



# ASME® POWER 2021

## Power Conference

VIRTUAL CONFERENCE  
July 20–22, 2021



## Power 2021 Paper Schedule

### TUESDAY, JULY 20

**11:05AM–12:20PM**

#### **01-01 Fuels/Combustion**

Chair: **Ashwani Gupta - University of Maryland**

Chair: **Jeongmin Ahn - Syracuse University**

Publications/Presentations:

#### **Evaluation of Gas Turbine Combustors Running on Renewable Fuels Produced From Carbon Dioxide Aimed for Greenhouse Emission Reduction**

**11:10AM – 11:23AM**

Technical Paper Publication: POWER 2021-60860

Boris Chudnovsky - Israel Electric Corporation

Ilya Chatsky - Israel Electric Corporation

Alex Lazebnikov - Israel Electric Corporation

#### **Application of a Mechanistic Erosion and Abrasion Model to Pulverized Coal (PC) Injections**

**11:23AM – 11:36AM**

Technical Paper Publication: POWER 2021-63620

Lawrence Berg - SAS, Inc.

Soroor Karimi - University of Tulsa

Siamack Shirazi - University of Tulsa

#### **Enginuity's Combined Heat and Power (CHP) System Part 1: Fundamental Design & Performance Evaluation of Residential Engine System**

**11:36AM – 11:49AM**

Technical Paper Publication: POWER 2021-64122

Mehar Bade - Enginuity Power Systems

Vince Meyers - Enginuity Power Systems

Eric Suits - Enginuity Power Systems  
Anthony Mannerino - Enginuity Power Systems  
Jayaram Subramanian - Enginuity Power Systems

**Influence of Some Emulsifiers in Improving the Biofuel Characteristics**

**11:49AM – 12:02PM**

Technical Paper Publication: POWER 2021-64223

Victorita Radulescu - University Politehnica of Bucharest

**Classification of Microchannel Flame Regimes Based on Convolutional Neural Networks**

**12:02PM – 12:15PM**

Technical Paper Publication: POWER 2021-64437

Seyed Navid Roohani Isfahani - Louisiana State University

Vinicius M. Sauer - California State University

Ingmar M. Schoegl - Louisiana State University

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**11:05AM–12:20PM**

**07-01 Wind Energy**

Chair: **David W. Macphee - The University of Alabama**

Chair: **Gopal Singh - Siemens Gamesa Renewable Energy/University of Central Florida**

Chair: **Anthony Di Carlo - Merrimack College**

Publications/Presentations:

**Development of an Actuator Line Model for Simulation of Floating Offshore Wind Turbines**

**11:10AM – 11:23AM**

Technical Paper Publication POWER 2021-60098

Alireza Arabgolarcheh - University of Padova

Ernesto Benini - University of Padova

Morteza Anbarsooz - Quchan University of Technology

**Common Mode Current Effects and Challenges for Wind Turbine Generator Application**

**11:23AM – 11:36AM**

Technical Paper Publication: POWER 2021-63236

Gopal Singh - University of Central Florida

Kalpathy Sundaram - University of Central Florida

**Through-Building Ducts for Mounting Wind Turbines: A Numerical Study**

**11:36AM – 11:49AM**

Technical Paper Publication: POWER 2021-64181

Hadi Mirian - Quchan university of technology

Morteza Anbarsooz - Quchan University of Technology

Abbas Hoshyar - Quchan University of Technology

Alireza Arabgolarcheh - University of Padova

**Short-Term Wind Characteristics Forecasting Using Stacked LSTM Networks**

**11:49AM – 12:02PM**

Technical Paper Publication: POWER 2021-65866

Navid Goudarzi - UNC Charlotte

Dorsa Ziaei - University of Maryland, Baltimore County

**Automatic Electronic Braking System for Commercial Micro Wind Turbine**

**12:02PM – 12:15PM**

Technical Paper Publication: POWER 2021-65883

Gretchell M. Hiraldo-Martinez - Universidad Ana G. Mendez

Alex D. Santiago - Universidad Ana G. Mendez

Diego A. Aponte-Roa - Universidad Ana G. Mendez Gurabo

Miguel Goenaga - Universidad Ana G. Mendez

**11:05AM–12:20PM**

**10-01 Plant Performance & Operations**

Chair: **Brian Wodka - RMF Engineering**

Chair: **Edward Dundon - DOM**

Chair: **George Mesina - Idaho National Laboratory**

Publications/Presentations:

