

17th Annual IEEE Green Technologies (GREENTECH) Conference

March 26 - 28, 2025 | Wichita, Kansas

Technical Program Schedule

Wednesday March 26

11:00 am – 7:00 pm Registration / information desk (Groover Lounge)

12:00 noon Conference Open and Lunch (Santa Fe)

1:00 pm Keynote Speaker (Santa Fe)

2:00 pm Break

2:15 pm Technical Session 1

T1A: Sustainable Energy Systems (Lucas)

- 1571097658 PEM-Based Green Hydrogen Plant: Harmonic Issues and Mitigation Using Active and Passive Filters
- 1571098246 Analysis of Ocean Wave Energy-Driven Desalination Methods for Sustainable Water Production
- 1571098265 Integrating Machine Learning Models to Enhance the Efficiency of a Desalination Process
- 1571098268 Sustainable Bamboo Greenhouse with Integrated Rainwater Harvesting System
- 1571106454 Using Co-Simulation to Capture Sector Coupling Dynamics in Low-Temperature Energy Systems

T1B: Green Computing and Controls (Pike)

- 1571092073 Enhanced IoT Security for Healthcare: a Lionized Remora Optimization-Based Image Encryption Algorithm With Chaotic Maps
- 1571098063 An Efficient Resource Allocation Technique for Efficient Virtual Machine Placement Using Local Neighbor Search and Stochastic Random Process
- 1571098144 Optimizing Energy Consumption & Maximizing Hardware Utilization: Multi-Input Output Virtual Machines in Action
- 1571098241 Control-Oriented Run-Time Computer Memory Modeling and Energy Management*
- 1571106285 An Efficient Graph-Based Approach for Identifying Attack Patterns in IoT and IIoT Networks

3:30 pm Break

3:45 pm Technical Session 2

T2A: Solar Energy Conversion (Lucas)

- 1571098229 Optimizing Solar Power Forecasting by Employing Various Machine Learning and Deep Learning Strategies for Enhanced Accuracy and Reliability
- 1571105294 A Fuzzy Logic Based Control Algorithm for Photovoltaic Systems in a Varying Climate Environment
- 1571106663 Performance Optimization and Bandgap Tuning of Ba(Zr(1-x)Tix)S3 Perovskite Solar Cells via Titanium Alloying for High-Efficiency Photovoltaic Systems
- 1571106670 Exploring the Impact of Various Organic and Inorganic Electron Transport Layers in Highly Stable FA0.75MA0.25Sn0.95Ge0.05I3-Based Perovskite Solar Cells

T2B: Power System Applications (Pike)

- 1571106647 A Convolution Neural Network for Voltage Event Classification at a Photovoltaic Inverter
- 1571106353 Dynamic Modeling and Fault Response Analysis of SMR-Integrated Power Grid
- 1571098244 Impact of Vortex Generators on Archimedes Spiral Wind Turbine
- 1571098243 Case Study: Photovoltaic Power Forecasting in Cold Regions and Potential Improvements Through Machine Learning

5:30 pm Reception (Santa Fe)



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Thursday March 27 – IEEE R5 Industry Day

7:30 am – 7:00 pm Registration / information desk (*Groover Lounge*)

8:00 am Breakfast (*Beggs Ballroom*)

8:30 am Keynote Speaker (*Beggs Ballroom*)

9:30 am Break

9:45 am Technical Session 3

T3A: Industry Papers: Energy Systems (*Lucas*)

- 1571108880 The Extraneous Electromagnetic Field of a High-Power, Air-Core DD Coupler for Dynamic Wireless Power Transfer
- 1571109377 High Voltage DC Transmission Within Interconnected Systems: Standards and Models for Planning Studies
- 1571095936 On-Site Practical Guide for End Users: Up-Tower Wind Generator On-Site Rotor Lead Identification
- 1571097041 Enhancing Reliability and Efficiency: Design Innovations for 2.3 MW Wind Generators
- 1571106660 Adoption of the IEEE 2800-2022 Standard by the Southwest Power Pool

T3B: Storage and Battery Systems (*Pike*)

- 1571081840 Sustainable Offshore Power: Integrating BESS for a Greener Future
- 1571098247 Machine Learning-Based Framework for Online State of Health Assessment and End-of-Life Prediction in Commercial Lithium-Ion Batteries
- 1571109920 Operational and Maintenance Challenges of Battery Energy Storage Systems in Microgrids
- 1571105431 Design of a Solar-Powered Water Evaporation System Based on a Photothermal Hydrogel, Coupled with a Thermal Battery for Sustainable Operation
- 1571097656 An Optimal Dispatch Model for Economic Benefit Valuation of Grid Energy Storage Solutions

11:00 am Break

11:15 am Technical Session 4

T4A: Industry Papers: Computing Systems (*Lucas*)

