



7<sup>th</sup> International Exchange and Innovation Conference on Engineering & Sciences  
Kyushu University, Fukuoka, Japan  
October 21<sup>st</sup>-22<sup>nd</sup>, 2021

## Conference Program

International Exchange and Innovation Conference on Engineering & Sciences IEICES 2021

First Day

Oct. 21<sup>st</sup> (Thursday)

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9:30 – 09:40 Welcome Speech: **Assoc. Prof. Osama Eljamal**  
IEICES 2021 Chair  
*Interdisciplinary Graduate School of Engineering Sciences, Kyushu University*

### Session 1

**Session Chair** Ladan Malehmirchegini  
**Co-chair** Hamid Basiri

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09:40 – 10:10 Keynote Speech: **Ushering in a new age of urban energy efficiency and low emission societies.**  
*Assoc. Prof. Hooman Farzaneh, Energy and Environmental Systems (EES) Laboratory, EEE, IGSES, Kyushu University, Japan.*

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10:10 – 10:20 **Molecular dynamics simulation for barium zirconate proton conducting oxide energy materials: A Mini Review.**  
*M. Khalid Hossain, M. Ishak Khan, T. S. Akash, Kenichi Hashizume, Kyushu University, Japan.*

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10:20 – 10:30 **Fracture analysis of resurfaced femur with varus implant placement.**  
*Nor Aiman nor Izmin, Fatin Hazwani, Mitsugu Todo, Abdul Halim Abdullah, Kyushu University, Japan.*

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10:30 – 10:40 **Thermoelectric Properties and Microstructure of In- and Ga-doped ZnO fabricated by Spark Plasma sintering.**  
*Ahronng Jeong, Byung-Koog Jang, Kyushu University, Japan.*

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10:40 – 10:50 **Densification Behavior of Transparent Y<sub>2</sub>O<sub>3</sub> Ceramic in Two-Step Spark Plasma Sintering.**  
*Ji-Hwoan Lee, Byung-Koog Jang, Kyushu University, Japan.*

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10:50 – 11:00 **High-temperature corrosion behavior of calcia-magnesia-alumina-silica on Er<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> for environmental barrier coatings.**  
*Seung-Hyeon Kim, Byung-Koog Jang, Kyushu University, Japan.*

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11:00 – 11:10 **A Study on Electrical Wire and Floating Tower Interaction for an Offshore Overhead Power Transmission System.**  
*Ruo Luo, Hongzhong Zhu, Changhong Hu, Kyushu University, Japan.*

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11:10 – 11:20 **Digitalization, energy intensity and economic growth: A panel study on South Asian economies.**  
*Shahadat Hosan, Shamal Chandra Karmaker, Md. Matiar Rahman, Md. Azad Uddin and Bidyut Baran Saha, Kyushu University, Japan.*

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11:20 – 11:30	<b>Air-conditioning load characteristics and peak reduction potential for demand response in a residential community.</b> <i>Jiajun Lyu, Aya Hagishima, Jun Tanimoto, Kyushu University, Japan.</i>
11:30 – 11:40	<b>Dynamic linkage between biomass energy consumption and ecological footprint: A panel analysis for BRICS countries.</b> <i>Shamal Chandra Karmaker, Shahadat Hosan, Md. Matiar Rahman, Kanchan Kumar Sen, and Bidyut Baran Saha, Kyushu University, Japan.</i>
11:40 – 11:50	<b>Surface relaxation of clean Mo (110), optimization of Sn adsorption and ab-initio calculation of the electronic density of states (DoS).</b> <i>Dhiman Banik, Shahadat Hossain, Chen Xiaobin and Takeshi Nakagawa, Kyushu University, Japan.</i>

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**11:50 – 13:00**

**Lunch Break**

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<b>Session 2</b>
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<b>Session Chair</b>	<b>Lama Osman Abdelbaset</b>
<b>Co-chair</b>	<b>Nor Aiman Nor Izmin</b>

