



EHST
2024

Proceedings Of The 8th International Conference On Energy Harvesting, Storage, And Transfer (EHST 2024)

June 16, 2024 - June 18, 2024 | Chestnut Conference Centre
University of Toronto, Toronto, Canada

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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 8th International Conference of Energy Harvesting, Storage, and Transfer (EHST 2024).

EHST 2024 is aimed to become one of the leading international annual conferences in the fields related to energy harvesting, storage, and transfer. This conference will provide excellent opportunities to the scientists, researchers, industrial engineers, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

EHST is a series of international conferences held yearly. These conferences focus on all aspects of Energy Harvesting, Storage, and Transfer. The **8th International Conference of Energy Harvesting, Storage, and Transfer (EHST 2024)** is going to be held in a hybrid format, i.e. in person as well as online.

In the seventh meeting of this conference, one plenary speaker and one keynote speaker will share his 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 11 papers will be presented from professors, students, and researchers across the world.

We thank you for your participation and contribution to the 8th International Conference of Energy Harvesting, Storage, and Transfer (EHST 2024). We wish you a very successful and enjoyable experience.

Dr. Boguslaw Kruczek

*Conference Chair and Proceedings Editor
EHST 2024*

Dr. Wael H. Ahmed

*Conference Co-Chair and Proceedings Editor
EHST 2024*

Dr. Xianshe Feng

*Conference Co-Chair and Proceedings Editor
EHST 2024*

ABOUT EHST 2024

The 8th International Conference of Energy Harvesting, Storage, and Transfer (EHST 2024) aims to become the leading annual conference in fields related to energy harvesting, storage, and transfer. The goal of EHST 2024 is to gather scholars from all over the world to present advances in the fields related to energy harvesting, storage, and transfer 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.

These conferences focus on all aspects of Energy Harvesting, Storage, and Transfer. After successfully holding **EHST'17 to EHST'23** in Canada, **EHST 2024** is hosted in Chestnut Conference Centre - University of Toronto, Toronto, Canada as well this year. **EHST 2024** is going to be held in a hybrid format, i.e. in person as well as online.

EHST is an acronym for **E**nergy, **H**arvesting, **S**torage, and **T**ransfer.

All papers were peer-reviewed

The conference proceedings are published under an ISSN and ISBN number

Each paper is assigned a unique DOI number by [Crossref](#)

The conference proceedings are indexed by [Google Scholar](#)

The proceedings are permanently archived in [Portico](#) (one of the largest community-supported digital archives in the world)

 Google Scholar

 Crossref

 PORTICO

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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 EHST 2024 Conference:

Scientific Committee Chairs



Dr. Boguslaw Kruczek
University of Ottawa, Canada
Conference Chair



Dr. Wael H. Ahmed
University of Guelph, Canada
Conference Co-Chair



Dr. Xianshe Feng
University of Waterloo, Canada
Conference Co-Chair

Scientific Committee Members

- **Dr. Ilinca Adrian**, Université du Québec à Rimouski, Canada
- **Dr. Ursula Eicker**, Concordia University, Canada
- **Dr. Akhtar Hussain**, University of Alberta, Canada
- **Dr. Lin Liu**, The University of Kansas, USA
- **Dr. Sylvie Lorente**, INSA Toulouse, France
- **Dr. Amir H Mohammadi**, University of KwaZulu-Natal, South Africa
- **Dr. Sebastien Poncet**, University of Sherbrooke, Canada
- **Dr. SA Sherif**, University of Florida, USA

PLENARY & KEYNOTE SPEAKERS

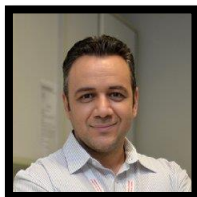
The keynote information for the 7th International Conference of Energy Harvesting, Storage, and Transfer (EHST 2024) is as follows:

Plenary Speaker



Dr. Catherine Mulligan
United Arab Emirates University, UAE

Keynote Speaker



Dr. Sulaiman Al-Zuhair
United Arab Emirates University, UAE

EHST 2024 PLENARY SPEAKER



Titles: Water-Energy Nexus: Energy Extraction from Water Towards Carbon Neutrality

Dr. Catherine Mulligan, Concordia University, Canada

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Catherine N. Mulligan, PhD. is a Distinguished Research Professor at Concordia University in Montreal. She is the founder and Director of the Concordia Institute of Water, Energy and Sustainable Systems. Her research involves the treatment of soil, water, sediments and mining wastes. She has published more than 135 refereed journal papers and 8 books, and is preparing the book on the Water-Energy Nexus to be published in 2024 by CRC Press. She has supervised more than 75 graduate students to completion. She is a Fellow of the Canadian Society for Civil Engineering, Engineering Institute of Canada, Canadian Academy of Engineering and Royal Society of Canada.

