



**UNITED** Scientific  
Group  
A non-profit organization

**REN-2023**  
October 23-25, 2023 | Paris, France

*Welcome to the City of Lights*



*International Conference on*

# Renewable Energy

**October 23-24, 2023 | Paris, France**

**Mercure Paris Charles De Gaulle & Convention**

**October 25, 2023 | Virtual (CEST Time, Paris)**

**renewable@uniscigroup.net**

**+1-469-854-2280/81**

<https://renewablemeeting.com/>



## MEETING JOINING LINKS (LIVE STREAMING ON ZOOM PLATFORM)

### **CEST, Paris, France - Time zone**

As the conference is hybrid, the virtual attendees can access the in-person presentations and queries can be asked through zoom chat box.

Meeting links shared will be for the complete meeting to join at any point of time.

### **October 23, 2023 | Room - Rome**

**Topic: International Conference on Renewable Energy**  
**October 23-25, 2023 | Paris, France | Hybrid**

#### **Join Zoom Meeting**

<https://us06web.zoom.us/j/89551168424?pwd=9f6E8GocEj4oLuSpjN78GKmcR9Gyaf.1>

**Meeting ID:** 895 5116 8424

**Passcode:** 401790

### **October 24, 2023 | Room - Rome**

**Topic: First International Conference on Renewable Energy**  
**October 23-25, 2023 | Paris, France | Hybrid**

#### **Join Zoom Meeting**

<https://us06web.zoom.us/j/89551168424?pwd=9f6E8GocEj4oLuSpjN78GKmcR9Gyaf.1>

**Meeting ID:** 895 5116 8424

**Passcode:** 401790

### **October 25, 2023 | Virtual (CEST Time | Paris)**

**Topic: First International Conference on Renewable Energy**  
**October 23-25, 2023 | Paris, France | Hybrid**

#### **Join Zoom Meeting**

<https://us06web.zoom.us/j/89551168424?pwd=9f6E8GocEj4oLuSpjN78GKmcR9Gyaf.1>

**Meeting ID:** 895 5116 8424

**Passcode:** 401790



- 08:00-08:20 Registrations & Badge Pickup @ Foyer
- 08:20-08:30 Opening, Welcome and Announcements @ Rome

### Keynote Session

**Moderator:** **Christopher S. Johnson**, Argonne National Laboratory, Lemont, IL, USA

- 08:30-09:05 **Que Vadis Domine - on Future Retrofitting Residential Buildings**  
Mark Bomberg, Clarkson University, Potsdam, NY, USA

**Mark Bomberg** is a Research Professor at Mechanical and Aeronautical Department of Clarkson U., Potsdam, NY, USA also Visiting Prof. at Cracow TU, Poland and Former Prof. of McMaster U, Hamilton, Canada; International Prof. Tongji U, Shanghai, China. Currently he is an RD manager in a small company in CNY working on integration of HVAC and building enclosures in NZEB and leading a small international research network. He published over 200 refereed papers and 7 books; has more than 1000 research citations and 33,000 reads on Research Gate (Berlin). He received the highest awards in building physics in both USA and Canada namely honorary membership of Building Enclosure Technology and Environment Committee of the National Institute of Building Science Washington, DC in 2012 and Ontario Building Envelope Council in 1999.

- 09:05-09:40 **Charging Batteries for Renewable Energy using Light-mediated Photoelectrochemical Reactions**  
Christopher S. Johnson, Argonne National Laboratory, Lemont, IL, USA

**Christopher S. Johnson** is currently an Argonne Distinguished Fellow and senior chemist at Argonne National Laboratory, specializing in the research & development of battery materials and battery systems with 31 years of experience. He is known worldwide for his development of state-of-art lithium-ion battery cathode materials, and recently, Si-anodes, and sodium-ion batteries. He has published over 134 publications, and 25 issued US patents. He has received the battery research award from the International Battery Association in 2006. He is the 2018 recipient of the University of Chicago Argonne Distinguished Scientist Award, and is a Fellow of the Electrochemical Society.

