



**ICAERA**  
2020

**INTERNATIONAL CONFERENCE ON  
ADVANCES IN ENERGY RESEARCH AND  
APPLICATIONS (ICAERA'20)**

**September 9 - 10, 2020 | 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'20).**

The goal of ICAERA'20 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 first meeting of this conference, two keynote speakers 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 2 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'20). We wish you a very successful and enjoyable experience.

**Dr. Boguslaw Kruczek**  
**University of Ottawa, Canada**  
*Conference Chair*  
*ICAERA'20*

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# ABOUT ICAERA'20

**The International Conference on Advances in Energy Research and Applications (ICAERA'20) aims to become the leading virtual conference in fields related to Energy Research and Applications.** The goal of ICAERA'20 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.

ICAERA'20 is an international conference will be held yearly. This conference focus on all aspects Energy Research and Applications. ICAERA'20 Will be held this year in VIRTUAL conference

**ICAERA'20** 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)

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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'20 Conference:



## **Dr. Boguslaw Kruczek**

**University of Ottawa, Canada**  
Conference Chair

## **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. Xiangbo Meng**, University of Arkansas, USA
- **Dr. Ngalula S. Mubenga**, University of Toledo, USA
- **Dr. Weijia Yuan**, University of Strathclyde, UK
- **Dr. Khin Zaw**, National University of Singapore, Singapore

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# KEYNOTE SPEAKERS

The keynote information for the International Conference on Advances in Energy Research and Applications (ICAERA'20) is as follows:

## Plenary Speaker



**Dr. Thomas Adams**  
**University of Michigan, USA**

## Keynote Speakers



**Dr. Ngalula S. Mubenga**  
**University of Toledo, USA**

# KEYNOTE LECTURE



**Title:** Degradation Analysis and Simulation of Li-ion Batteries

[Dr. Wei Lu, University of Michigan, USA](#)

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Dr. Wei Lu is Professor at the Mechanical Engineering Department, University of Michigan, Ann Arbor, and Director of research center: Advanced Battery Coalition for Drivetrains. He uses multi-scale and multi-physics approaches to analyze battery degradation. He has over 150 publications in peer-reviewed journals and over 100 presentations and invited talks in international conferences, universities and national labs including Harvard, MIT and Stanford. He also has plenty of publications in conference proceedings, encyclopedias and book chapters. Prof. Lu was the recipient of many awards including the CAREER award by the US National Science Foundation; the Robert J. McGrattan Award by the American Society of Mechanical Engineers; Elected Fellow of the American Society of Mechanical Engineers; Robert M. Caddell Memorial Research Achievement Award; Faculty Recognition Award; Department Achievement Award; Novelis/CoE Distinguished Professor Award; CoE Ted Kennedy Family Faculty Team Excellence Award; CoE George J. Huebner, Jr. Research Excellence Award; and the Gustus L Larson Memorial Award by American Society of Mechanical Engineers. He was invited to the National Academies Keck Futures Initiative Conference multiple times.

# KEYNOTE LECTURE



**Title:** A Bilevel Equalizer to Boost the Capacity of Second Life Li Ion Batteries.

[Dr. Ngalula S. Mubenga, University of Toledo, USA](#)

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Dr. Ngalula Sandrine Mubenga, PE is an Assistant Professor at the Engineering Technology Department at the University of Toledo (UT) [1] ([www.Drmubenga.com](http://www.Drmubenga.com) [2]), Ohio, USA where she received her Bachelor's (2005), Master's (2008) and Doctorate (2017) degrees in Electrical Engineering with honors. Her research areas include battery management Systems, electric vehicles, and renewable energy systems. Her battery research won the 2018 IEEE National Aerospace & Electronics Conference Best Poster Award in the USA, while her hybrid electric vehicle research won the 2008 University of Toledo EECS Dept. Most Outstanding Thesis award. Prior to this role, Sandrine was the Manager of Electrical Engineering at UT where she helped manage a \$65 million budget. She is a registered Professional Engineer in the state of Ohio, USA. Sandrine is also an entrepreneur. Since 2011, she is the founder and Chief Executive Officer of SMIN Power Group [3] ([www.sminpowergroup.com](http://www.sminpowergroup.com) [4]), a solar developer with offices in the USA and in the D.R.Congo. In 2018, Sandrine founded the STEM DRC Initiative [5], a non-profit organization that aims to encourage Science Technology Engineering and Math (STEM) in the D.R.Congo ([www.stemdrc.com](http://www.stemdrc.com) [6]) and offered 63 scholarships in 2019. She is a Member of the Board of Directors at the Société Nationale d'Électricité, the main electric utility company in the D.R.Congo.

For more information please visit:

[https://avestia.com/ICAERA2020\\_Proceedings/files/speakers.html](https://avestia.com/ICAERA2020_Proceedings/files/speakers.html)



# LIST OF PAPERS

The following papers were presented at the International Conference on Advances in Energy Research and Applications (ICAERA'20)

## Energy Optimization

**Title:** Transient 3D Numerical Simulation of Horizontal Earth Water Heat Exchanger (EWHE)

**ICAERA 113**

**Authors:** Hanin Atwany , Mohammad O. Hamdan, Bassam A. Abu-Nabah , Mousa Attom , Abdul Hai Alami

[View Paper](#)

**Title:** Is Bacterial Biobutanol Production A Viable Solution?

**ICAERA 114**

**Authors:** Jules Thibault

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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, originality, 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.

# ETHICS & MALPRACTICE

## 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.

### ***Accuracy, Originality, and Plagiarism***

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.

### ***Data and Material***

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.

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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.

# ETHICS & MALPRACTICE

## ***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.

## ***Hazardous Material***

It should clearly be identified in the manuscripts if the works have involved hazardous chemicals and material, or devices that can be harmful.

## ***Reporting of Mistakes, Errata, and Retractions***

If an author identifies a major error in a published paper, he/she must immediately identify the publisher. Regardless of whether a significant error is reported by the authors of the work or other readers, authors are obligated to take the necessary steps to correct the issue. It is decided on a case-by-case basis whether an erratum will be submitted to notify future readers of the error and correction, or whether the paper will be retracted.

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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### ***Ownership and Management***

This conference-proceedings is managed and operated by the International ASET (International Academy of Science, Engineering, and Technology) and Avestia Publishing (the publishing arm of ASET).

### ***Schedule***

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

# CONTACT US

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