



Fall 2022 Newsletter, Volume 40

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ASEE 2023 Annual Conference

Baltimore Convention Center, MD. | June 25th-28th, 2023

**Abstract Submissions are OPEN now until
Monday, November 7, 2022**

**To Organize Panels or Workshops, please
contact the Program Chair ASAP**

ECCNED Call for Papers  [View Online](#)

Website: <https://sites.asee.org/eccd/>

MESSAGE FROM THE DIVISION CHAIR

Dear ECCNED Members,



I would like to extend greetings on behalf of the officers of the ECCNED! First and foremost, I would like to thank Drs. Matt Aldeman and Siamak Farhad for their service in putting together the 2022 conference.

Dr. Aldeman, who is our current Vice Chair, served as the Program Chair and did a fantastic job of putting together another very successful program. Dr. Farhad served as the ECCNED Division Chair and did a marvelous job leading the division through all his service as an officer. It takes a ton of voluntary work to keep the division and the conference going, and I could not think of better leaders to make it all come together!

We are looking forward to another great conference next year where we will visit the beautiful city of Baltimore, Maryland. Our current ECCNED Program Chair, Dr. Sandip Das is working diligently to ensure that we have another successful year. We will have several technical sessions, our usual business meeting, panel sessions, and of course social events for us all to get together and have some fun. I encourage you all to consider submitting a paper based on some of the work you are doing in the energy space as it relates to education. We are currently going through a massive renovation in our energy infrastructure and there is the need for us to push this forward by developing the workforce of the future through education. Your work



and ideas are an invaluable tool in the development of this workforce, and sharing your work makes a huge impact for all.

Lastly, I would like to thank Dr. Tony Kerzmann who is serving as our current Division Treasurer and of course, our Newsletter Editor, Dr. Ira

Harkness who has done a magnificent job in putting together this newsletter!

Sincerely,
Bob Kerestes, PhD
ECCNED Chair

2021 – 2022 DIVISION OFFICERS

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DIVISION ANNOUNCEMENTS

The ECCNED Call for Papers for the 2023 ASEE Annual Conference and Exposition has been released. For more information and to view the paper guidelines, please visit the Call for Papers webpage, [available here](#).

Please join the ECCNED LinkedIn group for all the latest information! The URL for this group is: <https://www.linkedin.com/groups/12134751>

Access to the ECCNED Newsletters Archive is here: <https://sites.asee.org/ECCNED/about/newsletters/>

The annual ECCNED Business Meeting was held during the 2022 ASEE annual conference.



2023 CONFERENCE CALL FOR PAPERS

Dear Energy Conversion, Conservation and Nuclear Engineering Division (ECCNED) Members,

I hope that your semesters are off to a great start! We look forward to welcoming you at the next annual conference in Baltimore, Maryland from June 25-28, 2023. The conference website is: <https://www.asee.org/events/conferences-and-meetings/2023-annual-conference>

If you are interested in organizing or participating in a Panel Session or a Workshop at the conference, please email me as soon as possible. Panels should also submit an abstract by the abstract submission deadline, which will be used as the description for the panel session, and they may also submit a full paper.

Abstract submissions for conference papers are open now and will close on November 7, 2022. Abstracts should be 250-500 words in length and should include a brief introduction, a statement about the focus of the paper, the work which has been done, assessments, and a conclusion. All abstracts must be submitted via the ASEE paper management system and will be peer reviewed.

Topics may include:

- Innovative teaching & learning strategies (including remote & hybrid teaching/learning)
- Research methods to assess teaching pedagogy and learning strategies
- Experiments and use of laboratory equipment and their impact on learning
- Integrating research into energy engineering education
- Service-learning projects
- Curriculum content innovation
- Impact of problem-based learning, collaborative learning, cooperative learning, discovery learning and

- inverted learning
- Renewable energy sources and systems
- Energy storage technologies
- Energy conservation and smart energy management using emerging IoT technologies
- Distributed generation and smart grids
- Engineering for energy sustainability and emissions reduction
- Nuclear energy engineering education
- Emerging energy harvesting technologies
- Discipline-specific engineering research relating to energy conversion and conservation (electrical, mechanical, nuclear, chemical, aerospace, civil, computer, textile, petroleum, biological, agricultural, natural resources, etc.)
- Outreach programs involving energy conversion and conservation
- Innovative research and its dissemination into grades P-20
- Hands-on projects for grades P-20
- Role of engineers in the formulation and enforcement of public policy related to energy
- Research Experiences for Undergraduates (REU) projects related to energy conversion or conservation