**Modelling and Performance Analysis of Stationary Gas Turbines Operating Under Rotational Speed Transients**

**11:10AM – 11:23AM**

Technical Paper Publication: POWER 2021-64316

André L. S. Andrade - Federal University of Itajuba

Oswaldo J. Venturini - Federal University of Itajuba

Vladimir R. M. Cobas - Federal University of Itajuba

Vinicius Z. Silva - Federal University of Itajuba

**Managing Risks Associated With Turbine First Steam Admission Following Inadequate Boiler Cleaning**

**11:23AM – 11:36AM**

Technical Paper Publication: POWER 2021-64846

Joseph Roy-Aikins - Eskom

Gary De Klerk - Eskom

Duduzile Ramasimong - Eskom

Kumar Rupnarain - Eskom

**Uncertain Gain and Time-Delay Control of 300-kW SOFC-GT**

**11:36AM – 11:49AM**

Technical Paper Publication: POWER 2021-64925

Tooran Emami - U.S. Coast Guard Academy

David Tucker – U.S. Department of Energy, National Energy Technology Laboratory

John Watkins - Wichita State University

**The Introduction and Analysis of the World's First High-Temperature Retrofit Project on a Subcritical Coal-Fired Power Unit**

**11:49AM – 12:02PM**

Technical Paper Publication: POWER 2021-65650

Weizhong Feng - Shanghai Waigaoqiao No.3 Power Generation Co., Ltd.

Li Li - Shanghai Waigaoqiao No.3 Power Generation Co., Ltd.

**Helium Mass Spectrometry Leak Detection**

**12:02PM – 12:15PM**

Technical Presentation Only: POWER 2021-64837

Robert Mechem - American Efficiency Services

**1:35PM–2:50PM**

**01-02 Fuels/Combustion**

Chair: **Ashwani Gupta - University of Maryland**

Chair: **Jeongmin Ahn - Syracuse University**

Publications/Presentations:

**Numerical Study on the Adaptation of Diesel Wave Breakup Model for Large-Eddy Simulation of Non-Reactive Gasoline Spray**

**1:40PM – 1:53PM**

Technical Paper Publication: POWER 2021-645378

Ratnak Sok - Waseda University

Beini Zhou - Waseda University

Jin Kusaka - Waseda University

**Numerical Simulation of the Effect of Magnetic Fields on Soot Formation in Laminar Non-Premixed Flames**

**1:53PM – 2:06PM**

Technical Paper Publication: POWER 2021-64859

Edison Chukwuemeka - Louisiana State University

Ingmar Schoegl - Louisiana State University

**Towards a High-Pressure Microchannel Reactor for Fuel Characterization**

**2:06PM – 2:19PM**

Technical Paper Publication: POWER 2021-64910

David Akinpelu - Louisiana State University

Ingmar Schoegl - Louisiana State University

**Renewable Fuels: The Path to 100% Renewables for California**

**2:19PM – 2:32PM**

Technical Presentation Only: POWER 2021-68108

Jussi Heikkinen - Wärtsilä Energy

**Study of a Non-Premixed Methane / Air Pilot Flame**

**2:32PM – 2:45PM**

Technical Presentation Only: POWER 2021-68116

Mohammed El Khalil Bendadi – University of Mascara

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**1:35PM–2:50PM**

**07-02 Renewable Energy Systems**

Chair: **David W. Macphee** - The University of Alabama

Chair: **Gopal Singh** - Siemens Gamesa Renewable Energy/University of Central Florida

