



## 4<sup>th</sup> International Conference on Electrical, Communication and Computer Engineering (ICECCE 2023)

30-31 December 2023

Dubai / UAE

<http://www.icecce.com>

### CONFERENCE PROGRAM BOOKLET

IEEE Conference Record No: 61019



**Warning:** All timings in the program are as per UAE  
Time (GMT+4)

Convert your local presentation time from  
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## 30 December 2023

|                    | <b>ROOM A<br/>(Physical)</b>                                                                                         | <b>ROOM B<br/>(Physical)</b>                                                              | <b>ROOM C<br/>(Virtual)</b>                                                             |
|--------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>08.30-09.30</b> | <b>Arrival of Participants/Guests</b>                                                                                |                                                                                           |                                                                                         |
| <b>09.30-09.35</b> | <b>Welcoming Remarks by Conference Chairs</b>                                                                        |                                                                                           |                                                                                         |
| <b>09.35-09.50</b> | <b>Opening Remarks by VC/Dean, UoB, ADU</b>                                                                          |                                                                                           |                                                                                         |
| <b>09.50-10.00</b> | <b>Montage/Promo Video, Souvenir Distribution, Group Photography Session</b>                                         |                                                                                           |                                                                                         |
| <b>10.00-10.30</b> | <b>Plenary Session 1: Keynote Speaker</b>                                                                            |                                                                                           |                                                                                         |
| <b>10.30-11.30</b> | <b>Parallel Session 1A:</b> Software Engineering - Information and Network Security (4)                              | <b>Parallel Session 1B:</b> Alternate Energy Systems, Smart Grids & Energy Management (5) | <b>Parallel Session 1C:</b> Modern Communication - Antenna & Wave Propagation (4)       |
| <b>11.30-11.45</b> | <b>Tea Break</b>                                                                                                     |                                                                                           |                                                                                         |
| <b>11.45-12.15</b> | <b>Plenary Session 2: Keynote Speaker</b>                                                                            |                                                                                           |                                                                                         |
| <b>12.15-13.15</b> | <b>Parallel Session 2A:</b> Modern Communication - Antenna & Wave Propagation - Biomedical Engineering & Systems (4) | <b>Parallel Session 2B:</b> Alternate Energy Systems, Smart Grids & Energy Management (5) | <b>Parallel Session 2C:</b> Software Engineering - Information and Network Security (4) |
| <b>13.15-13.45</b> | <b>Conference Lunch</b>                                                                                              |                                                                                           |                                                                                         |
| <b>13.45-15.15</b> | <b>Parallel Session 3A:</b> AI, NN, Robotics and Automation (6)                                                      | <b>Parallel Session 3B:</b> Mixed Topics (5)                                              | <b>Parallel Session 3C:</b> Software Engineering - Information and Network Security (6) |
| <b>15.15-15.30</b> | <b>Tea Break</b>                                                                                                     |                                                                                           |                                                                                         |
| <b>15.30-17.00</b> | <b>Parallel Session 4A:</b> AI, NN, Robotics and Automation (5)                                                      | <b>Parallel Session 4B:</b> AI, NN, Robotics and Automation - Mixed Topics (6)            | <b>Parallel Session 4C:</b> Modern Communication - Antenna & Wave Propagation (6)       |

|                    | <b>ROOM A<br/>(Virtual)</b>                                     | <b>ROOM B<br/>(Virtual)</b>                                                               | <b>ROOM C<br/>(Virtual)</b>                                                               |
|--------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>17.00-18.45</b> | <b>Parallel Session 5A:</b> AI, NN, Robotics and Automation (6) | <b>Parallel Session 5B:</b> Alternate Energy Systems, Smart Grids & Energy Management (7) | <b>Parallel Session 5C:</b> Alternate Energy Systems, Smart Grids & Energy Management (6) |

## 31 December 2023

|             | ROOM A<br>(Virtual)                                                                        | ROOM B<br>(Virtual)                                             | ROOM C<br>(Virtual)                                                                                       |
|-------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 09.00-09.30 | <b>Plenary Session 3:<br/>Keynote Speaker</b>                                              |                                                                 |                                                                                                           |
| 09.30-11.00 | <b>Parallel Session 6A:</b> AI, NN, Robotics and Automation (6)                            | <b>Parallel Session 6B:</b> Mixed Topics (7)                    | <b>Parallel Session 6C:</b> Mixed Topics (6)                                                              |
| 11.00-11.15 | <b>Tea Break</b>                                                                           |                                                                 |                                                                                                           |
| 11.15-11.45 | <b>Plenary Session 4:<br/>Keynote Speaker</b>                                              |                                                                 |                                                                                                           |
| 11.45-13.30 | <b>Parallel Session 7A:</b> AI, NN, Robotics and Automation (7)                            | <b>Parallel Session 7B:</b> AI, NN, Robotics and Automation (7) | <b>Parallel Session 7C:</b> Signal and Image Processing Techniques - Biomedical Engineering & Systems (7) |
| 13.30-13.45 | <b>Tea Break</b>                                                                           |                                                                 |                                                                                                           |
| 13.45-15.00 | <b>Parallel Session 8A:</b> Mixed Topics - Education & Technologies (E-learning) (5)       | <b>Parallel Session 8B:</b> AI-Mixed Topics (5)                 | <b>Parallel Session 8C:</b> AI, NN, Robotics and Automation - Mixed Topics (5)                            |
| 15.00-15.30 | <b>Closing Session:</b><br>Best Paper Announcement<br>Closing Remarks by Conference Chairs |                                                                 |                                                                                                           |

**30 December 2023**

**PLENARY SESSION 00**

**Session 00: Opening Session**

**Room A**

**09:30-10:00**

**Welcoming Remarks by Conference Chairs  
Opening Remarks by VC/Dean, UoB, ADU  
Montage/Promo Video, Souvenir Distribution, Group Photography Session**

