

# PRE-PRINT PROGRAM



March 04-08, 2024 | Los Angeles, CA

Eighth Edition of

# Global Energy Meet



March 4-8, 2024  
Los Angeles, CA



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## Day 1 | March 04, 2024



07:30-07:45	Registrations & Badge Pickup	@Foyer Area
07:45-08:00	Opening Remarks & Introduction	@ California B, C

## Plenary Presentations

Moderator: **Charles E. Sprouse III**, Benedictine College, Atchison, KS

08:00-08:35		Transforming Energy Demands: AI and Optimization Tools <b>Panos M. Pardalos</b> , University of Florida, Gainesville, FL
08:35-09:10		Hybrid Solar PV, CSP and Thermal Energy Storage for Baseload Power, Industrial Process Heat and Solar Fuels <b>Yogi Goswami</b> , University of South Florida, Tampa, FL
09:10-09:45		Jump Starting Hydrogen Economy with Seven Hubs Awarded <b>David Blehman</b> , Technical Director - Hydrogen Research and Fueling Facility, California State University, Los Angeles, CA

## Keynote Presentations

09:45-10:15		Benefits and Challenges of California Offshore Wind Electricity <b>Adam Zachary Rose</b> , University of Southern California, Los Angeles, CA
10:15-10:35	Coffee Break @Foyer Area	
10:35-11:05		A Novel System for Transportable Green Hydrogen Production Utilizing Waste Heat in a Thermochemical CuCl Cycle <b>Kamiel Gabriel</b> , Ontario Tech University, Canada

11:05-11:35		Harmonic Frequency Cascade: Oil Refining to Water Purification <b>Richard Coffin</b> , Texas A&M University - Corpus Christi, College Station, TX
11:35-12:05		Advanced Materials Engineering for Next-generation Solid-State Energy Storage Technology <b>Alevtina White Smirnova</b> , South Dakota School of Mines & Technology, Rapid City, SD

## Oral Presentations

### Hydrogen Energy & Storage

12:05-12:25	Salt Hydrate-based Thermochemical Energy Storage in Buildings <b>Yao Yu</b> , North Dakota State University, Fargo, ND
12:25-12:45	H-Mat: Polymeric Materials for Hydrogen Technologies <b>Wenbin Kuang</b> , Pacific Northwest National Laboratory, Richland, WA
12:45-12:50	Group Photo
12:50-13:30	Lunch @ California A, D
Chair: <b>Yao Yu</b> , North Dakota State University, Fargo, ND	
13:30-13:50	Thermal Desorption of Hydrogen from Water-soaked Lithium-cobalt Oxides at Room Temperature <b>Bun Tsuchiya</b> , Meijo University, Japan
13:50-14:10	Effect of Current Collector Thickness on Contact Resistance and Performance of a Cylindrical PEMFC <b>Amit Bhosale</b> , Indian Institute of Technology Roorkee, India
14:10-14:30	Advancements in Temperature Estimation for Conventional Lithium-Ion Batteries and All-solid-state Batteries <b>Shuxia Tang</b> , Texas Tech University, LUBBOCK, TX
14:30-14:50	A Trivalent Indium Metal as a High-capacity, High-efficiency, Low-polarization, and Long-cycling Anode for Aqueous Batteries <b>Xianyong Wu</b> , University of Puerto Rico-Rio Piedras Campus, San Juan, PR
14:50-15:10	Breakthrough Zero-CO <sub>2</sub> Distributed Power Source <b>Randell L. Mills</b> , Brilliant Light Power, Cranbury, NJ
15:10-15:30	Experiment and Modeling of Ice Energy Storage for Grid-interactive Efficient Buildings (GEB) <b>Hailei Wang</b> , Utah State University, Logan, UT

