 am</td>
<td><strong>Inauguration</strong></td>
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<tr>
<td>9:45 am-10:00 am</td>
<td>IEEE Speech <em>Dr. Issa Bastaki</em></td>
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<tr>
<td>10:00 am-11:00 am</td>
<td><strong>KN 1: Leveraging the energy transition: Opportunities for mobility, grid, and decarbonization, Dr. Elizabeth A. Kócs, P</strong></td>
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<td>11:00 am-11:15 am</td>
<td>Coffee Break</td>
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<tr>
<td>11:15 am-12:55 pm</td>
<td><strong>S1D1T1A: Green Technology 1</strong></td>
<td><strong>S2D1T3: Bioenergy</strong></td>
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<td>1:00 pm-2:00 pm</td>
<td>Lunch Break</td>
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<td>2:30 pm-3:50 pm</td>
<td><strong>S1D1T1B: Green Technology 2</strong></td>
<td><strong>S2D1T2A: Biofuels and Gasification 1</strong></td>
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<td>4:00 pm-4:30 pm</td>
<td>Coffee Break</td>
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<td>4:30 pm-5:50 pm</td>
<td><strong>S1D1T1C: Green Technology 3</strong></td>
<td><strong>S2D1T2B: Biofuels and Gasification 2</strong></td>
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<td><strong>Banquet Dinner (Transportation between hotel to banquet site will be provided)</strong></td>
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Monday, February 26

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

**KN 1: Leveraging the energy transition: Opportunities for mobility, grid, and decarbonization**
Elizabeth A. Kocs, 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: Razzakul Ahshan

- Wind Farm Performance Forecasting with consideration for wind speed fluctuations
  Matthias Heiss and Sara Farghaly
- A Low Cost Method to Convert Automotive Alternator for Wind Electricity Generation
  Toon Van Daele, Siemon Delhaeze, Eddy Waelkens, Quentin Spee and Zekir Caner
- Distributed Wind Systems for Moderate Wind Speed Sites
  Razzakul Ahshan, Mohammad Shams, Kheireddine Houssem and Abdullah Al-Badi
- Analysis of the Wind Power Generation in Mongolian Central Power System
  Abdulwad Batarbileg, Bawargan Dugarjav and Gae-myung Lee
- High correlation models for small scale Magnus wind turbines
  Gustavo Richmond-Navarro, Noel Gryba-Kand 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
  Mohammed Mahmoud Ali,知名度 unknown and Adnan Aziz
- Fabrication, analysis and characterization of CCTS based device using interdigitated electrodes for Bioenergy applications
  Alh Abu Odeh, Yavme Al-Samit and Maklad K. Ahmed
- Modeling and Optimization of Biodiesel Production from Chlorella Vulgaris in a Batch Reactor
  Shahin Mohseni and Mohammad Tglahat
- Blue Laser Excitation of Electrons within the Pathway between Photosystem II and I for Growth Enhancement of Chlamydomonas Reinhardtii Algae
  Sadik Ansari, Wasimshaib Kalschandran, Donald Hocke and Faisal Gaur
The impacts of sustainability on society
Thiago Matheus Martins de Moraes, Lucas de Paula Sousa Frey, Felipe Fernandes Jacinthe, Rubens Antor De Barros and José Feliciano Andrade

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

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

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

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

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

Contribution of large scale PV plants to electric power during winter peak times in Jeju island
Jae-hee Kim, Heun-tong Yang, Su-young Ko, Anhyeong Baek, Dong-Ryung Seo, Seung-Do Oh and Hyeong-Young Lee

A Case Study - Solar Powered Metro in UAE
Kohyou Nishimura, Tetsuya Nakamura, Atsuo Ohira, Satoru Kato and Kiyoshi Arai

Modelling-assisted Solar Pond Design and Development for Masdar City Environment
Khadije El Kadi and Isam Janajreh

Regional generation characteristics of MV photovoltaic power plants in Jeju island
Sae-woong Kang, Hyeon-jeong Kim, Annyeong Baek, Dong-Ryung Seo, Seung-Do Oh and Seung-bum Kim

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 Ghenai, Farrukh Jamil, Alya Alobaidli, Hiba Bawazir and Noura Ali

Utilizing Recycled Prepreg Carbon Fiber and Date Pit Powder for Detoxification
Ameereh 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 Yared Ndiaye, Philippe Bernard Himbane, Aissata Mame Doumbia and Diouma Kobor

A System Dynamic Based DSS for Ecological Urban Management in Alexandria, Egypt: Urban Metabolism Approach
Mona Salem, Khalid Al-Hagla and Hany Aya

Thermodynamic Analysis of Lithium Bromide Absorption Chiller Driven by Geothermal Energy
Mamdouh Assad, Muhammad Tawalbeh, Tareq Salameh and Amani 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
Chaouki Ghenai, Maamar Bettayeb and Boris Brjanin