**PLENARY SESSION 1**

**Plenary Session 1: Keynote Speaker**

**Room A**

**10:00-10:30**

**Assoc. Prof. Dr. Shehzad  
Ashraf Chaudhry**

*Title: TBD*

**PARALLEL SESSIONS 1**

**Parallel Session 1A: Software Engineering - Information and Network Security**

**Room A**

**10:30-11:30**

**Shadi Attala**, Mohamed Zemmouri, Fatma Zohra Laalam, Okba Kazar, Yassine Himeur, Adel Oulefki, Chahrazad Toumi, Wathiq Mansoor

**-239-** Seamless Decision-Making in the Big Data Era: A Modular Approach to Integrating IoT, Cloud Computing, and Data

**Youngmi Baek**, Seo-Hee Park

**-248-** CADS: Cyber-Attack Detection System Using Decision Tree for Automotive Cyber-Physical Systems

**Lara Schweickart**, Christina Erler, Jens Juhl, Christoph Zimmermann, Wilhelm Stork

**-277-** User-centered representation of data flows in mHealth applications

**Modafar Ati**

**-287-** Implementation of Quantum Cryptography for Securing IoT Devices

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 1B: Alternate Energy Systems, Smart Grids & Energy Management  
Room B**

|             |                                                                                                         |                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 10:30-11:30 | <b>Miloud Benmedjahed</b> ,<br>Abdeldjalil Dahbi,<br>Abderrahmnane Khelfaoui,<br>Samir Mouhadjer        | <b>-49-</b> Statical traitment of wind potential at two sites in Adrar region (Southern Algeria)                |
|             | <b>S B Abrish Aaditya</b> ,<br>Swapnendu Chakrabarti, P B<br>Karandikar                                 | <b>-62-</b> Enhancement of Charge Storage of Supercapacitor using Parametric Variations                         |
|             | <b>Yomna Shaker</b> , Mohamed<br>Nasef, Matar Khalifa, Mohamed<br>Eyad                                  | <b>-124-</b> Design and implementation of single phase GaN Half bridge inverter for photovoltaic system         |
|             | <b>Yomna Shaker</b> , Zain Elabdin<br>Ahmed, Mabdulaziz Khameis<br>Alhefaity, Hamdan Hamad<br>Alkalbani | <b>-125-</b> Investigation of Wireless Power Transfer based on the Photovoltaic System                          |
|             | Sinethemba Neku, <b>Sandile<br/>Phillip Koko</b>                                                        | <b>-141-</b> Impact of a Weak Grid-network on a Grid-tied Solar Photovoltaic System Supplying a Non-linear Load |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 1C: Modern Communication - Antenna & Wave Propagation**

**Room C**

|                    |                                                                                                                                                                   |                                                                                                                          |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>10:30-11:30</b> | <b>Abdul Basit</b> , M. Zubair Ajmal, Amil Daraz, Chaman Ali, Saad Ashhad, Guoqiang Zhang                                                                         | <b>-21-</b> Miniturized Ultra Wideband Filter with Three Stopbands for Wireless Applications                             |
|                    | <b>Edom Wondimu Tadesse</b> , Pushparaghavan Annamalai, Fikreselam Gared Mengistu                                                                                 | <b>-27-</b> New Radio Polar Coding Performance Enhancement Study Using QAM and APSK Modulation Scheme for 6G             |
|                    | <b>Hongyang Su</b> , Shuang Li, Wei Ge, Guangping Zhu, and Jingwei Yin                                                                                            | <b>-129-</b> Performance Evaluation of Low-complexity Distributed MU-MIMO Beamforming Techniques for Underwater Acoustic |
|                    | <b>Piero Alarcón</b> , Carlos Roberto Galvez Rodriguez, Santos Esdrugar Retete Cruz, Jose Alfredo Silvestre Mamani, Alfredo Ruiz Flores, Homar Segura, Diego Arce | <b>-154-</b> QHISPIKAY: MILITARY RADIO EQUIPMENT DEFINED BY SOFTWARE IN THE UHF BAND FOR THE PERUVIAN ARMY               |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



## PLENARY SESSION 2

### Plenary Session 2: Keynote Speaker

Room A

|             |                                        |                                                                     |
|-------------|----------------------------------------|---------------------------------------------------------------------|
| 11.45-12.15 | <b>Assoc. Prof. Dr. Syed Aziz Shah</b> | <i>Title: Contactless RF Sensing for Physiological Measurements</i> |
|-------------|----------------------------------------|---------------------------------------------------------------------|

## PARALLEL SESSIONS 2

### Parallel Session 2A: Modern Communication - Antenna & Wave Propagation - Biomedical Engineering & Systems

Room A

|             |                                                                                                                             |                                                                                                                                                  |
|-------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 12.15-13.15 | <b>Cristhian Manuel Durán Acevedo</b> , Jeniffer katerine Carrillo Gomez, Carlos Cuastumal Vasquez, Oscar Gualdron Guerrero | <b>-100-</b> A Rapid and Simple Method for Prostate Cancer Detection Using an Electronic Tongue from Patients in Urine Samples                   |
|             | <b>Quazi D. M. Khosru</b> , Md. Ashaduzzaman Niloy                                                                          | <b>-241-</b> Transmission Loss Reduction in 60 degree Bended Photonic Crystal Waveguide using Polynomial Regression based Machine Learning Model |
|             | <b>Solly S. Manamela</b> , Jacques E. Cilliers, Yunus Abdul Gaffar                                                          | <b>-300-</b> Vegetation Path Loss Modeling Using a Modified Parabolic Equation Toolbox                                                           |
|             | <b>Rayan Hamza Alsisi</b> , Arshad Karimbu Vallappil                                                                        | <b>-327-</b> Metamaterial-Inspired Antenna Array for Next-Generation 5G Wireless Systems and Its Applications                                    |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 2B: Alternate Energy Systems, Smart Grids & Energy Management  
Room B**