15:30-15:50	Efficient Strategies to Accelerate Anodic Reactions in Electrolysis Systems for Hydrogen Production <b>Rong He</b> , National Renewable Energy Laboratory, Golden, CO
15:50-16:10	Valorization of Animal Manures and Plastic Wastes through Wet and Dry Pyrolysis <b>Kyoung Ro</b> , USDA, Florence, SC
15:50-16:10	Coffee Break <span style="float: right;">@Foyer Area</span>
16:10-16:15 (E-Poster)	Mechanically Refuellable zinc-air Battery: A Safe and Sustainable Alternative for Large-scale, Long-duration Energy Storage <b>Akhil Kongara</b> , Indian Institute of Technology Madras, India
16:15-16:35	Forging a Path to Sustainable Bioproducts: Innovations in Microbial Engineering and Carbon Capture <b>Nawa Baral</b> , Lawrence Berkeley National Laboratory, Berkeley, CA
16:35-16:55	Integration of Layered Unstacking Graphene for High Energy Density Li-ion Batteries (LIB) <b>Tereza Paronyan</b> , HeXalayer LLC, Louisville, KY
16:55-17:15	Renewable Liquid Fuels from Woody Biomass <b>Hemant Pendse</b> , University of Maine, Orono, ME
17:15-17:35	Develop an Efficient and Cost-effective Novel Anaerobic Digestion System Producing High-purity of Methane <b>Liang Yu</b> , Washington State University, Pullman, WA
17:35-17:55	Performance Evaluation of a Clean Hydrogen Production System <b>Ehsan Hosseini</b> , Arkansas Tech University, Russellville, AR
17:55-18:15	Potential Strains of Cyanobacteria In Biotechnology: Advances and Applications in Biofuels <b>Bolatkhan Zayadan</b> , Al-Farabi Kazakh National University, Kazakhstan
18:15-18:35	Decarbonizing Hydrogen Supply Chain <i>via</i> Electrifying Endothermic Production Processes <b>Ram R. Ratnakar</b> , Shell International Exploration & Production, Houston, TX
18:35-19:30	Drinks <span style="float: right;">@ California A, D</span>

**End of Day-1**

## Oral Presentations

## Renewable Energy

Chairs: **Metin Turkay**, Koc University, Turkey

**Ram R. Ratnakar**, Shell International Exploration & Production, Houston, TX

08:30-08:50	Renewable Energy Deployment in the Europe: Identifying Driving Factors and Bridging the Performance Gap <b>Giacomo Di Foggia</b> , University of Milano, Italy
08:50-09:10	Additive Manufacturing for Advanced Thermal Management for Aerospace Propulsion Systems <b>Zekai Hong</b> , National Research Council Canada, Canada
09:10-09:30	Performance Evaluation of a Novel Loop Heat Pipe-based BTMS Systems: An Experimental Investigation <b>Vipul Mangalbhaj Patel</b> , Sardar Vallabhbhai National Institute of Technology Surat, India
09:3-09:50	Optimizing Solar Policy Support <b>Anil Hira</b> , Simon Fraser University, Canada
09:50-10:10	The High Price U.S. Green Economy: A Specific Factors Modeling <b>Osei Agyeman Yeboah</b> , North Carolina A&T State University, Greensboro, NC
10:10-10:30	Energy Saving during Washing due to Ultrasound <b>Tobias Kimmel</b> , Niederrhein University of Applied Sciences, Germany
10:30-10:50	Break @Foyer Area
10:50-11:10	Patented Snow/Ice Melting System with Solar Vacuum Tube <b>Zuhair ER</b> , Istanbul Technical University, Turkey
11:10-11:30	Photovoltaic Penetration in the Island of Ikaria, Greece <b>Dimitrios Rakopoulos</b> , Centre for Research & Technology Hellas (CERTH), Greece
11:30-11:50	Two-sided Electricity Auction Mechanism Incorporating X <sub>2</sub> G <b>Christopher J. Sepka</b> , University of California, Berkeley, CA
11:50-12:10	Economic Pre-feasibility of Metarhizium Anisopliae Production by Solid-state Fermentation from Agroindustrial Residues in a Novel Tray Bioreactor <b>Lina Maria Grajales</b> , Federal University of Tocantins, Brazil
12:10-12:30	Reinforcement Learning for Optimizing Energy Efficiency of Industrial Systems <b>Metin Turkay</b> , Koc University, Turkey
12:30-12:50	Integral Ecology Approach to Life Cycle Assessment: A Case Study on Energy and Building Systems Upgrades at a Benedictine Monastery <b>Charles E. Sprouse III</b> , Benedictine College, Atchison, KS
12:50-13:30	Lunch Break @ California A, D
13:30-13:50	Designing Metal Oxide-based Thermochemical Redox Materials and Processes: Solar Fuels and Energy Storage <b>Ellen B. Stechel</b> , Arizona State University, Tempe, AZ