In addition to traditional full conference papers, the ECCNE Division will be accepting Works in Progress (WIP). Work-in-Progress papers report on work that is in the process of study and/or implementation for which results will not be available by the time of draft paper submission, for studies that are as yet inconclusive, and for studies at an early to intermediate state for which authors are seeking feedback from the community. A submission of this paper type MUST have a title that begins with "Work-in-Progress:" with the colon separating the phrase from the remainder of the title. WIP papers may be assigned to a poster presentation session to allow authors to maximize the opportunity



for extended conversations regarding their ongoing research. WIP papers are not eligible for the Division's Best Paper Award.

The 2023 ASEE Annual Conference and Exposition Author's Kit, Plagiarism Guidelines, and Best Paper Rubric can be found on the "For Authors" section of ASEE conference website. All ASEE papers are published to present. Papers accepted for publication in the Proceedings must be presented by at least one registered conference participant in a designated technical session or poster session. ECCNED will not accept papers that overlap significantly in content that has been (or will be) published elsewhere. All authors are expected to adhere to the guidelines put forth in the Author's Kit and Plagiarism Guidelines. Of particular importance is the "double-blind" requirement.

The ECCNED Division has a best paper award that is presented at the division's business

meeting at the annual conference. The division also participates in the conference best diversity paper award by the nomination of a paper submitted to the division.

If you are interested in reviewing abstracts and/or papers or have any questions about the submission process, please let me know by sending an email to sdas@kennesaw.edu.

Thank you very much for your time and your participation! We welcome your wonderful ideas, and we look forward to seeing you in Baltimore!

Sincerely,

Sandip Das, PhD

Program Chair

Energy Conversion, Conservation and Nuclear Engineering Division

HIGHLIGHTS FROM THE 2022 CONFERENCE

At the 2022 Virtual ASEE Annual Conference, the Energy Conversion, Conservation and Nuclear Engineering Division had 17 papers presented in 4 technical sessions, held 2 discussion panels with 9

guest speakers, one poster session, one distinguished lecture, and one business event (Energy Conversion, Conservation and Nuclear Engineering Division Business Meeting).

ECCNED 2022 PAPERS PRESENTED, POSTERS & PANELS

T1736 · Technical Session 1: Innovative Approaches to Teaching Energy-Related Concepts

Moderators: Dr. Anveeksh Koneru and Dr. Ira Harkness

1. **Interdisciplinary Collaboration to Engage Engineering Students' Interest in Renewable Energy Concepts** [[view paper](#)]

Abhishek Verma (University of Wisconsin - Stout) and Kenan Baltaci (University of Wisconsin - Stout)

2. **Inexpensive Solar Garden Light Provides Valuable Energy System Learning Tool** [[view paper](#)]

Dale Litwhiler (Pennsylvania State University, Berks Campus) and Neda Bazyar Shourabi (Pennsylvania State University, Berks Campus)

3. **A Software Application Teaching Aid for Understanding the Sizing and Constraints of Energy Storage Technologies** [[view paper](#)]

Joseph M Elio (Arizona State University) and Ryan James Milcarek (Arizona State University)



4. **Lessons Learned in Engine Temperature Control Through Radiator Configurations: A Formula SAE Design** [[view paper](#)]

John M Mativo (University of Georgia), Jacob Lancaster (University of Georgia)

M1777 · Technical Session 2: Enhancing Energy-Related Education with Student Design Projects

Moderators: Dr. Siamak Farhad and Dr. Ira Harkness

1. **Project-Based Learning: Piezoelectric Energy Wheel** [[view paper](#)]
Bala Maheswaran (Northeastern University), Adrian Criollo, Ananya Reghupathi (Northeastern University), Ansh Harsh Shah, Robert Lee (Northeastern University)
2. **Improved Operation and Protection Method for Marching Band Keyboard Platform** [[view paper](#)]
Blaine Jessee Porter (Schweitzer Engineering Laboratories, Inc.), John Mackesy (University of Idaho), Taylor John Leavey (University of Idaho), Joe Law (University of Idaho), Herbert L. Hess (University of Idaho)
3. **WIP: Implementing Mini-Projects to Build Community and Improve Student Engagement** [[view paper](#)]
Leon Liebenberg (University of Illinois at Urbana - Champaign), Taylor Tucker (University of Illinois at Urbana - Champaign)
4. **Design and Construction of a 50 kW PV-based EV Fast-Charging Station as a Community Engagement Project** [[view paper](#)]
Reg Pecen (Sam Houston State University), Faruk Yildiz (Sam Houston State University, and Ulan Dakeev