|             |                                                                                      |                                                                                                                  |
|-------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 12.15-13.15 | <b>Elias Kosmatopoulos,</b> Christos Tsaknakis, Christos Korkas, Iakovos Michailidis | <b>-128-</b> Multi-Agent RL Framework for EV Charging Scheduling Driven by Energy Costs and User Preferences     |
|             | <b>T Moseithe,</b> L Ramdari, AA Yusuff                                              | <b>-131-</b> Towards more reliable community load profiling for future renewable energy projects                 |
|             | <b>Tao Xue,</b> Ulas Karaagac, Ilhan Kocar, Lijun Cai                                | <b>-148-</b> Reader's Guide to Sub-Synchronous Interactions in DFIG-based Wind Parks                             |
|             | <b>Omar Turath Tawfeeq,</b> Myasar Salim Alattar                                     | <b>-202-</b> Filter Design for harmonics reduction in multi phases system rectifier driving dc motor             |
|             | <b>Paul C. Okonkwo,</b> Fadhil Al Housni, El Manaa Abarhoumi                         | <b>-176-</b> Feasibility analysis of utilizing renewable energy supply option for a large hotel in Salalah, Oman |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**





**Parallel Session 2C: Software Engineering - Information and Network Security**

**Room C**

|                    |                                                                                   |                                                                                                                                      |
|--------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>12.15-13.15</b> | <b>Sowparnika Nair</b> , Suni Vasudevan, Shynu S. V.                              | <b>-85-</b> Factorial Algorithms for Efficient Big Data Computing in AI and ML Models and their Implementation in Python             |
|                    | <b>Ernesto A. Villegas-Jiménez</b> , Jorge Díaz-Salgado, Fernando Macedo-Chagolla | <b>-156-</b> Computational Analysis of a Serpentine Pulley-Belt System                                                               |
|                    | <b>Emin Huseynov</b>                                                              | <b>-167-</b> Phishing Windows Login Credentials Using HTML Full-page Technique                                                       |
|                    | <b>Daniel Mashao</b> , Ayorinde Olanipekun, Johannesburg                          | <b>-182-</b> HardnessTesterV: A Web Machine Learning application for Vickers Hardness Prediction of a Metallic Alloy Using Flask API |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



## PARALLEL SESSIONS 3

### Parallel Session 3A: AI, NN, Robotics and Automation

#### Room A

|                    |                                                                                                    |                                                                                                         |
|--------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>13.45-15.15</b> | <b>Goran Vasiljevic</b> , Marijana Peti, Robert Milijas, Dario Stuhne, Zdenko Kovacic, Marko Mader | <b>-133-</b> Control System for an Automated Electric Street Sweeper Cleaning System                    |
|                    | <b>Robert Milijas</b> , Marijana Peti, Dario Stuhne, Goran Vasiljevic, Zdenko Kovacic, Marko Mader | <b>-134-</b> Towards an Environmentally-friendly Street Sweeping Vehicle with Reduced Water Consumption |
|                    | <b>Goran Vasiljevic</b> , Marijana Peti, Robert Milijas, Dario Stuhne, Zdenko Kovacic, Marko Mader | <b>-137-</b> Hardware-in-the-Loop System of the Autonomous Municipal Cleaning Vehicle                   |
|                    | <b>Tao Xue</b> , Ulas Karaagac, Ilhan Kocar, Masoud Babaei Vavdareh, Mohsen Ghafouri               | <b>-144-</b> Machine Learning Basics and Potential Applications in Power System                         |
|                    | <b>Rajalakshmi V</b> , Rakshith Raj V S, Nirupama R, Nithish Kumar B, Yuvan Kalyan C V             | <b>-153-</b> Gender and Race Recognition System with Age Estimation using Convolutional Neural Network  |

#### BREAKFAST / LUNCH / DINNER/TEA BREAK



**Parallel Session 3B: Mixed Topics**

**Room B**

|                    |                                                                                                                    |                                                                                                                                                             |
|--------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>13.45-15.15</b> | <b>Leonidas ANTHOPOULOS</b> ,<br>Christos ZIOZIAS, Antonis<br>TSAGALIS                                             | <b>-57-</b> Digital Transformation Strategic Changes<br>During the Covid-19 Pandemic: findings from<br>Bibliometric Analysis and Smart City<br>Perspectives |
|                    | <b>Motlatsi Cletus Lehloka</b>                                                                                     | <b>-68-</b> Modelling and Statical Analysis of Fixed<br>and Tracking Photovoltaic modules in the<br>Highveld of South Africa                                |
|                    | <b>AA Yusuff</b> , T Mosetlhe                                                                                      | <b>-89-</b> Comparative analysis of CO2 emission in<br>Egypt, Kenya, Nigeria and South Africa                                                               |
|                    | <b>Salah-ud-din Khokhar</b> , Rana<br>Sohaib, Abdul Muneeb, Irfana<br>Bibi, Muhammad Yasir Noor,<br>Muhammad Imran | <b>-135-</b> Automated Door to Prevent COVID-19<br>using Fuzzy Logic                                                                                        |
|                    | <b>Fatima Almutairi</b> , Reem<br>Almutairi                                                                        | <b>-116-</b> Optimal Design of a Bandstop Filter<br>Through Advanced Compact Model and<br>Lagrange Method                                                   |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 3C: Software Engineering - Information and Network Security**  
**Room C**