13:50-14:10	High Efficiency $C_2ZnSn(S,Se)_4$ Solar Cells <i>via</i> Ag and Li Co-alloying <b>Edgardo Saucedo</b> , Polytechnic University of Catalonia · Barcelona Tech – UPC, Spain
14:10-14:30	Oilseeds and Products – Emerging Oil Processing Techniques, Current Trends and Contribution towards Renewable Energy Efficiency <b>Abraham Kabutey</b> , Czech University of Life Sciences Prague, Czech Republic
14:30-14:50	Advanced Robust Control of Dynamic Virtual Power Plants for Renewables Contribution to Grid Ancillary Services <b>Bogdan Marinescu</b> , Ecole Centrale Nantes-LS2N, France
14:50-15:10	Effectiveness of the Energy Efficiency Regulations on Electricity Saving and $CO_2$ Emission Reduction in the Household Sector: An ARDL Model with Time-varying Coefficients and Synergistic Effects <b>Chung Huang Huang</b> , National Tsing Hua University, Taiwan
15:10-15:30	Mapping of the Geothermal Anomalies in the Neoproterozoic Arabian Shield, Saudi Arabia, using Magnetic Data <b>Kamal Abdelrahman Elsayed Hassanein</b> , King Saud University, Saudi Arabia
15:30-15:35 (E-Poster)	CoNi Bimetallic Engineering on Porous Carbon for High Energy Density Hybrid Supercapacitors <b>Sang W. Joo</b> , Yeungnam University, South Korea
15:35-15:45	Coffee Break @Foyer Area
15:45-18:00	Tour Program to CALSTATE LA Hydrogen Center

## End of Day-2

Day 3 | March 06, 2024

@ California B, C

## Oral Presentations

## Fossil Energy & Environmental Issues

Chair: **Samy A. Alkhatat**, Wayne State University, Detroit, MI

09:00-09:20	Global Monitoring of Gas Flaring using VIIRS Nightfire Satellite Remote Sensing <b>Tamara Sparks</b> , Colorado School of Mines, Golden, CO
09:20-09:40	Combustion Modeling of Hydrotreated Vegetable Oil (HVO) in a Compression Ignition Engine <b>Samy A. Alkhatat</b> , Wayne State University, Detroit, MI
09:40-10:00	Enhanced Electrocatalytic Hydrogenation of Biomass-derived Organics at Solid/Liquid Interface <b>Mal Soon Lee</b> , Pacific Northwest National Laboratory, Richland, WA

10:00-10:20	FEED Study of Carbon Capture Inc. DAC and Carbon Cure Utilization Technologies using United States Steel's Gary Works Plant Waste Heat <b>Leslie M. Gioja</b> , University of Illinois at Urbana Champaign (UIUC- ISTC), Champaign, IL
10:20-10:40	Flash Chemistry Guided by Flow Microreactor Research <b>Aiichiro Nagaki</b> , Hokkaido University, Japan
10:40-11:00	Coffee Break @ Foyer Area
11:00-11:20	Production of Zeolites by Conversion of Kaolin for Application in the Process of Catalytic Cracking in Fluidized Bed <b>Teresa Matoso Manguangua Victor</b> , ISPTEC, Angola
11:20-11:40	Long-term Impact of the Extraction of Fossil Energy Sources on the Surface Environment <b>Andre Vervoort</b> , KU Leuven, Belgium
11:40-12:00	Development of Off Grid Charging Stations for Electric Vehicles <b>Matthew Smith</b> , University of Sheffield, UK
12:00-12:20	A Combined Application of Solar and Wind Energy towards Decarbonization in the Philippines <b>Ruth Anne Tanlioco Gonocruz</b> , National Institute of Advanced Industrial Science and Technology, Japan
12:20-12:40	The Rise of Electric Mobility, Challenges and Opportunities: Evidence from Ethiopia <b>Yohannes Aemro</b> , University of Gondar, Ethiopia
12:40-12:45 (E-Poster)	Techno-economic Feasibility Assessment of Lipases Production by Solid-state Fermentation from Agroindustrial Residues in a Pilot Tray Bioreactor <b>Lina Maria Grajales</b> , Federal University of Tocantins, Brazil
12:40-	Lunch & Departures @ California A, D