### Scientific Session-I

@ Rome

### Energy Storage & Conversion

- 09:40-10:00 **Study on Form-stable Composite Metallic Phase Change Materials**  
Geng Qiao, Global Energy Interconnection Research Institute Europe GmbH, Germany
- 10:00-10:20 **Two-Dimensional Nanocomposite Functional Materials for Sustainable Energy Storage Applications**  
Jayavel Ramasamy, Anna University, India
- 10:20-10:40 **High-temperature Thermochemical Heat Storage by Complex Transition Metal Hydrides**  
Shahrouz Nayeboossadri, University of Birmingham, UK

10:40-11:00 **Coffee Break**

@ Foyer

- 11:00-11:20 **Mn<sub>3</sub>O<sub>4</sub>-NiFe Layered Double Hydroxides (LDH)/Carbon Composite Cathode for Rechargeable Zinc-air Battery**  
L K Nivedha, Indian Institute of Technology Madras, India
- 11:20-11:40 **Design of Layered Cathode and Electrolyte for Improved Sodium-ion Batteries**  
Chang Woo Lee, Kyung Hee University, South Korea
- 11:40-12:00 **A High-performance Phenazine based Cathode for Aqueous Organic Zinc-ion Battery**  
Priya V, Indian Institute of Technology Madras, India
- 12:00-12:20 **Machine Learning Aided Capacitance Prediction for Hybrid Zinc-ion Capacitors and Employing Organic Redox Additives for Enhancing the Energy Density**  
Sravani Potham, Indian Institute of Technology Madras, India
- 12:20-12:40 **Combination of Nitro Isomers of Naphthoquinone on Delivering Improved Capacity and Cyclability to Zn-ion Batteries**  
Richa Gupta, Indian Institute of Technology Madras, India
- 12:40-13:00 **Energy Conversion and Storage: Challenges from Materials Science Perspectives**  
Riadh Neffati, University Tunis El Manar and King Khalid University, Saudi Arabia

**13:00-13:10 Group Photo**

**13:10-14:00 Networking Lunch** @ Foyer

**Chair:** **Shahrouz Nayeboossadri**, University of Birmingham, UK

14:00-14:20 **Plasma-assisted Premixed Ammonia Flames: A Numerical Study**  
Mehdi Jangi, University of Birmingham, UK

14:20-14:40 **Mounting Horizon of Green Energy Materials for Green Energy Storage Devices**  
R B Choudhary, Indian Institute of Technology, Dhanbad, India

14:40-15:00 **Forum on “Que Vadis Domine – on Future Retrofitting Residential Buildings”**  
Mark Bomberg, Clarkson University, Potsdam, NY, USA

**Plenary Presentation [Virtual]**

15:00-15:40 **No Miracles Needed: Transitioning the World to 100% Clean, Renewable Energy and Storage for Everything**  
Mark Z. Jacobson, Stanford University, Stanford, CA, USA

**Mark Z. Jacobson's** career has focused on better understanding air pollution and global warming problems and developing large-scale clean, renewable energy solutions to them. Toward that end, he has developed and applied three-dimensional (3-D) atmosphere-biosphere-ocean computer models and solvers to simulate and understand air pollution, weather, climate, and renewable energy systems. He has also developed roadmaps to transition countries, states, cities, and towns to 100% clean, renewable energy for all purposes and computer models to examine grid stability in the presence of 100% renewable energy. Jacobson has been a professor at Stanford University since 1994. His research crosses two fields: Energy and Atmospheric Sciences.

**Chair:** Teijo Palander, University of Eastern Finland, Finland

15:40-16:00 **Techno-economic Wood Procurement Model from Renewable Forests for Profitable Energy Production in CHP Plant**

Teijo Palander, University of Eastern Finland, Finland

16:00-16:20 **Producing a Novel Biodiesel from Waste Doner Kebab Fat and Assessing Its Fuel Properties under Different Production Conditions**

Batuhan Erden, Middle East Technical University, Turkey

**16:20-16:40 Coffee Break**

@Foyer

16:40-17:00 **Integrated Algal-oil Palm Biorefinery for Sustainable Energy and Bioproducts Co-generation**

Mohd Azmuddin Abdullah, SIBCO Medical and Pharmaceuticals, Malaysia

17:00-17:20 **Visualization Inside Fuel Cell and Lithium-ion Battery under Operation Modes**

Shuichiro Hirai, Tokyo Institute of Technology, Japan

17:20-17:40 **Assisted and Unassisted Starter Techniques for the Subfreezing Operation of the PEM Fuel Cells**

Alparslan Topcu, Alanya Alaaddin Keykubat University, Turkey

17:40-18:00 **Green Hydrogen Production and Exploitation: Why Enzymes do it Better**

Francesca Valetti, University of Torino, Italy

18:00-18:20 **Techno-economic Calculator for Hydrogen Transport and Storage: An Assessment Tool to Support Early-stage Commercialization**

Md Rizwan, Det Norske Veritas (DNV) AS, Norway

**18:20-19:00 Poster Presentations & Drinks**

@ Foyer

REN P-01 **Atomistic Investigation of the Occupancy Limits and Stability of Hydrogen Hydrates as a Hydrogen Storage Medium**