Chair: **Anthony Di Carlo** - Merrimack College

Publications/Presentations:

**Socio-Environmental Impacts of Hydro Power Technology- A Review**

**1:40PM – 1:53PM**

Technical Paper Publication: POWER 2021-64157

Aanya Singh - Vellore Institute of Technology

Rohit Mandavkar - Vellore Institute of Technology

Sanjay Singh - Vellore Institute of Technology

Raunak Prabhu Bhembre - Vellore Institute of Technology

Devansh Jain - Vellore Institute of Technology

D. Dsilva Winfred Rufuss - Vellore Institute of Technology

**Energy Saving Assessment of Triple-Hybrid Vapor Absorption Building Cooling System Under Hot-Dry Climate**

**1:53PM – 2:06PM**

Technical Paper Publication: POWER 2021-64470

Gaurav Singh - Indian Institute of Technology Ropar

Ranjan Das - Indian Institute of Technology Ropar

**Modeling and Validation of Hydro Cascade Operation Considering Price Uncertainty**

**2:06PM – 2:19PM**

Technical Paper Publication: POWER 2021-65726

Maxime Libsig - ETH Zürich

Elena Raycheva - ETH Zürich

Jared Garrison - ETH Zürich

Gabriela Hug - ETH Zürich

**Adjoint Optimization of Heat Transfer Within a Stirling Engine**

**2:19PM – 2:32PM**

Technical Paper Publication: POWER 2021-65804

Anthony Di Carlo - Merrimack College

Rickey Caldwell - Merrimack College

**Control of Wave Energy Converter With Losses in Electrical Power Take-Off System**  
**2:32PM – 2:45PM**

Technical Paper Publication: POWER 2021-64938

Xiang Zhou - Michigan Technological University

Shangyan Zou - Iowa State University

Wayne Weaver - Michigan Technological University

Ossama Abdelkhalik - Iowa State University

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**1:35PM–2:50PM**

**04-01 Advanced Tools for Cyber-Physical Systems and Digital Twins and  
05-01 Risk Management, Cyber Security, and Safety**

Chair: **Paolo Pezzini** - U.S. Dept of Energy, Ames Lab

Chair: **Tina Toburen** - T2E3

Chair: **Biao Zhang** - National Energy Technology Laboratory

Publications/Presentations:

**Optimization of the Capacities of Private Generators Installed in a Hospital Building Under  
the Constraint of Demand Sufficiency During Power Outages**

**1:40PM – 1:53PM**

Technical Paper Publication: POWER 2021-62341

Akane Uemichi - Waseda University

Naoki Kaito - The University of Tokyo

Yudai Yamasaki - The University of Tokyo

Shigehiko Kaneko - Waseda University

**Forecasting of Fouling in Air Pre-Heaters Through Deep Learning**

**1:53PM – 2:06PM**

Technical Paper Publication: POWER 2021-64665

Ashit Gupta - Tata Consultancy Services

Vishal Jadhav - Tata Consultancy Services

Mukul Patil - Tata Consultancy Services

Anirudh Deodhar - Tata Consultancy Services

Venkataramana Runkana - Tata Consultancy Services

**A Digital Twin Environment Designed for the Implementation of Real Time Monitoring Tool**  
**2:06PM –2:19PM**

Technical Paper Publication: POWER 2021-65384

Paolo Pezzini - U.S. Department of Energy, Ames Lab

Harry Bonilla - Iowa State University

Grant R. Johnson - Ames Laboratory

Zachary Reinhart - Iowa State University

Kenneth Mark Bryden - Iowa State University

**Cyber Security and Your Condition Monitoring and Protection System – Or, What Do You Do When the Plant Calls You at 2 AM? Rush in, or Dial in From Home?**

**2:19PM – 2:32PM**

Technical Presentation Only: POWER 2021-68562

John Kingham - Bently Nevada

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**4:25PM–5:40PM**

**07-03 Wind & Wave Energy**

Chair: **David W. Macphee - The University of Alabama**

Chair: **Gopal Singh - Siemens Gamesa Renewable Energy/University of Central Florida**