**End of Day-3**

**Presentation Slots are Available!!!!**




# Virtual Presentations – Pacific Standard Time

## Day 4 | March 07, 2024

08:15-08:30 | Opening Remarks & Introduction

### Keynote Presentations

Moderator: **Steven G. Greenbaum**, Hunter College of CUNY, New York, NY

08:30-09:00		Analysis of Thermodynamic Irreversibility Levels and Distribution for Enhancing Efficiency in Power Cycles with Application to $\text{SCO}_2$ System <b>John O'Connell</b> , University of Virginia, Charlottesville, VA
09:00-09:30		Spectral Modulated Solar Harvesting <i>via</i> Transparent Nano Hybrids for Synergistic Photothermal-thermoelectric-photovoltaic Energy Generation <b>Donglu Shi</b> , University of Cincinnati, Cincinnati, OH
09:30-10:00		Numerical Simulation of Swelling Behavior of Elastomers in Oil and Gas Wells <b>Sayyad Zahid Qamar</b> , Sultan Qaboos University, Oman

### Oral Presentations

#### Renewable Energy

10:00-10:20	Temperature Derived Fe Dissolution of a $\text{LiFePO}_4$ /Graphite Cell under Fast Charging Condition <b>R. Prakash</b> , ARCI, India
10:20-10:40	Hydrogen Technology for Supply Chain Sustainability: The Mexican Transportation Impacts on Society <b>Marisol Rico Cortez</b> , Jonkoping University, Sweden
10:40-11:00	Bioelectrodes and Light-activated Devices based on [FeFe] Hydrogenases <b>Francesca Valetti</b> , University of Torino, Italy
11:00-11:05 (Poster)	Facile Synthesis of a Binder-free 3D Ni/NiO Microwire Network for Li-ion Batteries <b>Mikhail Morozov</b> , Kazan National Research Technical University named after A.N. Tupolev-KAI, Russia
11:05-11:20	Break

Chair: To be Announced



11:20-11:40	Geologic Energy Storage – Past Present and Future <b>Avinoam Rabinovich</b> , Tel Aviv University, Israel
11:40-12:00	Smart Grids as Enabler of the Energy Transition: Future trends <b>Andrés Llombart Estopiñán</b> , CIRCE - Technology Center, Spain
12:00-12:20	Fault Diagnosis of PV Systems based on Percentage Scatter Plot by Standard Neural Network <b>Cherifa Kara Mostefa Khelil</b> , Blida University 1, Algeria
12:20-12:40	<i>In-silico</i> Prediction of the Organic Solar Cell Performances <b>Alessandro Landi</b> , University of Salerno, Italy
12:40-13:00	Keg Wine, A Sustainable Innovation <b>Stephanie Pougnet Rozan</b> , EHL Hospitality Business School, HES-SO, University of Applied Sciences and Arts Western Switzerland
13:00-13:20	Decarbonization of Urban Water, Energy and Solids Management with Hydrogen Technologies <b>Vladimir Novotny</b> , Northeastern University, Boston, MA
13:20-13:40	Hydrogen Production and Value-added Chemical Recovery from the Photo-reforming Process using Waste Plastics <b>Huiyao Wang</b> , New Mexico State University, Las Cruces, NM
13:40-14:00	Lunch Break

## Plenary Presentation

14:00-14:35



The Fastest Energy Change in History

**Andrew Blakers**, The Australian National University, Australia

## Oral Presentations

14:35-14:55	Advanced Sodium Ion Batteries for E-mobility & Energy Storage <b>Darren H. S. Tan</b> , UNIGRID Battery, San Diego, CA
14:55-15:15	Nuclear Magnetic Resonance Studies of Structure and Ion Transport in Novel Battery Electrolytes <b>Steven G. Greenbaum</b> , Hunter College of CUNY, New York, NY
15:15-15:35	Leveraging IoT Technology for Enhanced Microgrid Control: A General Analysis <b>Jianchuan Tan</b> , Pacific Northwest National Laboratory, Richland, WA
15:35-15:55	Deciphering the Solar Extreme Overirradiance Events <b>Marco Antonio Zamalloa Jara</b> , UNSAAC, Peru
15:55-16:15	Towards 26% Efficient Solar Cells in Mass Production with Doped Poly-silicon Passivating Contacts <b>Daniel Macdonald</b> , The Australian National University, Australia
16:15-16:35	Switchable Giant BODIPY-Fullerene Dyads with Single Crystal <b>Selina X. Yao</b> , Rivian, Newark, CA
16:35-16:55	A Comprehensive Introduction of the World First Elevated and Conventional Turbine-generators Layout Design Double-reheat Coal-fired Power Unit <b>Li Li</b> , Shanghai Shenergy Power Technology Co., Ltd, China