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13:00 – 13:30	<b><u>Keynote Speech</u>: Applications of Nano-diamond films deposited by coaxial arc plasma deposition method.</b> <i>Asst. Prof. Abdelrahman Zkria, Center for Japan-Egypt Cooperation in Science and Technology, Kyushu University, Japan.</i>
13:30 – 13:40	<b>Improvement of Airflow Distribution for Precision Air Conditioning Data Center.</b> <i>Mohd Hafiz Bin Mohd Noh, A. S. Rasidi, A. H. A. Hamid, Universiti Teknologi MARA (UiTM), Malaysia.</i>
13:40 – 13:50	<b>The influence of magnetic field on muography images: a simulation study.</b> <i>Hamid Basiri, Tadahiro Kin, Naoya Okamoto, Kyushu University, Japan.</i>
13:50 – 14:00	<b>Finite element analysis of different spinal cage designs for posterior lumbar interbody fusion.</b> <i>Kugendran A/L Mahendran, Dr. Muhammad Hilmi bin Jalil, Universiti Malaysia Pahang, Malaysia.</i>
14:00 – 14:10	<b>Computational data of Gelatin for hybrid biomaterials.</b> <i>Nur Nabila Mohd Nazali, Tuan Afif Tuan Afif Fatimah binti Tuan Azza Afif, Muhammad Zurhairie Bin Senan, Nor Fazli Adull Manan, Universiti Teknologi Mara (Uitm) Shah Alam, Malaysia.</i>
14:10 – 14:20	<b>Computational Study on Femoral Fracture using CT-Image based Finite Element Method.</b> <i>Zaw Linn Htun, Mitsugu Todo, Kyushu University, Japan.</i>
14:20 – 14:30	<b>CFD Analysis of Rocket Convergent-Divergent Nozzle.</b>

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	<i>Ahmad Hussein Abdul Hamid, Nik Muhammad Hafiz Nik Ismail, Zuraidah Salleh, Mohd Hafiz Mohd Noh, Mohammad Juani Sujana, Mohamad Amirul Muhammad, Universiti Teknologi MARA, Malaysia.</i>
14:30 – 14:40	<b>The Combustion of a Diesel Oil-Based/Coal/Water Slurry in a Horizontal Cylindrical Furnace: An Experimental Investigation.</b> <i>Motaz Mabrouk Salama, Elsaheed Elsihy, Kyushu University, Japan.</i>
14:40 – 14:50	<b>Design Evolution of High-Powered Motorcycle Paddock Stand via Engineering Technological Advancement and Ergonomics Consideration.</b> <i>Helmi Rashid, Nu Marini Zainal Abidin, Muhammad Faridzul Faisal Mohd Roslan, Muhammad Hazim Azman, Muhammad Iman Amludin, Wan Muhammad Syahmi Wan Fauzi, Universiti Teknologi MARA, Malaysia.</i>
14:50 – 15:00	<b>Improving Fast Ejecting System of Targeted Sample (FESTA) and Gas Calibration.</b> <i>Qilin Yue, Kyushu University, Japan.</i>

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**Session 3**

<b>Session Chair</b>	<b>Mohd Faizul Idham</b>
<b>Co-chair</b>	<b>Qilin Yue</b>

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15:00 – 15:30	<b><u>Keynote Speech</u>: ASEAN Multination Collaboration Project: Crafting Indigenous Space Programme in Malaysia/ ASEANSAT: A Feasible Model for International Satellite Collaboration Project.</b> <i>Prof. Mohamad Huzaimy Jusoh, School of Electrical Engineering, Universiti Teknologi MARA (UiTM), Malaysia.</i>
15:30 – 15:40	<b>Numerical Analysis of Crack Propagation in Beam Supported Reinforced Concrete Two-Way Slab.</b> <i>Md. Ariful Hasan, Al Amin, Riyadul Hashem Riyad, European University of Bangladesh, Bangladesh.</i>
15:40 – 15:50	<b>Relative Study of Flow Properties Between Orifice and Nozzle Plates.</b> <i>Md. Ariful Islam Shubho, Towsibur Rahman, Prof. Dr. M.A. Taher Ali, Military Institute of Science and Technology, Bangladesh.</i>
15:50 – 16:00	<b>A Simulation-Based Investigation of Cu<sub>2</sub>ZnSnS<sub>4</sub> Solar Cells with Graphene as a Window Layer.</b> <i>Samira Yasmin, Jannatul Ferdous, Bidyut Baran Saha, Sampad Ghosh, Chittagong University of Engineering and Technology (CUET), Bangladesh.</i>
16:00 – 16:10	<b>Performance Evaluation of Microbial Fuel Cell with Food Waste Solution as a Potential Energy Storage Medium.</b> <i>Nahian Masud, Al-Mustasin Abir Hossain, Md Jawarul Moresalein and Mohammad Ali, Bangladesh University of Engineering &amp; Technology (BUET), Bangladesh.</i>