Chair: **Anthony Di Carlo - Merrimack College**

Publications/Presentations:

**Characterizing the Transitional Behavior of Wind Turbine Wake From Near to Far Wake Regimes**

**4:30PM – 4:43PM**

Technical Paper Publication: POWER 2021-65959

Ravi Kumar - Indian Institute of Technology Guwahati

Ojing Siram - Indian Institute of Technology Guwahati

Niranjan Sahoo - Indian Institute of Technology Guwahati

Ujjwal K. Saha - Indian Institute of Technology Guwahati

**A CapsNet-Based Fault Diagnosis Method for a Digital Twin of a Wind Turbine Gearbox**

**4:43PM – 4:56PM**

Technical Paper Publication: POWER 2021-66029

Weifei Hu - Zhejiang University

Hao Zhao - Zhejiang University

Zhenyu Liu - Zhejiang University

Jianrong Tan - Zhejiang University

**Design Considerations of Solar-Driven Hydrogen Production Plants for Residential Applications**

**4:56PM – 5:09PM**

Technical Paper Publication: POWER 2021-65858

Arturo Berastain - Pontificia Universidad Católica del Perú

Rafael Vidal - Pontificia Universidad Católica del Perú

Carlos Busquets - Pontificia Universidad Católica del Perú

Gonzalo Aguilar - Pontificia Universidad Católica del Perú

Alvaro Torres - Pontificia Universidad Católica del Perú

Jorge Lem - Pontificia Universidad Católica del Perú

Antonios Antoniou - Pontificia Universidad Católica del Perú

Cesar Celis - Pontificia Universidad Católica del Perú

**Analysis of a Multigeneration Energy System for Wastewater Treatment**

**5:09PM – 5:22PM**

Technical Paper Publication: POWER 2021-65516

Mustafa Erguvan - The University of Alabama

David W. Macphee - University of Alabama

**An Inverse Method for Parameter Retrieval in Solar Thermal Collector With a Single Glass Cover**

**5:22PM – 5:35PM**

Technical Paper Publication: POWER 2021-65601

Ranjan Das - Indian Institute of Technology Ropar

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**4:25PM–5:40PM**

**12-01 Experimental and Computational Fluid Dynamics and Thermal Hydraulics and Data Analytics**

Chair: **Donna Guillen - Idaho National Laboratory**

Chair: **George Mesina - Idaho National Laboratory**

Publications/Presentations:

**Optimizing Effectiveness of Double Pipe Heat Exchanger Using Nanofluid and Different Porous Fins Arrangement**

**4:30PM – 4:43PM**

Technical Paper Publication: POWER 2021-64248

Avinash Kumar - IIT Kharagpur

Vinay Arya - IIT Khargapur

Chirodeep Bakli - Indian Institute of Technology Kharagpur

**An Innovative Elasto-Hydrodynamic Seal Concept for Supercritical CO<sub>2</sub> Power Cycles**

**4:43PM – 4:56PM**

Technical Paper Publication: POWER 2021-64536

Sevki Cesmeci - Georgia Southern University

Rubayet Hassan - Georgia Southern University

Fuad Mohammad Hassan - Georgia Southern University

Ikenna Ejiogu - Georgia Southern University

Matthew DeMond - Georgia Southern University

Hanping Xu - Ultool, LLC

Jing Tang - Ultool, LLC

**Optimizing Water Harvesting on Bioinspired Surfaces: A Mesoscopic Perspective**

**4:56PM – 5:09PM**

Technical Paper Publication: POWER 2021-64668

Souparna Chakraborty - Indian Institute of Technology Kharagpur

Abhirup Chaudhuri - Indian Institute of Technology Kharagpur



Chirodeep Bakli - Indian Institute of Technology Kharagpur  
**Effect of Fin Orientation on PCM Melting in a Spherical Enclosure for Latent Heat Storage**  
**5:09PM – 5:22PM**

