



ICAERA
2021

**2ND INTERNATIONAL CONFERENCE ON
ADVANCES IN ENERGY RESEARCH AND
APPLICATIONS (ICAERA'21)**

**November 24, 2021 - November 26, 2021 | ~~Seoul, South Korea~~
Virtual Conference**

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WELCOME MESSAGE FROM THE CONFERENCE CHAIR

On behalf of the International Academy of Science, Engineering and Technology (International ASET Inc.), the organizing committee would like to welcome you to the International Conference on Advances in Energy Research and Applications (ICAERA'21).

The goal of ICAERA'21 is to provide an online space for scholars from all over the world to present advances in the relevant fields and to foster a virtual environment conducive to exchanging ideas and information. This conference will also provide an ideal environment to develop new collaborations and meet experts on the fundamentals, applications, and products of the mentioned fields.

In the second meeting of this conference, one plenary speaker and one keynote speaker will share their expertise with the aim of exposing participants to a wide spectrum of applications, and to foster crosspollination of ideas and develop new research interests. In addition, approximately 8 papers will be presented from professors, students, and researchers across the world.

We thank you for your participation and contribution to the International Conference on Advances in Energy Research and Applications (ICAERA'21). We wish you a very successful and enjoyable experience.

Dr. Boguslaw Kruczek
University of Ottawa, Canada
Conference Chair
ICAERA'21

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ABOUT ICAERA'21

The 2nd International Conference on Advances in Energy Research and Applications (ICAERA'21) aims to become the leading conference in fields related to Energy Research and Applications. The goal of ICAERA'21 is to gather scholars from all over the world to present advances in the relevant fields and to foster an environment conducive to exchanging ideas and information. This conference will also provide an ideal environment to develop new collaborations and meet experts on the fundamentals, applications, and products of the mentioned fields.

ICAERA'21 is an international conference will be held yearly. This conference focus on all aspects Energy Research and Applications. ICAERA'21 Will be held this year in Vrtual conference

ICAERA'21 is an acronym for **I**nternational **C**onference, on **E**nergy **R**esearch and **A**pplications.

- The proceedings are published in Ottawa, Canada.
- All papers were peer-reviewed
- The congress proceedings is published under an ISSN and ISBN number
- Each paper is assigned a unique DOI number by [Crossref](#)
- The conference proceedings is indexed by [Google Scholar](#)
- The proceedings is permanently archived in [Portico](#) (one of the largest community-supported digital archives in the world)

 Google Scholar

 Crossref


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SCIENTIFIC COMMITTEE

We would like to thank the following for accepting to act as a member of the Scientific Committee for the ICAERA'21 Conference:



Dr. Boguslaw Kruczek

University of Ottawa, Canada
Conference Chair



Dr. Jiheong Kang

KAIST, South Korea
local Committee Member

Scientific Committee Members

- **Dr. Abdessattar Abdelkefi**, New Mexico State University, USA
- **Dr. Kun (Kelvin) Fu**, University of Delaware, USA
- **Dr. Wei Lu**, University of Michigan, USA
- **Dr. Gowtham Mohan**, The University of New Mexico, USA
- **Dr. Santosh Shrestha**, University of New South Wales, Australia
- **Dr. Ismail Solamaz**, Atatürk University, Turkey
- **Dr. Khin Zaw**, National University of Singapore, Singapore

PLENARY/KEYNOTE SPEAKERS

The keynote information for the 2nd International Conference on Advances in Energy Research and Applications (ICAERA'21) is as follows:

Plenary Speaker



Dr. Nam-Gyu Park
Sungkyunkwan University, South Korea

Keynote Speaker



Dr. Michele Guala
University of Minnesota, USA

PLENARY SPEAKER



Title: Perovskite Solar Cell: A Game Changer in Future Solar Power

Dr. Nam-Gyu Park, Sungkyunkwan University, South Korea

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Nam-Gyu Park is Distinguished professor and SKKU-Fellow in School of Chemical Engineering at Sungkyunkwan University (SKKU). He received his B.S. degree in chemical education, M.S. and Ph.D. degrees in chemistry from Seoul National University in 1988, 1992 and 1995, respectively. He worked at ICMCB-CNRS, France, from 1996 to 1997 and at National Renewable Energy Laboratory, USA, from 1997 to 1999 as postdoctoral researchers. He was director of solar cell research center at Korea Institute of Science and Technology (KIST) from 2005 to 2009 and principal scientist at Electronics and Telecommunications Research Institute (ETRI) from 2000 to 2005 before joining SKKU as a full professor in 2009. He is a fellow of Korean Academy of Science and Technology (KAST) since 2017. He has been working on high efficiency mesoscopic nanostructured solar cells since 1997. He is pioneer of solid-state perovskite solar cell, which was first developed in 2012. He was selected as a New Class of Nobel Prize-Worthy Scientist in September 20, 2017 and included in highly cited researchers (HCR, top 1% scientists) in 2017, 2018, 2019 and 2020 by Clarivate Analytics. He received awards including Scientist Award of the Month (2008), KIST Award of the Year (2009), Dupont Science and Technology Award (2010), SKKU fellowship (three times in 2013, 2018 and 2021), PVSEC Hamakawa Award (2015), Dukmyung KAST Engineering Award (2016), ACS-KCS Excellence Award (2018), Ho-Am Prize (Samsung, 2018) and Rank Prize (UK, 2022). Prof. Park has currently more than 342 refereed publications and more than 70 patents. He received H-index of 102 (google scholar). He is Senior Editor of ACS Energy Letters and serves on the Editorial Advisory Board for Chem. Rev., ChemSusChem, and Solar RRL.

KEYNOTE SPEAKER



Title: In-Stream Hydrokinetic Turbines for Sustainable Energy Conversion
[Dr. Michele Guala, University of Minnesota, USA](#)

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Michele Guala is an associate professor in the Department of Civil, Environmental and Geo Engineering, graduate faculty in the Department of Mechanical Engineering, and the Associate Director for Research at the St. Anthony Falls Laboratory, University of Minnesota.

LIST OF PAPERS

The following papers were presented at the 2nd International Conference on Advances in Energy Research and Applications (ICAERA'21)

Renewable & Sustainable Energies

Title: Fuel Efficiency Improvement of Rule-based Algorithm for P0 Mild Hybrid Electric Vehicle

Authors: In-Gyu Jang, Sung-Ho Hwang

[View Paper](#)

Title: Techno-Enviro-Economic Assessment of a Solar Powered Cooler for Cauliflower Storage in Nanded District, India

Authors: Jimena Díaz, Prashant Govande, Kapil Narwal, Paul G. O'Brien

[View Paper](#)

Title: Performance Optimization of the Gasification Process by using Equilibrium Model and Dragonfly Algorithm

Authors: Adityabir Singh, Ranjan Das

[View Paper](#)

Title: Stability Analysis of Salt-gradient Solar Pond under External Heat Addition with Different Salts

Authors: Abhishek Kumar, Ranjan Da

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LIST OF PAPERS

The following papers were presented at the 2nd International Conference on Advances in Energy Research and Applications (ICAERA'21)

Renewable & Sustainable Energies

Title: Producing Electricity By Concentrated Solar Energy

Authors: Hassan Abdulmouti

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Title: Life Cycle Assessment of Using Solar Streetlights for Municipal Streetlighting

Authors: Quinn Daigle, Ijaz Rauf, Paul O'Brien

[View Paper](#)

Title: Characterization of Adsorbents for Thermal Energy Storage in Residential Heating Applications

Authors: Kapil Narwal, Roger Kempers, P. G. O'Brien

[View Paper](#)

Title: Optimization of PV-Solar Panel Cooling System Performances via Numerical Investigation using a Composite PCM-Metal Matrix

Authors: Naomie Beolle Songwe Selabi, Arnaud Regis Kamgue Lenwoue, Lesly Dasilva Wandji Djouonkep

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SPONSORS

International ASET Inc. would like to thank the following sponsors for their support of ICAERA'21:



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ICAERA'22

The 3rd International Conference on Advances in Energy Research and Applications (ICAERA'22) will be held on October 27, 2022 - October 29, 2022 in Seoul, South Korea.



For inquiries and to obtain further information on the congress, please visit the [website](https://2022.icaera.com)

You can also email info@icaera.com or call us at:

+1-613-834-9999

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ETHICS & MALPRACTICE

Publication Ethics and Publication Malpractice Statement

The following statement is mainly based on the Code of Conduct and Best-Practice Guidelines for Journal Editors (Committee on Publication Ethics, 2011).

Scientific Committee

Scientific Committee

Scientific committees consisting of experts in the fields are established. The committees oversee the peer-review and publication process. To see the scientific committee members, please follow the link below.