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16:10 – 16:20	<b>An Investigation towards the Effects of Using FRPs in the Enhancement of Shear Strength of RC Beams without Using Stirrups.</b> <i>Jarin Tasnim Heia, Md. Mashfiqul Islam, Ariful Islam, Ahsanullah University of Science and Technology, Bangladesh.</i>
16:20 – 16:30	<b>Investigating variation of dynamic frictional Effect of different textile fabrics against dry and wet human skin condition at a fixed load.</b> <i>Shadman Sakief Hridoy, Ehsanul Azim, Md. Jahid Hasan Sagor, Talaat Abdelhamid, Bangladesh University of Engineering and Technology, Bangladesh.</i>
16:30 – 16:40	<b>Encapsulation of industrial cationic pollutants from aqueous solution by nanocrystalline cellulose and it's modified forms.</b> <i>Hridoy Roy, M. Motiur Rahman, Yeasin A. Tarek, Shakhawat H. Firoz, Bangladesh University of Engineering and Technology, Bangladesh.</i>
16:40 – 16:50	<b>Optimization of Solar, Wind and Biomass-Based Hybrid Renewable Energy System in St. Martin's Island, Bangladesh.</b> <i>Ankur Das Avi, Tiham Fayaz, Bidyut Baran Saha, Sampad Ghosh, Chittagong University of Engineering and Technology (CUET), Bangladesh.</i>
<b>16:50 – 17:15</b>	<b>Break</b>

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### Session 4

<b>Session Chair</b>	<b>Duha Hammad</b>
<b>Co-chair</b>	<b>Sagar Saren</b>
17:15 – 17:45	<b><u>Keynote Speech</u>: Integrating Climate Change and other Sustainable Development Goals in Cities: Making the Connections.</b> <i>Dr. Eric Zusman, Institute for Global Environmental Strategies, Japan.</i>
17:45 – 17:55	<b>Profiling and Technical Evaluation of Existing Agricultural Warehouses in the Agusan Provinces, Caraga Region, Philippines.</b> <i>Philip Donald C. Sanchez, Kimberly S. Amar, Melody E. Rayoso, Caraga State University, Philippines.</i>
17:55 – 18:05	<b>Assessment of Screw Types for The Development of Continuous Combined Grater-Presser Machine for Cassava Grates Processing.</b> <i>Jack O. Bertulfo, Caraga State University, Philippines.</i>
18:05 – 18:15	<b>Development of Cacao Pod Crushing Machine.</b> <i>May Rose B. Osoteo, Lois Y. Pajaron, Arfelyn A. Paque, Caraga State University, Philippines.</i>
18:15 – 18:25	<b>Biomechanical Analysis of Zinc Hydroxyapatite Parietal-Temporal Implant with Different Pore Sizes.</b>

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*Nik Harisha Qistina Nik Hamdi, Wan Nur Fatini Syahirah W. Dagang, Shahrul Hisyam Marwan, Jamaluddin Mahmud, Nor Fazli Adull Manan, Abdul Halim Abdullah, Universiti Teknologi MARA, Malaysia.*

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**Development of ankle-foot orthosis (AFO) with IoT controller.**

18:25 – 18:35 *Abdul Muqtadir Ab Wahid, Abdul Halim Abdullah, Universiti Teknologi MARA (UiTM), Malaysia.*

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**Effects of Material Properties in Developing the 3D Printed Adjustable Headrest Orthosis.**

18:35 – 18:45 *Mohd Hazwan Mohamed Norli, Madya Mastika Ahmad, Wan Nur Fatini W. Dagang, Mohd Hafiz Mohd Noh, Abdul Halim Abdullah, Politeknik Banting Selangor, Malaysia.*

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**18:45 – 19:00**

**Closing Remark**

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## Conference Program

### International Exchange and Innovation Conference on Engineering & Sciences IEICES 2021

Second Day

Oct. 22<sup>nd</sup> (Friday)