Performance of Concentrated Solar Collectors: Studying the absorber pipe outlet temperature variations
Mohamed Ziauddin, Fadi Al Naimat, Bobby Mathew, Tariq Darabseh and Emad 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. 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
**Session chairs: Fadi Ghaith**

Important Solar Parameters in Installing Solar Cells Case study of Zanjan city in Iran  
Amidedin Mousavi, Seyed Rasoul Safavi, Ali Naderloo, Hadi Shahmohammadi, Pezhman Tashakkori and Rasoul Abdollahi Shamipour

Performance and Feasibility of Using An Integrated Solar Powered Desalination System in United Arab Emirates  
Fadi Ghaith and Ilham Mehmood

Power-dependent Photoluminescence in Strained InxGa1-xN/GaN Multiple-Quantum Wells: Simulations of Alloying and Interface Effects  
Nacir Tit
Tuesday, February 27

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

KN 2: Energy Storage for Smart Grid Applications
Said Al-Halaj, 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
Mohammad Saleheen Aftab and Addy Wahyudie
On Enhancing Power Conversion for Heaving Point Absorbers with Intelligent Neuro-Adaptive Controller
Mohammad Saleheen Aftab and Addy Wahyudie
Control Force Limitation in Wave Energy Converter using Neuro-Adaptive Hierarchical Control Scheme
Mohammad Saleheen Aftab and Addy Wahyudie
Stability Analysis of Second-Generation High-Temperature Superconductor According to Stabilizer Thickness
Huu Luong Quach, E Hyeong Kim, Chang In Hyeon and He 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., Ahmed Zeen, Elshed Momtaza, Noor Alzahab, Mohamad Arrieh, Saeed Bakhshieh and Noor Luqmane
Comparison between TiO2 and ZnO catalysts in photo-degrading aqueous paracetamol contaminant with solar simulated light
Abdel Zeen
Investigation of optical and structural properties of Cu2Ga3S5 quatemary alloy nanostructures deposited on GaN for solar cell application
Ali Abu Odeh, Yarub 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 Ihab Obaidat
Linear Angstrom model applied to weather data collected for the city of Sharjah
Abdelhai 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 Wegmueller, 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 Ookawara 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

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

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, Mohammad Tawalbeh, Kamilia Aokal, Ayat Alhammadi, Aya Taieb and Reinad Abu Rabah

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

Graphene Oxide - Nafion composite membrane for effective methanol crossover reduction in passive direct methanol fuel cells
Muhammad Tawalbeh, Ahmad Al-Ghunaim and Mohammad Alawad

Thermal Efficiency of a Direct Absorption Solar Collector Using Magnetic Nanofluids
Sawsan Dagher, Ali Hilal-Alnaqbi, Nacir Tit, Saud 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 G. Hamdan

Evaluation of the daylighting performance in UAE traditional buildings turned into museums
Khaled Al-Sallal and Amna Almouelhan

Analysis of Energy Reduction through HVAC Commissioning: A Case Study of a LEED Certified New Building
Young Ki Kim and Bostin Al-Ahmad
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 Jehangir

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 Salameh, Mohammad Towelfik and Mamdouh Assad
Selective Adsorption of H2 on N-doped ZnO Nano-ribbons: First-Principle Analysis
Wael Othman, Shaz Shehaw, Younes Aitlaadi, Sultan Atatri, Yahya Abdelhadi, Goljihona Erdjigor and Nacir Tit

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

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

Bodira Alshobuya, Rubina Bilegjeelene, Malea Almess Tiltat Soud and Monaya Syam
Dynamic Performance of Solar Powered Vapor Absorption Cooling System in Dhahran - Saudi Arabia
Hamza Mukhtar and Soud Soud
Energy Storage Technologies and Projections of Grid Parity: A Case Study of Singapore
Dina Ashgaliyeva
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 Odeh
- 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 Shinichi Ookawara
- Clean Energy for Future Energy Policy in Turkey  
  Issah M. Alhamad, Hassan Arman and Gregoire Guile Demarest
- 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 Sabraei-ardebil

**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 Alhamad
  Hamed Allaham, Abdul-Kadir Hamid and Ali Cheaitou
- 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

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

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

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

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

Performance of Virtual Synchronous Machine in Autonomous Mode of Operation

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

Water Resources Planning Hydropower for Sustainable and Green Energy in Turkey

S3D3T9B: Smart and Green Grid Technology 2
Room: E1-1028
Session chairs: Falah Awwad

parameter optimization of simple PEMFC model using Backtracking Search Algorithm

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

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

Hasan Arman, Emmanuel Adeleke, and Faizal Hadi

Michael Allison, Emmanuel Adeleke, and Faizal Hadi

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

Raul Ferreira, Andre Nel, and Nickey Janse van Rensburg

Santanu Kumar Dash and Pravat Ray

Sumayya Almazrouei, Abdul-Kadir Hamid, and Mohammad Shamsuzzaman

Ibrahim Yuksel, Hasan Arman, and Ibrahim Halil Demirel

Muhammad Sheikh, Muhammad Ramzan, Saad Khan, and Imad Barhumi

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