|             |                                                                                                                                     |                                                                                                                                                                    |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13.45-15.15 | <b>Obada Haitham Salman,</b><br>Moatsum Alawida, Raneem<br>Mohammad Abu Hazeem, Mai<br>Sameer Zeyadeh, Maryam<br>Raad Alameri       | <b>-217-</b> CyberSafe: A Gamified Cyber Security<br>Training Method                                                                                               |
|             | <b>Hector Rafael Morano-<br/>Okuno,</b> Rafael Caltenco-<br>Castillo, Guillermo Sandoval-<br>Benitez                                | <b>-223-</b> Flexible Manufacturing Systems: CAD<br>Programs to Simulate the Movements of<br>Industrial Robots                                                     |
|             | <b>Alessandro Armellin,</b><br>Giovanni Battista Gaggero,<br>Alessandro Cattelino, Loris<br>Piana, Stefano Raggi, Mario<br>Marchese | <b>-271-</b> Integrating OT data in SIEM platforms:<br>an Energy Utility Perspective                                                                               |
|             | <b>Kyoungmin Lee,</b> Stellar Choi,<br>Siheon Joo, Haeun Jung,<br>Seonggeon Bae                                                     | <b>-311-</b> A Study on High-Quality Style Transfer<br>Using Edge-Enhanced Gaussian Smoothing<br>Technique (EEGST) for Minimizing Perceptual<br>Loss               |
|             | <b>Uchenna Okeke</b>                                                                                                                | <b>-317-</b> Enhancing Security in VANET Against<br>Black Hole Attacks using AODV, K-Means<br>Clustering, and PSO                                                  |
|             | <b>Uchenna Okeke</b>                                                                                                                | <b>-318-</b> Strengthening Vehicular Ad-Hoc<br>Networks (VANETs) against Black Hole Attacks<br>using Artificial Fish Swarm Algorithm and Trust<br>Based Reputation |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



## PARALLEL SESSIONS 4

### Parallel Session 4A: AI, NN, Robotics and Automation

#### Room A

|             |                                                                                                                   |                                                                                                                                        |
|-------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 15.30-17.00 | <b>Anurag Mishra</b> , Chandni Agarwa, Charul Bhatnagar                                                           | <b>-192-</b> Evaluation of Image Inpainting Methods for Face Reconstruction of Masked Faces                                            |
|             | <b>Khaled Almiani</b> , Mariam Al Suwaidi, Mohamad Humaid Almarri, Abdulla AlAmeeri, Issa Youssef, Zeeshan Hameed | <b>-245-</b> Multi-level Profiling Method for Government Housing Services                                                              |
|             | <b>Khalifa Alremeithi</b> , Pragatheiswar Giri, Winston Sealy                                                     | <b>-251-</b> Collaborative Intelligent Industrial Robots (CIIR) Framework                                                              |
|             | <b>Rajalakshmi V</b> , Girther T, Yashwanth Krishnan A, Ceralaathan G, Sai Sailesh S, Rakshith Raj VS             | <b>-284-</b> Speaker Identification System To Enhance Real-Time Security Using Convolutional Neural Network                            |
|             | <b>Sudharshan Painsi Jayakumar</b>                                                                                | <b>-326-</b> Towards Robust Anomaly Detection in User Equipment Parameters: A Deep Generalized Canonical Correlation Analysis approach |

#### BREAKFAST / LUNCH / DINNER/TEA BREAK



**Parallel Session 4B: AI, NN, Robotics and Automation - Mixed Topics**

**Room B**

|                    |                                                                                                                                            |                                                                                                                           |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>15.30-17.00</b> | <b>Sadiya</b> , Mangey Ram, Akshay Kumar                                                                                                   | <b>-90-</b> Comparative Reliability Study of Wi-Fi Communication System with Bridge Network utilizing UGFT and MBPTA      |
|                    | <b>Ahmet Onen</b> , Osama Khalifa Saleh Al Hammadi, Salim Saif Mohsin Al Abri, Abdulmalik Moosa Mohammed Al Maharbi, Abdullah Albadi       | <b>-157-</b> Feasibility Study of Static VAR Compensator (SVC) in Muscat Area to Improve Voltage Recovery                 |
|                    | <b>Maman Abdurohman</b> , Sidik Prabowo, Aji Gautama Putrada, Ikke Dian Oktaviani, Hilal Hudan Nuha, Deden Witarsyah Jacob, Marijn Janssen | <b>-225-</b> A Privacy-Preserving Smart Body Scale with K-Means Anonymization towards GDPR-Compliant IoT                  |
|                    | <b>Adel Oulefki</b> , Abbas Amira, Fatih Kurugollu, Mohammad Alshoweky                                                                     | <b>-257-</b> Twinning Buildings: A Methodological Framework for Design and Implementation using Home Assistant Technology |
|                    | <b>Tatiana Pesetskaya</b>                                                                                                                  | <b>-269-</b> Real-Time Feedback Control Models for Regulating Values Development of the Social Actors                     |
|                    | Amer A. Alrashdan, <b>Eyad A. Feilat</b> , Mohammed A. Haj-ahmed, Sahban W. Alnaser                                                        | <b>-175-</b> Artificial Neural Network-Based Protection Algorithm for Transmission Lines Connecting DFIG-Based Wind Farms |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 4C: Modern Communication - Antenna & Wave Propagation**