Sahar Jafari Daghalian Sofia, McGill University, Canada

REN P-02 **Low-cost Functionalized Graphene Nano Fiber/Nafion Composite Cation Exchange Membrane for Vanadium Redox Flow Battery Application**

Harun Khan, Indian Institute of Technology Madras, India

REN P-03 **Challenges and Coping Strategies for Decarbonization in Coal Regions in Europe Silesia as a Case Study of Poland**

PEPŁOWSKA Monika, Mineral and Energy Economy Research Institute of the Polish Academy of Sciences, Poland

REN P-04 **Experimental Study of Heat and Mass Transfer during Thermal Runaway of a Li-ion Cell**

Charbel Nouhra, Grenoble Alpes University, CEA, France

REN P-05 **Bio-hydrogen from Municipal Wastes: Preliminary Results of MoDSEn Project**

Craziano Tassinato, Green Propulsion Laboratory, VERITAS spa, Italy

REN P-06 **Photoelectrocatalytic Study of N-doped SrTiO<sub>3</sub>**

Krateeka Madan, Indian Institute of Technology Madras, India

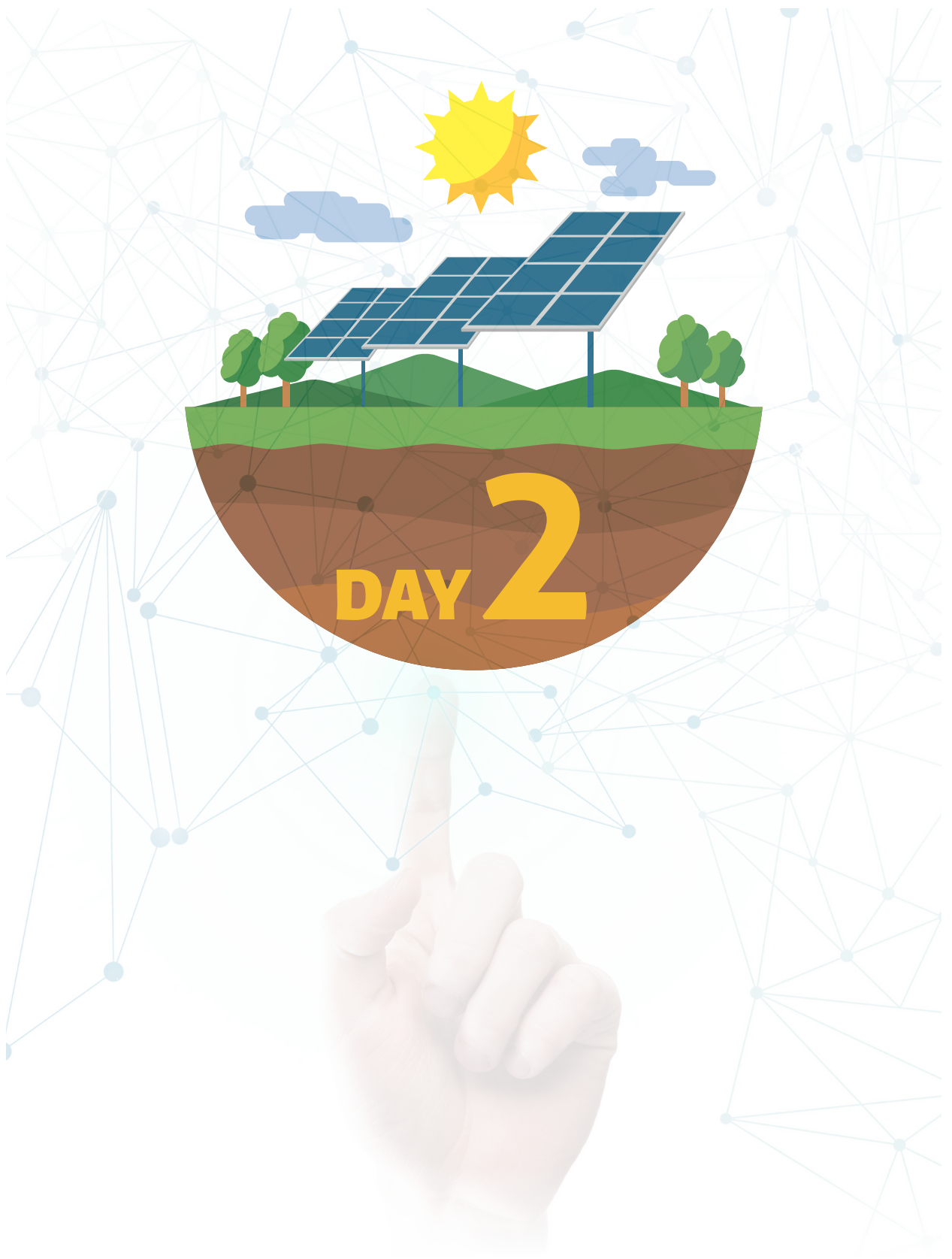
REN P-07 **Challenges and Coping Strategies for Decarbonisation in Carbon-intensive European Regions. The Kraków Metropolitan Area as a Case Study of Poland**