#### Session 1

Session Chair **Zhaosheng Yang**  
Co-chair **Duha Hammad**

09:00 – 09:30	<b><u>Keynote Speech:</u> Global Challenges with Ageing Water Storage Infrastructure.</b> <i>Dr. Duminda Parera, United Nations University – Institute for Water Environment and Health (UNU-INWEH), ON, Canada.</i>
09:30 – 09:40	<b>Exploring attitudes and household culture to encourage water conservation behavior.</b> Bipasha Singha, Osama Eljamal, Kyushu University, Japan.
09:40 – 09:50	<b>Effects of Initial Conditions and Parameters on the Prediction of SARS-CoV-2 Viral Load in the Upper Respiratory Tract Based on Host-Cell Dynamics.</b> Hanyu Li, Kazuki Kuga, Nguyen Dang Khoa, Kazuhide Ito, Kyushu University, Japan.
09:50 – 10:00	<b>Mini review on recent applications of nanotechnology in nutrient and heavy metals removal from contaminated water.</b> Omar Falyouna, Ibrahim Maamoun, Khaoula Bensaida, Duha Hammad, Mohd Faizul Idham, Yuji Sugihara, Osama Eljamal, Kyushu University, Japan.
10:00 – 10:10	<b>Radionuclides removal from aqueous solutions: A mini review on using different sorbents.</b> Ibrahim Maamoun, Ramadan Eljamal, Omar Falyouna, Khaoula Bensaida, Mohd Faizul Idham, Duha Hammad, Yuji Sugihara, and Osama Eljamal, Kyushu University, Japan.
10:10 – 10:20	<b>Understanding the Effect of Fe (II) and Fe (III) in Generating Electricity from Real Waste Sludge in Microbial Fuel Cells.</b> Khaoula Bensaida, Duha Hammad, Omar Falyouna, Ibrahim Maamoun, Osama Eljamal Kyushu University, Japan.
10:20 – 10:30	<b>Investigating the Effect of Commercial and Synthesized Fe<sup>0</sup> particles on Methane Production Through the Anaerobic Digestion of Waste Sludge.</b> Ramadan M. M. Eljamal, Ibrahim Maamoun, Khaoula Bensaida, Yuji Sugihara, Osama Eljamal, Kyushu University, Japan.
10:30 – 10:40	<b>Structural and physical characterization of nano diamond composite thin films synthesized by pulsed-laser ablation method (a review).</b> Lama Osman, Abdelrahman Zkria, Tsuyoshi Yoshitake, Kyushu University, Japan.



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10:40 – 10:50	<b>The link between renewable energy use and energy poverty: Panel estimation for South Asian region.</b> <i>Md. Matiar Rahman, Shahadat Hosan, Shamal Chandra Karmaker, Abu Zar Md. Shafiullah and Bidyut Baran Saha, Kyushu University, Japan.</i>
10:50 – 11:00	<b>Mechanics of Unicompartmental Knee Arthroplasty (UKA): A Finite Element Study.</b> <i>Abdul Raazak Sabi, Mohd Afzan Mohd Anuar, Universiti Teknologi MARA, Malaysia.</i>
11:00 – 11:10	<b>Field measurement of indoor thermal environment of a retrofitted ger in Ulaanbaatar, Mongolia.</b> <i>Uelun-Ujin Purev, Aya Hagishima, Kyushu Kugendran University, Japan.</i>
<b>11:10 – 13:00</b>	<b>Lunch Break</b>

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**Session 2**

<b>Session Chair</b>	<b>Motaz Mabrouk Mohamed</b>
<b>Co-chair</b>	<b>Dhiman Banik</b>

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13:00 – 13:30	<b><u>Keynote Speech:</u> Geothermal Exploration Using the Magnetotelluric Technique.</b> <i>Prof. Hakim Saibi, Geo-physical science, College of Science, United Arab Emirates University, UAE.</i>
13:30 – 13:40	<b>Socio-economic Impact of COVID-19 till Second Wave in India: A case study.</b> <i>Sagar Saren, Kyaw Thu, Takahiko Miyazaki, Kyushu University, Japan.</i>
13:40 – 13:50	<b>Biosorption of arsenic from contaminated water: composite of algae and Fe-nanoparticles.</b> <i>Islam Mir Shariful, Ibrahim Maamoun, Omar Falyouna, Elsayed B. Belal, Osama Eljamal, Bidyut Baran Saha, Kyushu University, Japan.</i>
13:50 – 14:00	<b>Modeling and Prioritizing Price – Based Demand Response Programs in The Wholesale Market in Japan.</b> <i>Ladan Malehmirchegini, Hooman Farzaneh, Kyushu University, Japan.</i>
14:00 – 14:10	<b>Effect of Graphene Oxide Synthesis Method on The Adsorption Performance of Pharmaceutical Contaminants.</b> <i>Mohd Faizul Idham, Omar Falyouna, Osama Eljamal, Kyushu University, Japan.</i>
14:10 – 14:20	<b>A review on development of heat and mass transfer enhancement in adsorption heat exchangers.</b> <i>Zhaosheng Yang, František Mikšík, Kyaw Thu, Takahiko Miyazaki, Kyushu University, Japan.</i>

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14:20 – 14:30 **Integrating titanium nanowires supported nanoscale zero-valent iron in microbial fuel cells (MFCs) for electricity bio-generation.**  
Duha Hammad, Khaoula Bensaida, Omar Falyouna, Osama Eljamal, Kyushu University, Japan.