**Room C**

|                    |                                                                                             |                                                                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>15.30-17.00</b> | <b>Zainab A. Mohammed</b> , Raaed T. Hammed                                                 | <b>-165-</b> Rejection Band Enhancement of Compact Double-Layered Dual Band BPF Using Stepped Impedance DGS                           |
|                    | <b>A. A. Bhatti</b> , F. Zaman, S. M. Abbas, G. Phanomchoeng, S. U. Khan, A. Waseem         | <b>-219-</b> Detection of Faulty Sensors in Planar Antenna Array                                                                      |
|                    | <b>Thomas Meier</b> , Atif Mehmood, Muhammad Hassam Malhi                                   | <b>-238-</b> Highly Linear and Efficient Power Amplifier using Wideband Modulated Matching Technique                                  |
|                    | <b>Youssef Frist</b> , Mourad Elhabchi, Mohamed Nabil Srfi                                  | <b>-253-</b> Innovative Frequency Reconfigurable UWB Antenna Utilizing Metamaterial and DGS Approach for Cognitive Radio Applications |
|                    | <b>Sayeed Ahmed</b> , Md. Mahmud Hasan, Tet Yeap                                            | <b>-322-</b> Visible Light Communication for Outdoor Positioning: A Review                                                            |
|                    | <b>Muhammad Irfan</b> , Athar Waseem, Roslee Mardeni, Ubaid Umar, Irum Nosheen, Fahad Munir | <b>-347-</b> Security Threats and Mitigation Approaches for D2D Communication in 5G & B5G Wireless Networks                           |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



## PARALLEL SESSIONS 5

### Parallel Session 5A: AI, NN, Robotics and Automation

#### Room A

|             |                                                                                                                     |                                                                                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 17.00-18.30 | <b>Omer Faruk Kucukler</b> , Abbas Amira, Hossein Malekmohamadi                                                     | <b>-262-</b> Augmented EEG Signal Classification for Energy Data Visualizations                                             |
|             | Nimrod Angelo Binghay, Kristel Antonette Quezon, <b>Vince Jebryl Montero</b> , Michael Calamba, Paul Emmanuel Empas | <b>-264-</b> Object Detection Approach for Batch Detection of Cacao Bean Defects                                            |
|             | <b>Esmanur Civil</b> , Selcuk Anil Karatopak, Ahmet Haydar Ornek                                                    | <b>-270-</b> Rethinking False Positives with Class Activation Maps: Can we define false positives without ground-truths?    |
|             | <b>Ga Eun Park</b> , Hae Won Lee, Ju Yeon Oh, Seong Geon Bae                                                        | <b>-274-</b> A Study on the Comparison and Measurement of Improved CartoonGAN Performance for High-Quality Image Generation |
|             | <b>Gorkem Aktas</b> , Batuhan Ipek, Emin Ali KonuKoglu, Yucel Aydin                                                 | <b>-275-</b> Development of Artificial Intelligence Supported Tool for Anomaly Detection in Cloud Computing Systems         |
|             | <b>Federico Rossi</b> , Cinzia Bernardeschi, Marco Cococcioni, Maurizio Palmieri                                    | <b>-288-</b> Training Neural Networks in Cyber-Physical Systems using Design Space Exploration and Co-Simulation            |

#### BREAKFAST / LUNCH / DINNER/TEA BREAK





**Parallel Session 5B: Alternate Energy Systems, Smart Grids & Energy Management**

**Room B**

|                    |                                                                                                                  |                                                                                                                                               |
|--------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>17.00-18.30</b> | <b>Yuan Wang</b> , Yuming Zhang, Xun Zhang, Yanlin Zhang, Te Xiong, Rongjie Yin, Hao Wu, Jie Jiang, Shengdong Hu | <b>-76-</b> A Comparative study on Total Ionizing Dose Effects of 100-V Split-gate Trench VDMOS and Conventional Trench VDMOS                 |
|                    | <b>Hamad AlBeshr</b> , Ali Almarzooqi, Ali Husnain, Endika Bilbao                                                | <b>-86-</b> PERFORMANCE LIMITATION OF UTILITY SCALE BATTERY STORAGE SYSTEM: CASE STUDY                                                        |
|                    | <b>I.A. Dikun</b> , A.G. Vorontsov, M.V. Pronin, A.P. Soloviev, G.G. Rozbitsky, V.V. Glushakov                   | <b>-120-</b> Complexes of fast simulation models of systems with cascaded frequency converter at correction motor and electrical grid current |
|                    | <b>Georgios K. Sakkas</b> , Panagiotis G. Pouraimis, Minos E. Beniakar, Christos Th. Oreinos, Iakovos S. Manolas | <b>-146-</b> Enhancing Power Density in EV Motors via Thermal Management and High-Speed Operation                                             |
|                    | <b>Paulius Cicėsas</b> , Virginijus Radziukynas                                                                  | <b>-159-</b> Synhyetic inertia emulation based on synchronous generator model using parametric identification                                 |
|                    | <b>Marwane Ayaida</b> , Adda Boualem, Cyril de Runz                                                              | <b>-163-</b> A New Nano-Generator-Photovoltaic Cell Platform for Transforming Motion on Earth to Electrical Energy: Theoretical Study         |
|                    | <b>José Luis Crespo</b> , Francisco Carchi Guaman, Jorge Rojas Espinoza                                          | <b>-255-</b> Energy Transaction Model Applying Distributed Generation in Medium Voltage Power Grids                                           |



**Parallel Session 5C: Alternate Energy Systems, Smart Grids & Energy Management**

**Room C**

|                    |                                                                                               |                                                                                                                                       |
|--------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>17.00-18.30</b> | <b>Yitian Sun</b>                                                                             | <b>-169-</b> Public Charging Infrastructure Optimization in Urban Neighborhood: Using DBSCAN and Map Matching with EV Trajectories    |
|                    | <b>George William Sendifa,</b><br>Milton Edimu, Jonathan Serugunda, Angela Achirochan Orwotho | <b>-258-</b> Reconfiguration of Uganda's HV and associated MV network to manage fault levels attached to accelerated power generation |
|                    | <b>Inus Grobler</b>                                                                           | <b>-260-</b> CONDUCTED EMISSION MEASUREMENTS WITH A CDN SHOWING VERY HIGH-FREQUENCY COMPONENT EFFECTS IN A SYNCHRONOUS BUCK CONVERTER |
|                    | <b>Huber Nieto-Chaupis</b>                                                                    | <b>-310-</b> Probabilistic Classical Electrodynamics as Weibull Functions from Diffusion Equation                                     |
|                    | <b>Duong Minh Bui,</b> Hung Tan Nguyen, Tien Minh Nguyen                                      | <b>-328-</b> Reliability Analysis of Bypass Diodes in Photovoltaic Modules by Using Different Lifetime Estimation Models              |
|                    | <b>Duong Minh Bui,</b> Hung Tan Nguyen, Phuc Duy Le                                           | <b>-330-</b> Reliability Assessment of Bypass Diodes in Photovoltaic Systems Based on Accumulated Damage Calculation Models           |