16:55-17:15	Production of Sustainable Aviation Fuel through a Biorefinery Scheme <b>Claudia Gutierrez Antonio</b> , Autonomous University of Querétaro, Mexico
17:15-17:35	Novel Bioenergy Production Process from Industrial Waste through Acetic Acid Fermentation <b>Harifara Rabemanolontsoa</b> , Kyoto University, Japan
17:35-17:55	Comprehensive Evaluation of Solar Electric Power for Industrial Applications <b>Guillermo Martinez Rodriguez</b> , University of Guanajuato, Mexico

## Day 5 | March 08, 2024

06:30-06:40 | Opening Remarks & Introduction

### Oral Presentations

### Fossil & Sustainable Energy

Moderator: **To be Announced**

06:40-07:00	Leveraging Palm Kernel Shells Gasification for Sustainable Decentralized Small-capacity Dual-fuel Power Generation <b>Sunu Herwi Pranolo</b> , Sebelas Maret University, Indonesia
07:00-07:20	Multifunctional Catalysts for Selective Hydrocracking of Polypropylene to Liquid Hydrocarbons in Jet Fuel Range under Mild Condition <b>Gillian Goh</b> , A*STAR,ISCE2, Singapore
07:20-07:40	Reduction in Limit of Detection of Fluorobenzoic Acids by Methyl Esterification using UiO-66-NH <sub>2</sub> as Heterogeneous Catalyst <b>Anuj Kumar</b> , Indian Institute of Technology Roorkee, India
07:40-08:00	Role of Energy Efficiency in Energy Transition: A Decomposition Analysis of Energy use <b>Pooja Sharma</b> , University of Delhi, India
08:00-08:20	Urban Heat Island and Pollutant Correlations in Bangalore, India using Geospatial Techniques <b>Aneesh Mathew</b> , National Institute of Technology, India
08:20-08:40	The Generation of Energy as a Result of Action of Spin Super Current <b>Liudmila Borisovna Boldyreva</b> , State University of Management, Russia
08:40-09:00	Advancing Lubrication Technologies: Unleashing the Potential of Nanoparticles for Enhanced Tribological Performance and Moisture Detection <b>Alfonso Fernandez Gonzalez</b> , University of Oviedo, Spain
09:00-09:20	Development of a new type of Glass-ceramic Electrolytes with the Improved Operation Parameters <b>Anna V. Potapenko</b> , Joint Department of Electrochemical Energy Systems, Ukraine

09:20-09:40	Strategies for Future Sustainable Energy Systems <b>Louise Odlund</b> , Linköping University, Sweden
09:40-10:00	Break
10:00-10:20	An Innovative Approach to Transform Sour Saudi Natural Gas into Blue Hydrogen and Ammonia through Optimal Process Design, Simulation, and Optimization <b>Abul Hassan Ali Quddusi</b> , University of Jeddah, Saudi Arabia
10:20-10:40	Accelerating Urban Road Transportation Electrification: Planning and Implementation Strategies for Connected Automated Shuttle Services <b>Ata M. Khan</b> , Carleton University, Canada
10:40-11:00	Evaluation of Secondary Porosity Type in Carbonate Oil and Gas Fields using Acoustic Logging Data <b>Irina Markova</b> , Mexican Petroleum Institute, Mexico
11:00-11:20	High-frequency Operation of an Aqueous Nano Capacitor <b>Dusan Bratko</b> , Virginia Commonwealth University, Richmond, VA
11:20-11:40	Friction Reducer in Water-based Mud: A Catalyst for Improved Drilling Efficiency in Extended Horizontal Well <b>Mohamed Metwally</b> , New Mexico Institute of Mining and Technology, Socorro, NM
11:40-12:00	Optimizing Design and Control in Tandem: Unleashing the Performance Potential of Energy Systems <b>Himanshu Sharma</b> , Pacific Northwest National Laboratory, Downers Grove, IL
12:00-12:20	Social Impact of COVID-19 Electricity Subsidy on the Lifeline Citizen's Welfare in Ghana: Sharp Regression Discontinuity Design <b>Ewurasi Boafowa Mensah</b> , Hiroshima University, Japan
12:20-12:25 (Poster Presentation)	Determination of Radiological Stressors in Petroleum Drilling, Bitumen Exploration and Coal Mining Site in Southern Nigeria <b>Olalekan Olatunji</b> , Keele University, UK

## Titles to be Announced

**Junjie Gu**, Carleton University, Canada

**Lethy Krishnan Jagadamma**, University of St Andrews, UK

**Vania Sena**, The University of Sheffield, UK