Technical Paper Publication: POWER 2021-65622

Akhalesh Sharma - Indian Institute of Technology Indore  
Rohit Kothari - Indian Institute of Technology Indore  
Anuj Kumar - Indian Institute of Technology Indore  
Santosh Kumar Sahu - Indian Institute of Technology Indore

## **WEDNESDAY, JULY 21**

**11:05AM–12:20PM**

### **14-01 Student Competition**

Chair: **Andre Teixeira - EDP**

Chair: **Steven Greco - Lectrodryer**

Publications/Presentations:

**Coupled Electromagnetic and Lattice Structure Optimization for the Rotor and Stator of Large Electric Machines**

**11:10AM – 11:23AM**

Technical Paper Publication: POWER 2021-62625

Austin Hayes - University of Colorado Boulder  
Gregory Whiting - University of Colorado Boulder

**Experimental Investigation of a Novel Combined Rapid Compression-Ignition Combustion and Solid Oxide Fuel Cell System Format Operating on Diesel**

**11:23AM – 11:36AM**

Technical Paper Publication: POWER 2021-64197

Andrew Ahn - Fayetteville Manlius High School  
Thomas Stone-Welles - Syracuse University  
Benjamin Akih-Kumgeh - Syracuse University  
Ryan Milcarek - Arizona State University

**A Comparison of Different Fluid-Structure Interaction Analysis Techniques for the Marine Propeller**

**11:36AM – 11:49AM**

Technical Paper Publication: POWER 2021-64369

Wajiha Rehman - University of Leeds  
Stephane Paboeuf - Bureau Veritas  
Joseph Praful Tomy - Bureau Veritas

**Predicting Peak Energy Demand for an Office Building Using Artificial Intelligence (AI) Approaches**

**11:49AM – 12:02PM**

Technical Paper Publication: POWER 2021-64492  
Yuxuan Chen - Arizona State University  
Patrick Phelan - Arizona State University

**Experimental Investigation of Ammonia and Sulfur Deposition Characteristics in Rotary Air Preheater**

**12:02PM – 12:15PM**

Technical Paper Publication: POWER 2021-65660

Rongze Gao – Xi'an Jiaotong University  
Haojia Sun – Xi'an Jiaotong University  
Limin Wang – Xi'an Jiaotong University  
Yufan Bu – Xi'an Jiaotong University  
Chao Wang - Inner Mongolia Power Research Institute Co., Ltd.  
Defu Che – Xi'an Jiaotong University

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**11:05AM–12:20PM**

**07-04 Energy Storage**

Chair: **David W. Macphee - The University of Alabama**

Chair: **Gopal Singh - Siemens Gamesa Renewable Energy/University of Central Florida**

Chair: **Anthony Di Carlo - Merrimack College**

Publications/Presentations:

**A Plan for Biomass Power Generation With Negative Carbon Emissions**

**11:10AM – 11:23AM**

Technical Paper Publication: POWER 2021-65822

Marc Parker - University of Alabama at Birmingham

**Design of Solar Powered Charging Station for Electric Vehicles- Based on Indian Policies**

**11:23AM – 11:36AM**

Technical Presentation Only: POWER 2021-69418

Aanya Singh - Vellore Institute of Technology  
Shubham Sanjay Shaha - Vellore Institute of Technology, Vellore  
Y Raja Sekhar - Vellore Institute of Technology

**Enabling the Energy Transition With Efficient, Low Cost Cold Liquids Storage**

**11:36AM – 11:49AM**

Technical Presentation Only: POWER 2021-69443

Nick White - EZNG Solutions LLC

**State of the Art and Research Directions for Cold Thermal Energy Storage (CTES) at Sub-Zero Temperatures**

**11:49AM – 12:02PM**

Technical Presentation Only: POWER 2021-70844

Alessandro Romagnoli - Nanyang Technological University  
Lizhong Yang - Surbana Jurong – Nanyang Technological University

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**11:05AM–12:20PM**

**02-01 Combustion Turbines and Combined Cycle and 12-02  
Experimental and Computational Fluid Dynamics and Thermal  
Hydraulics and Data Analytics**