Scientific Committee

Equality and Decisions

One or more reviewer, scientific committee member, or chair, (internal or external), are responsible for evaluating the relevance of the submitted manuscripts to the proceedings, technical and scientific merit, originally, and impact. These evaluations are to be carried out regardless of ethnicity, religion, gender, sexual orientation, political beliefs, and institutions. Successive to peer-review, the Chair has full authority and is solely responsible for the published content and the process thereof.

Confidentiality

Scientific committee member(s) and publishing staff may not disclose manuscripts or their content, directly or indirectly, to anyone other than individuals invited to review the manuscript (whether they accept or not), other reviewers of the same publications, and publishing staff.

Conflicts of Interest

Scientific committee member(s) and publishing staff may not utilize the contents of submitted manuscripts whether accepted or rejected, directly or indirectly for their own research purposes without prior written consent by the authors.

ETHICS & MALPRACTICE

Reviewers

Contribution to Decisions

In order for final decisions to be made regarding acceptance or rejection of papers, we rely on peer-review. Peer-review is the process of experts in the field reading, understanding, and objectively commenting on submitted papers. Through peer-review, scholars give back to the academic and scientific community by helping the chair(s) make decisions regarding manuscripts.

Promptness

Reviewers should promptly notify the chair(s) if they are unable or unqualified to carry out their reviewing duties. Reviewers should do their best to provide the reviews to the chair(s) as promptly as possible, and within the designated time-frame.

Confidentiality

Reviewers must not share the contents of the manuscripts they receive for review, regardless of their decision to review or contents of the review, directly or indirectly, with anyone other than the person who has assigned the review.

Fairness

Reviewers should review manuscripts fairly and objectively, with supporting evidence or arguments, regardless of personal feelings or biases.

Thoroughness

Reviewers should thoroughly read, understand, and provide constructive feedback with the aim of improving the manuscript. Reviewers should aim to identify and report technical issues, irregularities, mistakes, missing citations, and similarity to other published work.

Conflicts of Interest

Invited reviewers should immediately inform the chair(s) in case of a conflict of interest based on competitive, collaborative, personal, family, and other relationships with the authors or people involved in the work.

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Authors

Authorship

Only persons who have significantly contributed to the work and the manuscript can be named authors on a paper. These contributions include the idea/concept, design, experiments, evaluation, analysis, drafting or revision of the manuscript, and others. Authors must all have agreed to be named as such and for the manuscript to be submitted. Anyone who has contributed based on the above, but the level of contribution is not significant, may appear in the acknowledgement section of the manuscript.

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Authors should describe their work and the results of their work accurately and in full. The level of provided accuracy and detail should be such that a reader can replicate the work independently. Inaccurate, incomplete, fraudulent, and misleading statements are considered unacceptable and unethical. Direct or indirect use of other people's work is not allowed, unless properly cited. Previous works that have influenced the current work should also be cited. Presenting someone else's work as one's own is strictly prohibited and is considered plagiarism.

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Authors are encouraged to share their data, software, or other sharable material online, provided copyright and ownership laws surrounding that particular project permit. Authors may also be asked to share such material with the chair(s), and/or reviewers, and must be willing to do so if asked.

Dual Submissions

Submitting a manuscript to more than one venue (conference, journal, etc) simultaneously is not allowed. Presenting previously published work to be considered as a new submission, without a significant new interpretation or analysis, is prohibited.

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Conflicts of Interest

Authors must notify the chair(s) at the time of submission, if any factor outside the scope of the research has influenced any step of the work and manuscript writing. Examples of such factors include but are not limited to funding, grants, advisory and consultancy, stock ownership, current or past employment, and memberships, among others. All funding sources should be disclosed in the manuscript.

Animal and Human Subjects

Works involving human and/or animal subjects must ensure that the work has abided by institutional guidelines, and pre-approved by required bodies. Moreover, consent must be acquired from participants, and privacy of subjects must be ensured. All of the above must be specified with clear statements in the manuscript.

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Unethical/plagiarism issues mostly result in a retraction, while unintended mistakes will mostly result in the publication of an erratum.

ETHICS & MALPRACTICE

Publisher

Errata and Retractions

The publisher takes the necessary steps to prevent mistakes, academic and scientific misconduct, and unethical behavior, both intended and unintended. When mistakes are reported, the publisher works with chair(s) and authors to publish an erratum clarifying the issue. In cases where the mistakes are severe and significant, the paper might be retracted. If unethical behavior, plagiarism, academic and scientific misconduct, or other such activities are proven to have taken place by an author or authors, the publisher will retract the paper.

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Schedule

This conference proceeding accompanies the conference, meaning a new proceedings will be published every year for the corresponding annual conference of this series.

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