T217137 · Technical Session 3: Design of Novel Energy-Related Courses and Course Materials

Moderators: Dr. Sandip Das and Dr. Maryam Younessi Sinaki

1. **A Sustainability and Alternative Energy Course as a Bridge between Disciplines** [[view paper](#)]
Amanda Simson (The Cooper Union) and Benjamin Davis (The Cooper Union)
2. **Development of an Introductory Nuclear Engineering Courses for Non-Majors** [[view paper](#)]
Ira Harkness (University of Florida)
3. **Results of 2021 Energy Education Stakeholder Survey** [[view paper](#)]
Kenneth Walz (Madison Area Technical College), Andrew McMahan (Central Carolina Community College), Gabrielle Temple (Madison Area Technical College), and Kathleen Alfano (College of the Canyons)
4. **A Holistic Implementation of Data Science in Clean Energy Engineering Education** [[view paper](#)]
Ilya Grinberg (The State University of New York, College at Buffalo), Saquib Ahmed (The State University of New York, College at Buffalo), Joaquin Carbonara (The State University of New York, College at Buffalo)

T217137 · Technical Session 5: Strategies for Increasing Classroom Engagement

Moderators: Dr. Seyed Mousavinezhad and Dr. Matt Aldeman

1. **Work in Progress-Analysis of Flipped Classrooms in Thermodynamics Courses** [[view paper](#)]
M. David Burghardt (Hofstra University) and Deborah Hecht
Kenneth Walz (Madison Area Technical College), Michael Arquin, Joel Shoemaker (Madison Area Technical College), Scott Liddicoat, Gabrielle Temple, and Kathleen Alfano (College of the Canyons)
2. **Delivery and Impact of Virtual Teacher Professional Development Workshops** [[view paper](#)]
3. **An Innovation Methodology to Increase Students Performance in Hybrid Classroom and Virtual Environment** [[view paper](#)]



Tooran Emami (United States Coast Guard Academy)

4. **Presenting an Accessible yet Rigorous Development of the Zone Temperature Equation: An Important Thermodynamic Result Inherently Interesting and Educational** [[view paper](#)]

Sheldon Jeter (Georgia Institute of Technology) and Christopher Fernandez

5. **Supervisory Controls and Data Acquisition Instructional Materials and Resources for Energy Education Programs** [[view paper](#)]

Kenneth Walz (Madison Area Technical College), Kevin Cooper (Indian River State College), Benjamin Reid, Christopher Baechle (Indian River State College), Christopher Akelian (Cuesta College), and Kathleen Alfano (College of the Canyons)

U17328 · Panel: Energy and Environmental Education in a Diverse and Inclusive Classroom

Moderator: Dr. Matt Aldeman

Speakers:

1. Dr. Bala Maheswaren (Northeastern University)
2. Dr. Veera Gnaneswar Gude (Mississippi State University)
3. Dr. Tooran Emami (United States Coast Guard Academy)
4. Dr. Ramanitharan Kandiah (Central State University)

W217330 · Panel: Advanced Energy Technologies

Moderator: Dr. Sandip Das and Dr. Robert J Kerestes

Speakers:

1. Dr. Anveeksh Koneru (University of Texas Permian Basin)
2. Dr. Charles E Baukel (John Zink Hamworthy Combustion)
3. Dr. Ryan James Milcarek (Arizona State University)
4. Dr. Ira Harkness (University of Florida)
5. Dr. Hector Medina (Liberty University)

W17664 · Distinguished Lecture: Renewable Energy Education, Training, and Outreach in the Midwest Transformation

Guest Speaker:

Mr. Nick Hylla

Executive Director of the Midwest Renewable Energy Association (MREA)

T17679 · Poster Session

Moderator: Dr. Matt Aldeman



BEST PAPER AWARDS

Congratulations to all of the Best Paper Award Winners!