EHST 2024 KEYNOTE SPEAKER



Titles: Performance of Immobilized Enzymes in Metal Organic Frameworks (MOFs)

Dr. Sulaiman Al-Zuhair, United Arab Emirates University, UAE

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Sulaiman Al-Zuhair is a Professor of Chemical Engineering at UAE University and currently holds the position of Assistant Dean for Research and Graduate Studies. Before that, he held the positions of Head of Chemical and Petroleum Engineering Department, Director of Project Management Unit and Coordinator of the Postgraduate Program. Prof. Al-Zuhair's research resulted in publication of over 100 papers in Scopus and his current Scopus h-index is 34. He also has five patents under his name and published an authored book and three book chapters. As a Principal Investigator, Prof. Al-Zuhair was able to secure research funds of over AED 3 million dirhams, and over AED 20 million as a Co-Investigator. He is the recipient of the Dubai Award for Sustainable Transport (Best Academic Research) and the UAEU Research Excellence Award in 2019, and College of Engineering Excellence Research Award in 2016 and 2020. Prof. Al-Zuhair is on the Editorial Boards in a number of journals, and had held positions in the scientific and organizing committees of several international conferences.

LIST OF PAPERS

The following papers were presented at the 7th International Conference of Energy Harvesting, Storage, and Transfer (EHST 2024).

Renewable Energy

[Study in Transient Regime of the Electrical Parameters of a Silicon Solar Cell with Multi Vertical Junctions Connected In Parallel and Placed In Short-Circuit: Influence of Temperature and Magnetic Field](#)

Authors: Pape Diop, Mamadou Lamine Samb, Mame Malick Diop

[Optimized Solar-Assisted Clean Steam Generation: Advancing Sustainability in Healthcare Infrastructure](#)

Authors: Mohammad Olfati, Mohammad Jamshidmofid, Sasan Sadrizadeh, Meisam Sadi, Ahmad Arabkoohsar

[Single Layer of an Electron Beam Evaporated TiOxNy as Selective Solar Absorber](#)

Authors: Dawit Berhane, Al Meldrum, Zebib Nuru

[Feasibility Assessment of Integrating Concentrating Solar Collectors with Gas Turbines in Low Direct Normal Irradiance Areas](#)

Authors: Navid Mahdavi, William David Lubitz, Shohel Mahmud, Syeda Humaira Tasnim

[Application of Solar Energy for Cascade Thermal Energy Storage Tank for Heating Purposes Based on a 2E Analysis](#)

Authors: Mohammadmehdi Hosseini, Shohel Mahmud, Syeda Humaira Tasnim

LIST OF PAPERS

Energy Storage & Efficiency

[Real-time Local Buckling Monitoring in Oil/gas Pipelines Using Fiber Optic Sensors](#)

Authors: Luyang Xu, Ying Huang, Yi Bao

[Facile Synthesis of Advanced Nanostructured Conducting Polymer- Reduced Graphene Oxide Hybrid Composites for Energy Storage Devices](#)

Authors: Paramjit Singh, Rashmi Saini, Rajesh Kumar

[Impact of Various Thermochromic Materials for Thermal Storage Applications on Multilayer Thin Film Coatings](#)

Authors: Abdullatif Hakami

SPONSORS

International ASET Inc. would like to thank the following sponsors for their support of EHST 2024:



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JOURNAL PUBLICATION

Selected articles from the conference will be published in the [Journal of Fluid Flow, Heat and Mass Transfer \(JFFHMT\)](#) after a secondary review process.

This journal has adopted to the open-access model, meaning all free access to the journal's articles and content with no need for subscription. This ensures larger audience and therefore higher citations.

All published papers of JFFHMT will be submitted to Google Scholar. Additionally, they will be permanently archived in Portico (one of the largest community-supported digital archives in the world) and will be assigned unique DOIs.

Please visit the following website for the respected journal: **JFFHMT:** <https://jffhmt.avestia.com>

EHST 2025

The 9th International Conference on Energy Harvesting, Storage, and Transfer (EHST 2025) will be held on July 20, 2025 - July 22, 2025 in Imperial College London Conference Center, London, United Kingdom .



For inquiries and to obtain further information on the congress, please visit the [website](http://www.2025.ehstconference.com)

You can also email info@ehstconference.com or

call us at: +1-613-834-9999

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ETHICS & MALPRACTICE

At International ASET Inc., we take matters that relate to ethics in publishing very seriously. We believe that the peer-review publication process is a vital building block of academia, and its integrity must be maintained at all costs, which is why every article will be peer-reviewed by several experts in the field. Under peer-review, experts in the related fields are required to provide opinions and comments on the improvements of the submissions.

We are proud of our efforts towards abiding by the guidelines of ethics, integrity, and high standards in publishing.

Following are the ethics guidelines set by the organizers for the authors and the reviewers of the conference:

Scientific Committees

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: [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.

Acknowledgment of Source

The reviewer should notify the chair(s) if they find any similarities in the paper being reviewed and any other work that has been published previously.

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.

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

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

Reporting Standards

The paper being submitted for the proceedings should be based on clear objective, discussion, and references. The findings, data, and the arguments being used in the paper should be accurate. It is author's responsibility to guarantee the authenticity of the data in the paper.

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.

Acknowledgement of Source

Acknowledgement to other's work being used in the paper must be given at all times. Authors of the paper should give comprehensive credit where it is necessary, by citing the work, they use for supporting their own research.

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.

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Animal and Human Subjects

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