31 December 2023

PLENARY SESSION 3

Plenary Session 3: Keynote Speaker

Room A

|             |                                 |                                                                                                     |
|-------------|---------------------------------|-----------------------------------------------------------------------------------------------------|
| 09.00-09.30 | Prof. Dr. Mohamad Kamal A Rahim | <i>Title: Antenna with Electromagnetic Band Gap Structure (EBG) for Future Wireless Application</i> |
|-------------|---------------------------------|-----------------------------------------------------------------------------------------------------|

PARALLEL SESSIONS 6

Parallel Session 6A: AI, NN, Robotics and Automation

Room A

|             |                                                                                                |                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 09.30-11.00 | <b>Mahmoud Kamel</b> , Ahmed Madian, Ibrahim Sobh                                              | <b>-296-</b> Novel Edge AI with Power-Efficient Re-configurable LP-MAC Processing Elements                                                 |
|             | <b>Abubakr Siddig</b> , Elaf Alnayer, Kasba Elsheikh, Amna Alawad, Isam Basheir, Omayma Husain | <b>-297-</b> Enhancement of Sorghum Forecasting Models Using Machine Learning in the rain-fed sector in Sudan                              |
|             | <b>David Esneyder Bello Angulo</b> , Elizabeth León Guzman                                     | <b>-301-</b> Multi-Modal Recurrent Model for Timeseries Classification: A Use Case on Failure Prediction in Oil Wells with Rod Lift System |
|             | <b>Huber Nieto-Chaupis</b>                                                                     | <b>-304-</b> Can artificial intelligence do the job of a theoretical physicist?                                                            |
|             | <b>Viviana Sofía Murillo Sossa</b> , Elizabeth Leon Guzman                                     | <b>-305-</b> Supervised Fine-Grained Entity Recognition Model for Legal Documents in Spanish                                               |
|             | <b>Huber Nieto-Chaupis</b>                                                                     | <b>-309-</b> Stochastic Hybrid Algorithms to Estimate Stroke in Diabetic Patients                                                          |

BREAKFAST / LUNCH / DINNER/TEA BREAK



**Parallel Session 6B: Mixed Topics**

**Room B**

|                                                                           |                                                                                                                                      |                                                                                                                                                                        |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09.30-11.00                                                               | <b>Nicolae Daniel Fiță</b> , Sorin Mihai Radu, Ilie Uțu, Marius Daniel Marcu, Dragoș Păsculescu, Lazăr Teodora                       | <b>-101-</b> Critical analysis of the 400/220/110/20 kV Urechesti power substation from Romania in the context of identification of risks, threats and vulnerabilities |
|                                                                           | <b>Nicolae Daniel Fiță</b> , Florin Mureșan – Grecu, Sorin Mihai Radu, Mila Ilieva Obretenova, Florin Gabriel Popescu, Lazăr Teodora | <b>-102-</b> Security risk assessment of electricity supply at 400/220/110/20 kV Urechesti power substation from Romania                                               |
|                                                                           | <b>Takaaki Umezono</b> , Ryo Katsuma                                                                                                 | <b>-130-</b> A Method for Estimating the Time of Pedestrians Encounter Timing by Measuring Bluetooth Signal Strength with Multiple Devices                             |
|                                                                           | <b>Gerson Márquez</b> , Juan José Milón Guzmán, Rodolfo Caceres Ochoa, Mario Enrique Díaz Coa,                                       | <b>-149-</b> Development and Evaluation of an Atmospheric Water Generation System Utilizing Seawater as a Cooling Source                                               |
|                                                                           | <b>Gerson Marquez</b> , Jazmin Andrade, Vicente Sagredo                                                                              | <b>-150-</b> Crystal Structure, Optical Absorption and Magnetic Properties of Iron-doped Zinc Sulfide Nanopowders Synthesized via Chemical Precipitation               |
|                                                                           | <b>Ismail Sisman</b> , Tugba Haykir Ergin                                                                                            | <b>-96-</b> Design of Ku Band High Efficiency 4W Power Amplifier in GaAs pHEMT Technology                                                                              |
| Mert Korkut, Tugba Haykir Ergin, <b>Ismail Sisman</b> , Huseyin Arda Ulku | <b>-259-</b> Design of an Ultra Low-Power Tunable Ring VCO in 65 nm CMOS Technology for 2.9-4.5 GHz                                  |                                                                                                                                                                        |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 6C: Mixed Topics**