1st Place and Best Paper:



“Sustainability and Alternative Energy Course as a Bridge between Disciplines”

Authors: Amanda Simson (The Cooper Union) and Benjamin Davis (The Cooper Union)

2nd Best Paper:



“Design and Construction of a 50 kW PV-based EV Fast-Charging Station as a Community Engagement Project”

Authors: Reg Pecen (Sam Houston State University), Faruk Yildiz (Sam Houston State University), and Ulan Dakeev

3rd Best Paper:



“Delivery and Impact of Virtual Teacher Professional Development Workshops”

Authors: Kenneth Walz (Madison Area Technical College), Michael Arquin, Joel Shoemaker (Madison Area Technical College), Scott Liddicoat, Gabrielle Temple, and Kathleen Alfano (College of the Canyons)



PHOTOS OF TOUR, SOCIAL EVENTS, AND DISTINGUISHED LECTURE



Dr. Mahmoud Kabalan leads the tour of the Microgrid Research Center at the University of St. Thomas.

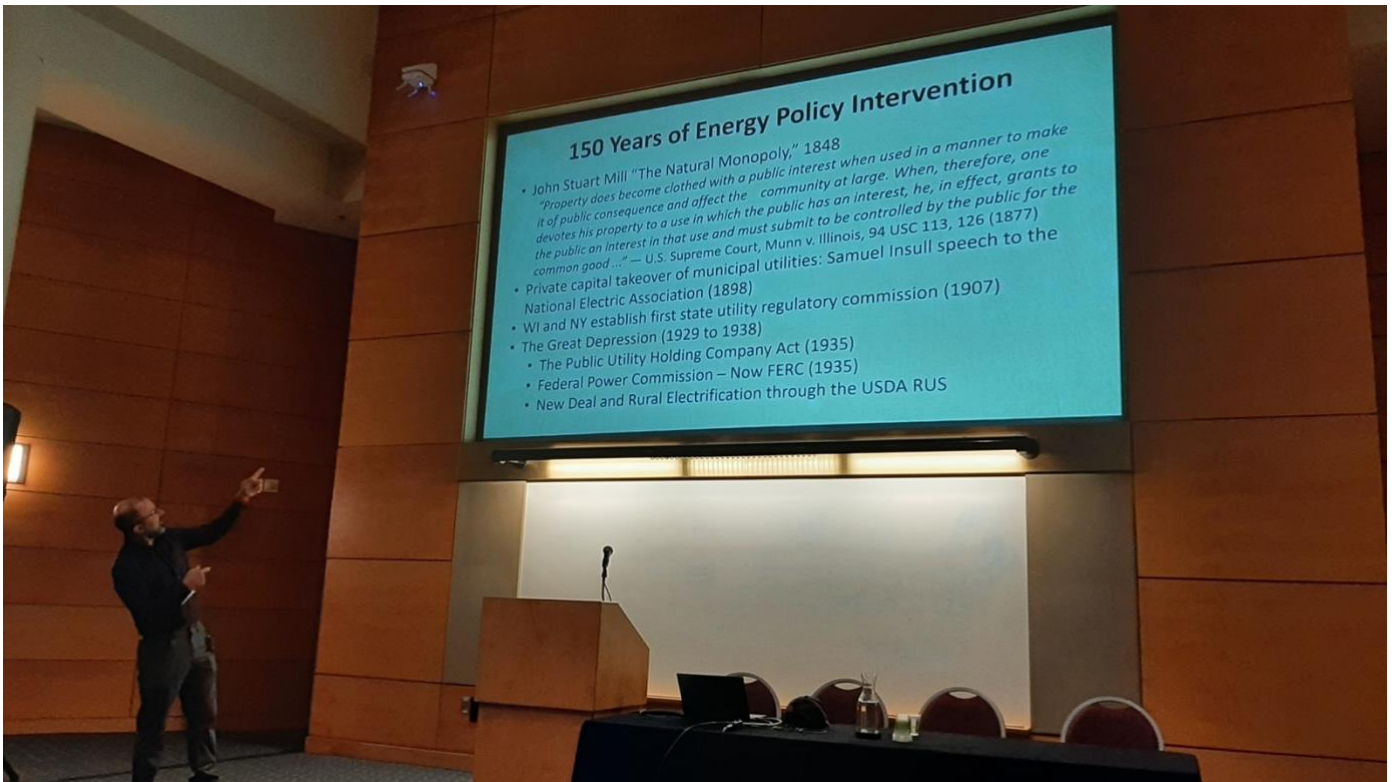


ECCNED members and friends gather for dinner at the Sushi Train restaurant.





ECCNED social event at the Lakes and Legends Brewing Company



ECCNED Distinguished Lecture presentation by Nick Hylla

ENERGY CONVERSION AND CONSERVATION DIVISION

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