Dominik KRYZIA, KOMOROWSKA, Mineral and Energy Economy Research Institute of the Polish Academy of Sciences, Poland

REN P-08 **A Study on the Optimal Control Strategies of Hydrogen City in South Korea**

Min Su Kim, KEPCO E&C, South Korea





## Keynote Presentation

@ Rome

**Chair:** **Xi Jiang**, Queen Mary University of London, UK

08:00-08:30 **Energy Storage: The Missing Piece in the Puzzle of Sustainable Energy**  
Pedro GOMEZ-ROMERO, Catalan Institute of Nanoscience and Nanotechnology, Spain

**Pedro GOMEZ-ROMERO** (FRSC) is Full professor of the National Research Council (CSIC, Spain) and Group Leader of the NEO-Energy Lab at ICN2, Barcelona, Spain. Leading projects on materials and devices for energy storage and conversion, with emphasis on batteries, supercapacitors and hybrid devices, pioneering the use of polyoxometalates as energy storing materials. Fellow of the Royal Society of Chemistry since 2014, CIDETEC Award to research on electrochemistry in 2017. Cofounder of the spin-off Napptilus Battery Labs. Author of four award-winning popular science books, as well as two technical books (Functional Hybrid Materials, Wiley-VCH, 2004) (Metal Oxides in Supercapacitors, Elsevier, 2017).

## Scientific Session-III

## Clean Energy &amp; Material Sciences

@ Rome

- 08:30-08:50 **Rational Design of Advanced Heterostructures for Solar Energy Conversion**  
Anita Trenczek-Zajac, AGH University of Science and Technology, Poland
- 08:50-09:10 **A Study on the Kinetic Characteristics of Nanoscale Ceramic Powder Synthesis by Microwave-assisted Heat Treatment**  
Nam-Hee Cho, Inha University, South Korea
- 09:10-09:30 **Can Supercapacitors Change the Roadmap of Power Electronics for Renewable Energy Systems**  
Nihal Kularatna, The University of Waikato, New Zealand
- 09:30-09:50 **Thermal Management of Photovoltaic Panel using a Passive and Active Cooling Approach**  
Pravin D. Sawarkar, Visvesvaraya National Institute of Technology, India
- 09:50-10:10 **Smart Conductive Hydrogel-based Gluten/Guar Gum for Eco-friendly Strain Sensor and Self-powered Device**  
Pornnapa Kasemsiri, Khon Kaen University, Thailand

**10:10-10:30 Coffee Break** @ Foyer

- 10:30-10:50 **Chemical Energy Conversion Processes Investigated by NMR**  
Anastasia Vyalikh, Technical University of Dresden, Germany
- 10:50-11:10 **Molecular Investigation on the Mechanisms of Nitrogen Transformation in Ammonia Utilization**  
Xi Jiang, Queen Mary University of London, UK
- 11:10-11:30 **Developments in Cybersecurity for Critical and Renewable Energy Infrastructure**  
Josef Schindler, Framatome GmbH, Germany
- 11:30-11:50 **An Empirical Study of the Impact of Greenwashing in Developed Versus Developing Countries**  
Shahrin Saaid Shaharuddin, University of Malaya, Malaysia



- 11:50-12:10 **Atomic and Electronic Structures of Energy Materials Studied by *in-situ* Synchrotron X-ray Spectroscopy**  
Chung-Li Dong, Tamkang University, Taiwan
- 12:10-12:30 **Development of an Innovative Daylighting Louver System based on a Parametric Control Technique**  
Ahamd Eltaweel, Edinburgh Napier University, UK
- 12:30-12:50 **Power Estimation for Thermoelectric Harvesters in Low and Ultra-low Temperature Gradients Through Dimensional Analysis**  
Simon Lineykin, Ariel University, Israel

**12:50-** **Lunch & Departures** **@ Foyer**

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08:50-09:05 Opening Remarks &amp; Introduction