Chair: **Jeffrey Cobb - Sargent & Lundy**

Chair: **Donna Guillen - Idaho National Laboratory**

Chair: **George Mesina - Idaho National Laboratory**

Publications/Presentations:

**Combustion Turbine Exhaust Duct, Silencer, and Stack Scale Modeling**

**11:10AM – 11:23AM**

Technical Paper Publication: POWER 2021-64118

Robert Craven - Tennessee Tech University

Keith Kirkpatrick - McHale and Associates

Stephen Idem - Tennessee Tech University

**Air-Argon-Steam or Organic Fluid Combined Power Cycle With Pulse Detonation  
Combustion for Electric Power Plants**

**11:23AM – 11:36AM**

Technical Paper Publication: POWER 2021-64141

Pereddy Nageswara Reddy - Gudlavalleru Engineering College

**First Numerical Evaluation of the Thermal Performance of a Tubular Receiver Equipped  
With Raschig Rings for CSP Applications**

**11:36AM – 11:49AM**

Technical Paper Publication: POWER 2021-65714

Hossein Ebadi - Politecnico Di Torino

Andrea Allio - Politecnico Di Torino

Antonio Cammi - Politecnico Di Torino

Laura Savoldi - Politecnico Di Torino

**Effect of Floating Body Motion on Heat Flux to the Cold Cap in a Waste Glass Melter**

**11:49AM – 12:02PM**

Presentation Only: POWER 2021-64856

Donna Guillen - Idaho National Laboratory

Alexander Abboud - Idaho National Laboratory

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**1:35PM–2:50PM**

## **02-02 Combustion Turbines and Combined Cycle**

Chair: **Jeffrey Cobb - Sargent & Lundy**

Publications/Presentations:

### **Combined Cycle Gas Turbines With Electrically-Heated Thermal Energy Storage for Dispatchable Zero-Carbon Electricity**

**1:40PM – 1:53PM**

Technical Paper Publication: POWER 2021-65528

Daniel Stack - MIT

Charles Forsberg - MIT

### **Investigation of Air Extraction and Carbon Capture in an Integrated Gasification Combined Cycle (IGCC) System**

**1:53PM – 2:06PM**

Technical Paper Publication: POWER 2021-65537

Shisir Acharya - University of New Orleans

Ting Wang - University of New Orleans

### **Investigation of the Performance of Air-Steam Combined Cycle for Electric Power Plants Using Low Grade Solid Fuels**

**2:06PM – 2:19PM**

Technical Paper Publication: POWER 2021-64788

Pereddy Nageswara Reddy - Gudlavalleru Engineering College

### **Evolution of the Turbx Atkinson Cycle Engine Into a Carnot Cycle Engine**

**2:19PM – 2:32PM**

Technical Presentation Only: POWER 2021-65527

Michael Wilson - MWTurbX LLC

### **Gas Turbine Evaporative Cooling, A Novel Method for Combined Cycle Plant Part Load Optimization**

**2:32PM – 2:45PM**

Technical Paper Publication: POWER 2021-65289

Jose Eugenio Torres Carmona - AFRY

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**1:35PM–2:50PM**

## **14-02 Student Competition**

Chair: **Andre Teixeira - EDP**

Chair: **Steven Greco - Lectrodryer**

Publications/Presentations:

**Selection of a Heat Exchanger for a Small-Scale Liquid Air Energy Storage System  
1:40PM – 1:53PM**

Technical Paper Publication: POWER 2021-60523  
Alex Fredrickson - Naval Postgraduate School  
Anthony Pollman - Naval Postgraduate School  
Anthony Gannon - Naval Postgraduate School  
Walter C. Smith - Naval Postgraduate School

**Experimental Evaluation of Dewar Volume and Cryocooler Cold Finger Size in a Small-Scale Stirling Liquid Air Energy Storage (LAES) System  
1:53PM – 2:06PM**