**Room C**

|                                                                      |                                                                                                                               |                                                                                                                                                                              |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09.30-11.00                                                          | <b>Liubov Chagovets,</b> Tetiana Shabelnyk, Vladyslav Polianskyi, Vita Chahovets, Mykola Shabelnyk                            | <b>-166-</b> Variance and Cognitive Analysis of the Global Economic Crises Impact on the National Economies                                                                  |
|                                                                      | <b>Mohd Hafiz Jali,</b> Marlina Jahava, Md. Ashadi Md Johari, Mohd Adili Norashikin, Haziezol Helmi Mohd Yusof, Aminah Ahmad  | <b>-196-</b> ZnO Nanorods Coated Glass Substrate Based on Side Coupling Technique for Lactose Sensing Application                                                            |
|                                                                      | <b>Bavani Ramayah,</b> Joseph Chan JianMin                                                                                    | <b>-207-</b> EVALUATING THE ACCESSIBILITY OF BANKING WEB SITES IN MALAYSIA USING WAVE                                                                                        |
|                                                                      | <b>Soham Bhattacharya,</b> Dwaipayan Chakraborty                                                                              | <b>-228-</b> Design and Analysis of a Hardware Accelerator with FPU-Based Runge-Kutta Solvers                                                                                |
|                                                                      | <b>Gerby Giovanna Rondán Sanabria,</b> Edgar Santiago Flores Sacsí, Edgard Ronny Delgado Huamani, Edwar Andrés Velarde Allazo | <b>-278-</b> Evaluation of radish ( <i>Raphanus sativus</i> L.) crop productivity under shading in an seasons of the year in Arequipa, Perú - 2023 agrovoltaic system in two |
|                                                                      | Ahmad Tri Hanuranto, Agus D. Prasetyo, <b>Budi Syihabuddin,</b> Nachwan Mufti Adriansyah                                      | <b>-281-</b> Investigation of Zone Updating Performance using Modified K-Mean Clustering for Non-Tax State Revenue (PNBP)                                                    |
| <b>Mayuko Morii,</b> Manaki Fujimoto, Akiko Imajo, Shigeru Kashihara | <b>-140-</b> Design and Implementation of Hydroponic Cultivation Kit with IoT for Edible Flowers                              |                                                                                                                                                                              |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



## PLENARY SESSION 4

### Plenary Session 4: Keynote Speaker

Room A

11.15-11.45

Assoc. Prof. Dr Nick Pitropakis

*Title: Investigating the Attacks against AI*

## PARALLEL SESSIONS 7

### Parallel Session 7A: AI, NN, Robotics and Automation

Room A

|             |                                                                                                      |                                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 11.45-13.30 | <b>Lamees Elhiny</b> , Xinfeng Ye, Ulrich Speidel, Sathiamoorthy Manoharan                           | <b>-65-</b> A Systematic Review of Recent Research on Chatbots                                                                   |
|             | <b>Kohjiro Hashimoto</b> , Daichi Yanagihara, Hiroshi Kuniyuki, Kae Doki, Yuki Funabora, Shinji Doki | <b>-77-</b> Clustering Method of Driving Scenes based on Road Shape by using Road Map Image                                      |
|             | <b>Abdulrahman Elbedewy</b> , Abdelrahman Atef, Fahd Seddik                                          | <b>-98-</b> AGS: Arabic GPT Summarization Corpus                                                                                 |
|             | <b>Selcuk Yazar</b> , Isma-Ilou Sadou                                                                | <b>-111-</b> A brief review of the performance of Energy-Based models in Embedded Devices                                        |
|             | <b>Huy Hung Nguyen</b> , Tri Duc Tran, Xuan Quang Ngo, Van Tu Duong, Tan Tien Nguyen                 | <b>-115-</b> Predetermined Path Tracking of Dedicated Mobile Robot using Pixy2 Sensor: Application For Fire Extinguisher Testing |
|             | <b>Gevira Omondi</b> , Thomas O. Olwal                                                               | <b>-139-</b> DNN-Based MIMO Signal Detection Using Variational Autoencoder                                                       |
|             | <b>Xuan Xia</b> , Jingfei Zhang, Xing He, Haoran Tong, Xiaoguang Zhang, Nan Li, Ning Ding            | <b>-194-</b> Auto Data Augmentation for Image: A Brief Survey                                                                    |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 7B: AI, NN, Robotics and Automation**

**Room B**

|                    |                                                                                                                                       |                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>11.45-13.30</b> | MD Rahat Kader Khan, <b>MD Samiul Islam</b> , Shweta Bhattarcharjee Porna, Alhassan Alie Kamara, Mojammel Hossain, Amzad Hossain Rafi | <b>-208-</b> Adaptive Augmentation of Imbalanced Class Distribution in Road Segmentation                                                |
|                    | <b>Abdoulaye Diallo</b> , Lionel Affognon, Cherif Diallo, Eugene C. Ezin                                                              | <b>-218-</b> A Three-Level Deep Learning Intrusion Detection System for IoT Network                                                     |
|                    | <b>Priyanka C Hiremath</b> , Raju G T                                                                                                 | <b>-226-</b> Trust-Based Geo-Social Access Control Framework: Employee Management through Machine learning Techniques                   |
|                    | <b>Sawsen Harrouche</b> , Nafaa Nacereddine, Aicha Baya Goumeidane                                                                    | <b>-233-</b> A Comparative Study of Different CNN Models using Transfer Learning for Weld Defect Classification in Radiographic Testing |
|                    | <b>Seyed Esmaeili</b> , Amal Al Hulaibi, Hawraa Wahid, Salem Al Saif, Jumanah Sadeq, Marwa Kandil                                     | <b>-246-</b> SkyBot – A Novel Autonomous Window Cleaning Drone                                                                          |
|                    | <b>Ranad Yousef Abed Aljammal</b> , Akshay Chavan, Antonius Schmidt, Dominik Aufderheide                                              | <b>-247-</b> A Deep Learning Approach for the Optical Estimation of Particle Size Distributions of Bulk Materials                       |
|                    | <b>Omer Faruk Kucukler</b> , Abbas Amira, Hossein Malekmohamadi                                                                       | <b>-261-</b> EEG Channel Analysis for Energy Data Visualizations Using GAF Encoding and Deep Learning                                   |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**Parallel Session 7C: Signal and Image Processing Techniques - Biomedical Engineering & Systems**