- 1571100505 Assessing ChatGPT's Capabilities in Solving Optimization Problems
- 1571086990 Background to the Fore: AI and Software Patent Eligibility
- 1571109245 Green Computing Resilience Strategy
- 1571109326 Green AI Solutions for Automated Insect Monitoring to Improve Stored Product Management Systems
- 1571109041 Green AI: Optimizing Energy Efficiency of Workloads for Sustainable Data Centers

T4B: Disaster and System Resilience (*Pike*)

- 1571097645 Resilient Operation of DC Standalone Microgrids: Experimental Validation of Hybrid RNN-PI Control for Pulse Load Management
- 1571097447 RiskRadar: an Online Mapping Platform for Disaster Preparedness and Response via Comprehensive Data Integration and Visualization
- 1571098237 Towards Robust Building Damage Detection: Leveraging Augmentation and Domain Adaptation
- 1571104502 An Environmental Metric for Vulnerability Assessment of Overhead Power Lines to Extreme Weather Events
- 1571109883 CPS-DERMS: Cyber-Physical Security and Impact Analysis of DERMS Against MITM Attacks

12:30 pm Lunch (*Beggs Ballroom*)

1:30 pm Panel Session on Infrastructure Resilience – Academia Prospective (*Beggs Ballroom*)

2:30 pm Break



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2:45 pm Technical Session 5

T5A: Motors and Switchgears (*Lucas*)

- 1571095203 Modelling and Electrothermal Simulation of Temperature Rise in a SF6-Free MV Circuit-Breaker
- 1571098054 Navigating the Regulatory Landscape: Roadmap for Successful Phaseout of SF6
- 1571098236 An Optimal IDA-PBC-Based Adaptive Speed Control Design for a DC Motor Using a Buck Converter
- 1571102447 Adaptive Speed Control for DC Motor Using Boost Converter: IDA-PBC Approach
- 1571097650 NS3-Based Communication Network Modeling for Multi-Microgrid Systems: Design and Evaluation

T5B: Power System Analysis (*Pike*)

- 1571097874 Parameter Estimation of Unreported PVs Using Distribution System State Estimation Algorithm
- 1571088353 Real-Time Inertia Estimation and Validation Using PMU Data and the Swing Equation in Power Systems
- 1571106141 Guidelines for Economic and Environmental Selection of Overhead Transmission Conductors
- 1571109136 Quantum-Assisted Joint Generation-Transmission Expansion Planning for Modern Power Systems
- 1571109370 Mitigation of Over-Generation from Variable Renewable Energy Sources Using Security-Constrained Optimal Power Flow with Stochastic Scenarios

4:00 pm break

5:00 pm Infrastructure Resilience Summit (*Santa Fe*)

6:00 pm Meet and great (*RSC 3rd Floor*)

6:30 pm Dinner and 3 – 4 Lightning talks (*Beggs Ballroom*)

Friday March 28

7:30 am – 11:00 am Registration / information desk (*Groover Lounge*)

8:00 am Breakfast (*Santa Fe*)

8:30 am Keynote Speaker (*Santa Fe*)

9:30 am Break

9:45 am Technical Session 6

T6A: Artificial Intelligence and Control (*Lucas*)

- 1571097338 Optimized Smart Home Energy Management Systems Based on Hybrid Method
- 1571106675 Autonomous Greenhouse Integrated System: Affordable Sustainable Automated Farming Framework for Urban Development
- 1571106677 Deep Learning for Underwater Condition Monitoring of Offshore Energy Installations
- 1571095724 Toward the Impact of Video Luminance on the Energy Consumption of OLED TVs and Viewer Perception
- 1571098215 Improved Subsynchronous Frequency Oscillations Detection in Wind Farms Using AI-Based Fourier Transformation and Advanced Metrics

T6B: Inverter Based Resources (*Pike*)

- 1571096274 Strategic Switch Placement and Renewable Wind Integration Through Network Reconfiguration with the Modified Cheetah Optimizer
- 1571098016 Protecting Inverter-Based Resources: Transformer Configuration Impacts and Incremental Focused Directional Protection Enhancements
- 1571106376 Impact of Inverter-Based Resources Generation Integration on Protection of Microgrid System
- 1571104713 Low Inertia Challenges and Mitigation Strategies



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T5C: Electric Vehicles (*Olive*)

- 1571074817 Coordinated Deliverable Energy Flexibility from EV Aggregators in Distribution Networks
- 1571098210 Probabilistic Analysis of Power System Performance Under High PV and EV Penetration
- 1571098230 PV-Assisted off-Board Electric Vehicle Charger for Low-Inertia Power System Stability: Virtual DC and AC Inertia Concepts
- 1571098278 Electric Vehicle Charging System Controller Analysis and Synthesis
- 1571106403 Modeling Electric Vehicle Charging Load on Power Grid Considering Travel Behavior

11:15 am Break

11:30 am Lunch (boxed lunch) (*Santa Fe*)

12:00 pm Conference closing and awards (*Santa Fe*)



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