14:30 – 14:40 **Analyzing the Impacts of a Deep-learning based Day-ahead residential demand response model on the Jordanian Power Sector in Winter Season.**  
*Ayas Shaqour, Hooman Farzaneh, Kyushu University, Japan.*

**14:40 – 15:00**

**Break**

### **Session 3**

**Session Chair** **Li Hanyu**

**Co-chair** **Mohd Faizul Idham**

15:00 – 15:30 **Keynote Speech: Energy-Harvesting-Based Wireless Sensor Nodes for Inaccessible Environments.**  
*Dr. Kawsar Ali, Electrical Engineering, Power Electronics Group, Department of Engineering Science, University of Oxford, UK.*

15:30 – 15:40 **Study of Tip Deflection on a Copper-Steel bimetallic Strip by Fuzzy Logic and ANSYS Static Structural.**  
Muhammad Talha Khan, Muhammad Javaid Afzal, Farah Javaid, Shahzadi Tayyaba, Muhammad Waseem Ashraf, Md. Khalid Hossain, Government Islamia College Civil Lines, Pakistan.

15:40 – 15:50 **Investigation of adsorption and desorption characteristics of Metal-Organic Frameworks for the development of desalination systems.**  
Nadia Riaz, Muhammad Sultan, Bahauddin Zakariya University, Pakistan.

15:50 – 16:00 **Wet-bulb and dew-point evaporative cooling options for poultry sheds.**  
Hafiz M.U. Raza, Muhammad Sultan, Muhammad Aleem, Bahauddin Zakariya University, Pakistan.

16:00 – 16:10 **An introductory study on adsorption isotherms for atmosphere water harvesting.**  
Muhammad Aleem, Muhammad Sultan, Hafiz M. Asfahan, Muhammad Bilal, Hafiz M.U. Raza, Bahauddin Zakariya University, Pakistan.

16:10 – 16:20 **Investigating combined effect of air temperature, humidity, and velocity on the thermal comfort of poultry birds.**  
Khawar Shahzad, Muhammad Sultan, Bahauddin Zakariya University, Pakistan.

16:20 – 16:30 **Study on metal and covalent organic frameworks for adsorption-based atmospheric water harvesting.**  
Muhammad Bilal, Muhammad Sultan, Muhammad Aleem, Bahauddin Zakariya University, Pakistan.

16:30 – 16:40 **An introductory study on the performance prediction of membrane-based energy recovery ventilators.**





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	Muhammad Asif, Hadeed Ashraf, Muhammad Sultan, Zahid M. Khan, Bahauddin Zakariya University, Pakistan.
16:40 – 16:50	<b>Study on Solid Desiccant Dehumidification Cooling System for the Storage of Fruits and Vegetables.</b> Ghulam Hussain, Muhammad Sultan, Muhammad Aleem, Bahauddin Zakariya University, Pakistan.
16:50 – 17:00	<b>An Overview of Thermal Comfort for Operators in Tractor Cabin.</b> Mahmood Riaz, Muhammad H. Mahmood, Bahauddin Zakariya University, Pakistan.
17:00 – 17:10	<b>Design Guidelines for Therapeutic Gardens.</b> Erdi Ekren, Kahramanmaraş Sutcu Imam University, Turkey.
17:10 – 17:20	<b>Smart Control System of Solar Panels.</b> <i>Eman Nasser, Mona Ahmed Younis, Amal Nasser, Higher Technological Institute, Egypt.</i>
17:20 – 17:30	<b>Twin-Rotor Wind Turbine Power Performance Compared to a Single-Rotor of the Same Tip-to-Tip Spacing.</b> <i>Mohamed Adel, Khalid Hisham, Mahmoud Osama, Adel Awwad, Abdelrahman Mohamed, Amira Elkodama, Amr Ismaiel, Future University in Egypt, Egypt.</i>
17:30 – 17:40	<b>A Methodology for the Design of 6D Robotic Arm.</b> <i>Mona Younis, Eman Nasser, Amal Nasser, Higher Technological Institute, Egypt.</i>
<b>17:40-18:00</b>	<b>Closing remarks &amp; best presenter award</b>

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