**Keynote Presentation**

09:05-09:40 **Multi-vector Energy Storage for Carbon Neutrality**  
Yulong Ding, Birmingham University, UK

**Yulong Ding** is the founding Chamberlain Chair of Chemical Engineering at the University of Birmingham and director of Birmingham Centre for Energy Storage. His current research covers both fundamental (multiphase transport phenomena across length scales) and applied (new energy conversion and storage technologies) aspects. He invented liquid air energy storage technology and led the initial stage of its developments and validation, which is commercialized by Highview Power, a UK engineering company. He developed composite phase change materials for thermal energy storage and associated large-scale manufacture technologies, leading to large scale commercial applications with a total installation of >300MW / >1.2GWh so far. His work on passively cooled container technology has been on large scale commercial demonstration for cold chain transportation applications.

**Oral Presentations**

09:40-10:00 **Exploring the Significance of Hydrothermal Liquefaction Process in Biomass Conversion and the Prospects of Utilizing Waste Process Water in Diverse Sectors: An Investigative Study**  
Halil Durak, Yuzuncu Yil University, Turkey

10:00-10:20 **Renewable Energy Proliferation through Energy Community: Analysis of a Case Study from Italy**  
Barbara Marchetti, Universita Degli Studi eCampus, Italy

10:20-10:40 **Towards 26% Efficient Solar Cells in Mass Production with Doped Poly-silicon Passivating Contacts**  
Daniel Macdonald, The Australian National University, Australia

10:40-11:00 **Renewable Energy and Global Challenges Associated with the Pursuit of Well-being**  
Van Le, University of Economics Ho Chi Minh City (UEH), Vietnam

11:00-11:20 **Nutrient Content of Liquid Organic Fertilizer**  
Elisa Azura Azman, University Putra Malaysia, Malaysia

11:20-11:40 **A Direct Hybrid with Power Management for Aviation Applications**  
Caroline Willich, Ulm University, Germany

11:40-12:00 **Energy and Water Management Systems for Agro-development of Rural Communities**  
Doris Saez, University of Chile, Chile

12:00-12:20 **Applications of Nanofluids in Solar Energy**  
Awatef Abidi, King Khalid University, Saudi Arabia

12:20-12:40 **Alternative Clean Energy: Lignite-waste Biomass Mixture**  
Aydan Aksogan Korkmaz, Malatya Turgut Ozal University, Turkey

## Poster Presentation

12:40-12:45 **High Performance Non-aqueous Organic Redox Flow Battery in Ambient Condition**

Sandeep Kumar Mohapatra, Indian Institute of Technology Madras, India

**12:45-13:00 Break**

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13:00-13:20 **Real-time Thermal Energy Harvesting from Solar Radiation in Malaysia at Low-temperature Difference**

Muhammad Nazri Rejab, Tun Hussein Onn University of Malaysia, Malaysia

13:20-13:40 **Nanostructured Mixed Oxides with an Ordered Morphology for Energy and Environmental Applications**

Elisa Moretti, Ca' Foscari University of Venice, Italy

13:40-14:00 **Condition Monitoring and Control of Wind Power Systems with Machine Learning**

Xiandong Ma, Lancaster University, UK

14:00-14:20 **Enhanced Voltage and Frequency Regulation via an Intelligent Droop-based Control Strategy in an Islanded Microgrid**

Shu Godwill Ndeh, University of Buea, Cameroon

14:20-14:40 **The Impact of Leading-edge Deflection Angle on the Performance of Horizontal Axis Wind Turbine Model**

Aktham Mansi, Istanbul Technical University, Turkey

14:40-15:00 **Worldwide Climate and Justice Education Week 2024**

David E. Blockstein, Bard College, Annandale-on-Hudson, NY, USA

15:00-15:20 **Why Humans are Not Responsible for Global Warming**

Digby Macdonald, University of California at Berkeley, Berkeley, CA, USA

15:20-15:40 **Coordinated High-speed Voltage Control in Real-time Unobservable Active Distribution systems**

Anamitra Pal, Arizona State University, Tempe, AZ, USA

15:40-16:00 **Evaluating Power Generation and Direct use with Green Energy Resources**

Shah Kabir, Incendium Technologies, Inc., Round Rock, TX, USA

16:00-16:20 **Caustic Aqueous Phase Electrochemical Reforming (Caper) for Process Intensified Hydrogen Production**

Su Ha, Washington State University, Pullman, WA, USA

16:20-16:40 **Reliability of Offshore Wind Turbine Support Structures**

Srinivas Sriramula, University of Aberdeen, UK

We Wish to See You at

# REN-2024

Madrid, Spain



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