Technical Paper Publication: POWER 2021-60565  
Howard Swanson - Naval Postgraduate School  
Anthony Pollman - Naval Postgraduate School  
Alejandro Hernandez - Naval Postgraduate School

**Performance and Complexity Trade Study of Candidate Liquid Air Generation Techniques  
2:06PM – 2:19PM**

Technical Paper Publication: POWER 2021-63957  
Masis Torosyan - Naval Postgraduate School  
Anthony Pollman - Naval Postgraduate School  
Alejandro Hernandez - Naval Postgraduate School  
Anthony Gannon - Naval Postgraduate School

**Performance Optimization of Thermal Energy Storage Based Solar Collector  
2:19PM – 2:32PM**

Technical Paper Publication: POWER 2021-64127  
Vivek Pawar - University of Missouri-Kansas City  
Sarvenaz Sobhansarbandi - University of Missouri-Kansas City

**Investigation of Phase Change Material Integrated With High Thermal Conductive Carbon Foam Inside Heat Sinks for Thermal Management of Electronic Components  
2:32PM – 2:45PM**

Technical Paper Publication: POWER 2021-65569  
Anuj Kumar - Indian Institute of Technology Indore  
Rohit Kothari - Indian Institute of Technology Indore  
Santosh Sahu - Indian Institute of Technology  
Shailesh Kundalwal - Indian Institute of Technology Indore  
Akhalesh Sharma - Indian Institute of Technology Indore

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**1:35PM–2:50PM**

**08-01 Heat Exchanger Technologies and 03-01 Boilers/HRSG**

Chair: **Andrew Rister - Duke Energy**

Chair: **Paul Weitzel**

Chair: **George Mesina - Idaho National Laboratory**

Publications/Presentations:

**Steam Inlet Expansion Joint Design & Case Study: Surface Condenser Application**

**1:40PM – 1:53PM**

Technical Paper Publication: POWER 2021-64836

Kevin Squires - American Efficiency Services

**The Sandia National Laboratories Natural Circulation Cooler**

**1:53PM – 2:06PM**

Technical Paper Publication: POWER 2021-65399

Bobby Middleton - Sandia National Laboratories

Patrick Brady - Sandia National Laboratories

Serafina Lawles - Sandia National Laboratories

**Generalized Reynolds Analogy: An Engineering Prospective of Thermo-Fluid Physics for Heat Exchanger Design**

**2:06PM – 2:19PM**

Technical Paper Publication: POWER 2021-65820

Abhijit Som - Clemson University

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**4:10PM–5:25PM**

**13-01 Water Management for Power Systems and Environmental Issues**

Chair: **Jessica Mullen - U.S. DOE/National Energy Technology Laboratory**

Chair: **Nicholas Siefert - U.S.DOE/National Energy Technology Laboratory**

Publications/Presentations:

**New Solution With Syntheses Inhibitors for the Chemical Cleaning of Organic Pollutants From the Water Supply System of Generators**

**4:15PM – 4:28PM**

Technical Paper Publication: POWER 2021-64314

Victorita Radulescu - University Politehnica of Bucharest

**The Palo Verde Water Cycle Model (PVWCM) – Development of an Integrated Multi-Physics and Economics Model for Effective Water Management**

**4:28PM – 4:41PM**

Technical Paper Publication: POWER 2021-65768

Bobby Middleton - Sandia National Laboratories

Patrick Brady - Sandia National Laboratories

Jeffrey Brown - Arizona Public Service Company

Serafina Lawles - Sandia National Laboratories

**Novel On-Line Methods for Monitoring Discharge of Trace Metals From a Power Generation Site**

**4:41PM – 4:54PM**

Technical Presentation Only: POWER 2021-67668

Ken Kuruc - Hach

**Treating Fossil Power Plant Effluent Streams**

**4:54PM – 5:07PM**

Technical Presentation Only: POWER 2021-70419

Nicholas Siefert - U.S.DOE/National Energy Technology Laboratory

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**4:10PM–5:25PM**

**14-03 Student Competition**

Chair: **Andre Teixeira - EDP**

Chair: **Steven Greco - Lectrodryer**

Publications/Presentations:

**Transient Exergy Analysis of the Dynamic Operation of a Combined Cycle Power Plant**

**4:15PM – 4:28PM**

Technical Paper Publication: POWER 2021-64311

Raphael Wittenburg - University of Rostock

Moritz Hübel - Modelon Deutschland GmbH

Dorian Holtz - University of Rostock

Karsten Müller - University of Rostock

**Renewable Energy Systems for Demand-Side Management in Industrial Facilities**

**4:28PM – 4:41PM**

Technical Paper Publication: POWER 2021-64381

Joseph Elio - Arizona State University

Patrick Phelan - Arizona State University

Rene Villalobos - Arizona State University

Ryan Milcarek - Arizona State University

**Simulation Research on Explosives Detection System Based on D-D Sealed Neutron Generator**

**4:41PM – 4:54PM**

Technical Paper Publication: POWER 2021-65387

Yadong Gao - Northeast Normal University

Dedong He - Northeast Normal University

Ke Gong - Northeast Normal University

Guangyu Shi - Northeast Normal University

Siyuan Chen - Northeast Normal University

Chenxi Zhu - Northeast Normal University  
Shiwei Jing - Northeast Normal University

**Design and Finite Element Analysis (FEA) of Spur and Helical Gear Train for Portal Axle System**

**4:54PM – 5:07PM**

Technical Presentation Only POWER 2021-65497

Dhruvin Patel - Gujrat Technical University

Rushil Shah - Aditya Silver Oak Institute of Technology

Devansh Shah - Aditya Silver Oak Institute of Technology

**Thermo-Economic Analyses of Advanced Solid Oxide Fuel Cell-Gas Turbine Hybrid Systems**

**5:07PM – 5:20PM**

Technical Presentation Only: POWER 2021-67817

Fabian Rosner - University of California, Irvine

Scott Samuelsen - Advanced Power and Energy Program

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**4:10PM–5:25PM**

**09-01 Steam Turbines, Generators, and Auxiliaries**

Chair: **Michael Smiarowski - Siemens Energy, Inc.**

Chair: **Steven Greco - Lectrodryer**

Chair: **John Sassatelli - General Electric**

Chair: **Steven Radke - Siemens Energy, Inc.**

Chair: **Davi Squaiella - Black & Veatch**

Publications/Presentations:

**Stator Leakage Monitoring System in Water-Cooled Generators: Problems and Solutions**

**4:15PM – 4:28PM**

Technical Paper Publication: POWER 2021-65471

Matthias Svoboda - SvoBaTech, Inc.

Thomas Bauer - SvoBaTech, Inc.

**Effects of Contaminants on Hydrogen Gas for Hydrogen Cooled Generators**

**4:28PM – 4:41PM**

Technical Presentation Only: POWER 2021-63186

Stephanie Bradley - Lectrodryer, LLC

John Mcphearson - Lectrodryer, LLC

Blanca Ramirez - Lectrodryer, LLC

**Occupational Radiation Exposures Alara Reduction Through Fast Purging of Hydrogen Cooled Generators for Boiling Water Nuclear Reactors,**

**4:41PM – 4:54PM**



Technical Presentation Only: POWER 2021-64854

Ted Warren - Lectrodryer

Keith Quick - Southern Nuclear

**Steam Turbine Modernizations: Recent Trends in the Greening World**

**4:54PM – 5:07PM**

Technical Presentation Only: POWER 2021-73001

Michael Smiarowski - Siemens Energy, Inc.

**Corona in High Voltage Rotating Machines Stator Coils: Causes, Repair and Laboratory Prognosis**

**5:07PM – 5:20PM**

Technical Presentation Only: POWER 2021-73982

Anna Gegenava - National Electric Coil

Aleksandr Khazanov - National Electric Coil

Fred Dawson - National Electric Coil

Russell Chetwynd - National Electric Coil

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