**Room C**

|             |                                                                                                                                |                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| 11.45-13.30 | <b>Souad Chabbi</b> , Khadidja Belhi, M'hamed Hamadouche                                                                       | <b>-84-</b> Robust Modified Sorting Weighting CFAR detector for nonhomogeneous Gaussian environment                      |
|             | <b>Ehab M. Shaheen</b> , Mohammad Reza Soleymani                                                                               | <b>-198-</b> Performance Assessment of Cooperative AF-NOMA Networks in Power Line Communication Systems with ISIC        |
|             | <b>Muhammad Arief Nugroho</b> , Maman Abdurohman, Bayu Erfianto, Mahmud Dwi Sulistiyo                                          | <b>-227-</b> Comparative Analysis of Filtering Techniques in Eye Landmark Tracking: Kalman, Savitzky-Golay, and Gaussian |
|             | <b>Alex Paul Kamson</b> , Macline Crecsilla Lewis, Vishnu Sunil B N, Satish S Jeevannavar, Akshay Sawant, Prasanta Kumar Ghosh | <b>-266-</b> E2E Multi-Scale CNN with LSTM for Murmur Detection in PCG or Noise Identification                           |
|             | <b>Jounsup Park</b>                                                                                                            | <b>-306-</b> Dual-MIC Delay Matching for Adaptive Noise Cancellation                                                     |
|             | <b>Huber Nieto-Chaupis</b>                                                                                                     | <b>-307-</b> The Stroke Event as a Shannon Entropy                                                                       |
|             | <b>Huber Nieto-Chaupis</b>                                                                                                     | <b>-312-</b> Instantaneous Interactions Between Nanoparticles and Tumors Dictated by Bayes Theorem                       |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**





## PARALLEL SESSIONS 8

### Parallel Session 8A: Mixed Topics - Education & Technologies (E-learning)

#### Room A

|             |                                                                                            |                                                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 13.45-15.00 | Roberto Lopez-Chila, Nelson Mora-Saltos, Alicia Cedeño-Tello, <b>Joe Llerena-Izquierdo</b> | <b>-92-</b> A Learning Resource Management Model for high-enrollment Programming courses in Engineering                                      |
|             | <b>Amil Daraz</b> , Abdul Basit, Guoqiang Zhang                                            | <b>-161-</b> Load Frequency Regulation of Hybrid Marine Microgrid System Employing Improved TIDF Controller                                  |
|             | <b>Pragya Singh</b> , Nidhi Phutela, Priya Grover, Deepti Sinha, Sachin Sinha              | <b>-235-</b> Student's Perception of Chat GPT                                                                                                |
|             | Giancarlo Ponte Gamberi, <b>Calebe de Paula Bianchini</b>                                  | <b>-283-</b> Study of quantum algorithms and their implementations                                                                           |
|             | <b>Alinafe Kaliwo</b> , Clement Nyirenda                                                   | <b>-285-</b> Enhancing Digital Health in 6G Networks: A Cybertwin-driven Fuzzy Approach to Medical Traffic Identification and Classification |

#### BREAKFAST / LUNCH / DINNER/TEA BREAK



**Parallel Session 8B: Mixed Topics****Room B**

|                    |                                                                                                          |                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>13.45-15.00</b> | <b>Huber Nieto-Chaupis</b>                                                                               | <b>-313-</b> Kirchoff's Voltage Law at Neural Synapse From Electric Currents Based at Neurotransmitters                                |
|                    | <b>HUSIEN SALAMA,</b> Faouzi Nasri                                                                       | <b>-319-</b> Numerical Analysis of self-heating effect in HEMT transistors                                                             |
|                    | <b>Claudio Bruzzese</b>                                                                                  | <b>-337-</b> Diagnosis of Rotor Eccentricities in Two-Pole Synchronous Generators By Spectrum Analysis of Complex Split-Phase Currents |
|                    | <b>Çağatay Menzil, Umut Emre Sarıkaya,</b> Mehmet Siddik Aktaş, Ezgi Yahsi, Mustafa Keles, Mehmet Sungur | <b>-103-</b> A Business Process for Detecting Facial Movements and Emotions Using Deep Learning Techniques                             |
|                    | <b>Fatmah Alantali,</b> Siddhartha Shakya, Himadri Khargharia, Sara Sharif                               | <b>-142-</b> Fire Alarm Volume Forecasting with ML Models                                                                              |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**

**Parallel Session 8C: AI, NN, Robotics and Automation - Mixed Topics**

**Room C**

|                    |                                                                                     |                                                                                                                                                           |
|--------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>13.45-15.00</b> | <b>Mariya Zhekova</b> , Kehayov Teodosi                                             | <b>-199-</b> Python script to recognize user gestures                                                                                                     |
|                    | <b>Antony J ´acome-Barrionuevo</b> , Mateo Quizhpi-Cuesta, Flavio Quizhpi-Palomeque | <b>-145-</b> Implementation and validation of IED settings in the IEEE 14-Bus System                                                                      |
|                    | <b>Oumaima Ait-Essi</b> , Joseph Yame, Hicham Jamouli, Frédéric Hamelin             | <b>-151-</b> A Short overview on control algorithms in buildings occupant centric control                                                                 |
|                    | <b>Azadeh Sarkheyli</b>                                                             | <b>-213-</b> Evaluating Knowledge Sharing Risk Governance Model: A Case Study of the Ministry of Agriculture in Iran                                      |
|                    | <b>Azadeh Sarkheyli</b>                                                             | <b>-254-</b> Exploring the Potential of Artificial Intelligence in Addressing Pedagogical Challenges and Improving Group Work Quality in Higher Education |

**BREAKFAST / LUNCH / DINNER/TEA BREAK**



**CLOSING SESSION**

**Session 00: Closing Session – Closing Remarks by Conference Chairs**

**Room A**

**15.00-15.30**

**Best Paper Announcement  
Closing Remarks by Conference Chairs**

*Thank you very much for your contributions.*